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The Information Seeking Behavior of Bogor Agricultural University Students Based on Their Generation and Level of Education

Janti Gristinawati Sujana*
Pudji Muljono**
Djuara P. Lubis***
Sulistyo-Basuki****

Abstract

The emergence of digital natives and digital immigrant generation is due to the rapid development of information and communication technology. For the generation of digital natives who have grown up with computers and the internet and other ICT equipment, they are naturally proficient with new digital technologies and spaces. While older people will always be a step behind. The digital technologies have created digital natives a radically different approach to learning. Some people think that the internet is a wonderful tool and it can be a reliable source of all information. However, some findings suggested that the assumption is incorrect. The objective of this research is to find out the differences of the information seeking behavior of Bogor Agricultural University's students based on the generation and education level. The results of this study indicated that the different levels of education is the dominant cause for the differences in information seeking behavior of Bogor Agricultural University students, compared with the characteristics associated with digital natives and digital immigrants.

Keywords:

Information seeking behavior;
Digital natives;
Digital immigrant;
Level of education;
Information literacy.

Author correspondence:

Janti Gristinawati Sujana,
Doctoral Candidates in Department of Agriculturaland Rural Development Communication
Bogor Agricultural University, Kampus IPB Darmaga, Bogor, Jawa Barat-Indonesia

*Doctoral Candidates in Department of Agricultural and Rural Development Communication, Bogor Agricultural University, Bogor-Indonesia
**Professor of Communication Science and Community Development at Bogor Agricultural University,Bogor-Indonesia
***Lecturer of Communication Science and Community Development at Bogor Agricultural University, Bogor-Indonesia
****Professor of Library Scienceat University of Indonesia, Depok-Indonesia

1. Introduction

Information tide has swept over the world since the 1990' s. Consequently, the information and communication technology (hereinafter abbreviated as ICT) has been confronted with unprecedented opportunities and challenges. As ICT continues to drastically forge into new cyberspace capabilities, it dramatically effects how our world communicates and shares information on both small and large scales. The impact of new technology, especially in the developed world, is apparent all around us in the way we communicate, run business and understand the world. People who do not have access to information technology and communication are going to be left behind for the short time. Especially with the internet, the exchange of information happens very quickly. One event happened in some part of the world, will be spread out over the world immediately through internet connection. Any information seems to be on the internet, people who do not have access to the internet will be outdated. That because today's generation of young people have been immersed in a world infused with networked and digital technologies, they behave differently to previous generations.

Technology has become a huge part in society and day-to-day life. When societies know more about the development in a technology, they become able to take advantage of it. The presence of information and communication technology in human life has led to the grouping in society. Young people have grown up with computers and the internet, and are naturally proficient with new digital technologies and spaces, while older people will always be a step behind/apart in their dealings with the digital. They are called the generation of digital natives, millennials, Y and so on. Survey conducted by Wang et al. (2012) to 9,532 adolescent respondents in China, 96.6% of the adolescents have used the internet. It was also revealed that 65.1% of the teenagers spent at least 3 hours per week online. Zimerman's (2012) research results at a university in the United States revealed that students from the digital natives group have the behavior of tracking different information. They prefer to use search engines like Google, Yahoo and Bing.

Komissarov and Murray research (2016) in a university in the United States shows several different facts. The results revealed that nearly 40% of students did start the search process with Google.com, often using Wikipedia, and assigned very high value to full-text availability, compared to current, peer reviewed, or reputable sources or authors. However, the results of research also indicate the high utilization of various databases subscribed by the library. Nearly 50% of students begin searches on catalogs and library websites, or subscribed databases. Although wikipedia and blogs are popular, but students use scientific articles more often than those types of sources and peer reviewed articles are considered qualified. Also found that students often visit the library physically. The encouragement of instructors and librarian visits to classes affects the utilization of library electronic databases. The encouragement of instructors makes the use of scientific articles and books increasing. The librarian also positively influences the choice of students on peer reviewed sources. Komissarov and Murray concluded that the behavior of student on their seeking information can be influenced positively by instructors and librarians.

The Association of Indonesian Internet Service Providers reported that the total number of internet users in 2016 in Indonesia was 132.7 million, 10.3 million (7.8%) out of which are students (APJII, 2016). All information easily and quickly can be obtained on the internet, the question of whether free internet information really can compete as an alternative to traditional library reference services. However, referring to the results ofKomissarov and Murray's research, the statement that students no longer need libraries is not true. Libraries are a bridge between the information-rich and the information-poor, and needed to continue to provide a highly skilled service that is able to meet the needs of the general public. While ICT has brought tangible positive changes in Indonesia, it is not always an appropriate solution for improving educational access. In order to face this changing world, libraries have to know the information seeking behavior of the users. To find out how the information seeking behavior of Bogor Agricultural University students, then this research needs to be done. The objectives of this research are to identify the information seeking behavior of Bogor Agricultural University's students, to find the differences in the information seeking behavior among Bogor Agricultural University's digital native and digital immigrantstudents, and to find out the differences in the information seeking behavior among Bogor Agricultural University's students of different levels of education.

1.1. **Information needs and seeking behavior**

The main purpose of this research is the information seeking behavior of students. Discussing on the information needs and seeking behavior, Case (2015) defined as follow: "Information seeking is a concious effort to acquire information in response to a need or gap in your knowledge". While Ford (2015) stated as follow: "Information seeking is a broader concept, embracing strategies a person devises in order to find information, which may include – but is not limited to – searching. It may include the selection and use of a variety of search tools, and the use of other strategies such as browsing and monitoring".

In 1971 when presenting his dissertation Wilson had introduced an information behavior model as presented in Figure 1. The model explains that information seeking behavior arises because the information user feels

they need information. In order to meet that need the user asks both the formal or informal sources or information services. The results can be successful or fail, the successful users will use the information either for themselves or for others. If it fails, then they must repeat the information search from the beginning. The model also shows that information seeking behavior may involve others through information exchange.
Furthermore Wilson developed another model "information need and seeking" (Figure 2). The model is based on two rationales, first of all that information needs is often understood as an individual or group's desire to locate and obtain information to satisfy a conscious need, but a secondary need arising from a more basic need. Basic needs according to psychology are physiological, cognitive or affective. Secondly, informationseeking behavior is the act of actively seeking information in order to answer a specific query, the seeker may face many obstacles. Furthermore, Wilson said that the personal context, social role, and environment that give rise to information seeking behavior.Information need is a term closely related to the concept of information seeking behavior. A user recognizing an information need, articulates it into a question, or, request which is conveyed through formal or/and informal channels of communication and information systems, in order to receive a response (verbal, written, visual) which will satisfy that need. The person's information needs may be for himself, or a request because of his job or life, or the environment (political, economic, technological, etc.) where he lives or works. The barriers that hinder information tracing appear outside of those contexts.

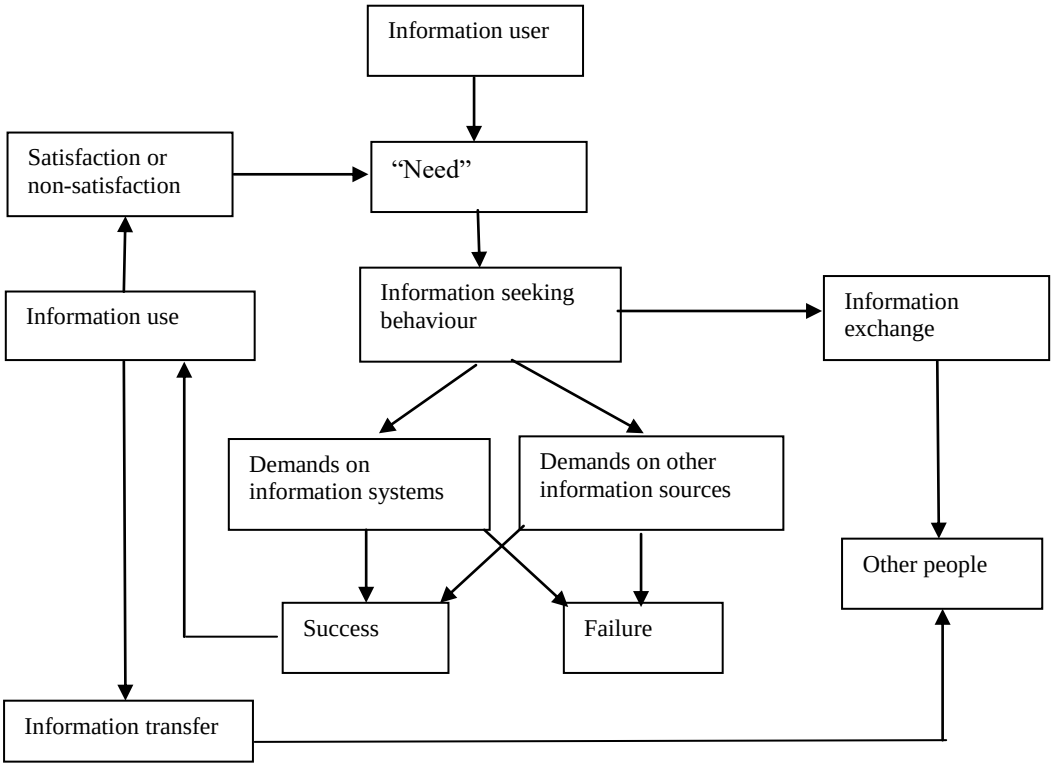

Figure 1. Model InformationNeeds and SeekingBehaviorby Wilson
Source: Wilson (1999)

Another important concept of information seeking behavior is the "information search process" model of Kuhlthau (Figure 3). As defined by Ford, the searching process is one of the major components of information retrieval.

1.2. Digital Natives and Digital Immigrants

The influence of information technology and strong communication on people's lives, causing the existence of group of digital natives and digital immigrant in society. Therefore, the subject of this research is distinguished by digital natives and digital immigrant students. According to Zimerman (2012), "digital natives ... is just one of many names being used to describe the generation of people who have had access to computers and digital technology since they were born (since about 1980)". They use these tools as extensions of their bodies and minds, fluidly incorporating them into their daily routines. They have learned the language of technology as they communicate instantly with their peers. These students, like all natives, adapt quickly to changes in their environment and look for new ways to incorporate the latest technology into their fast-paced lives. On the other hand there are people from earlier generations, who are still experiencing

difficulties with the use of these various devices, referred to as digital immigrants. Who is the digital immigrant? According to Prensky (2001), "Those of us who were not born into the digital world but have, at some later point in our lives, become fascinated by and adopted many or most aspects of the new technology are, and always will be compared to them, Digital Immigrants".
According to Tapscott (2009) there are 8 (eight) millennial or digital natives characters, among others: they have declared themselves microsegments of one — free agents; they like to customized and personalized something according to their desire; the internet generation wants entertainment and play activities to remain in their work, education, and social life; they are generations that rely on collaboration and relationships; the generation of the internet requires speed - not just in video games; and they are innovators. Taylor (2012) conducted research related young people who he called as millennials in searching for information. They were given the task of seeking information in answering questions, using the internet. This research concluded that millennials used different resources than their predecessors in collecting information. Information seeking through librarians as mediators has replaced the abundance of fragmented and sometimes dubious information sources. From the results of this research, millennials indicated that no verification of internet resources is important, not critical of information obtained from the internet.

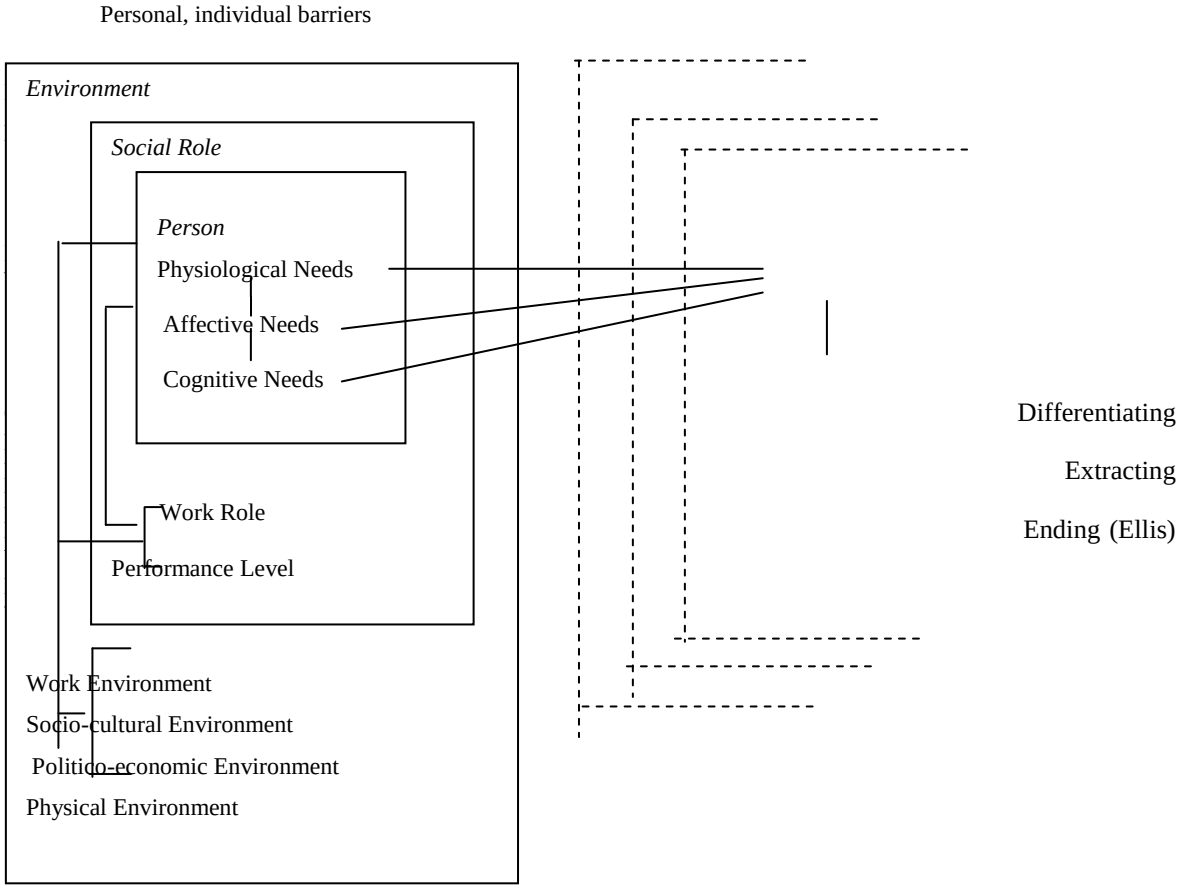

Figure 2. Model "InformationNeed and Seeking" from Wilson
Source: Wilson (1999)

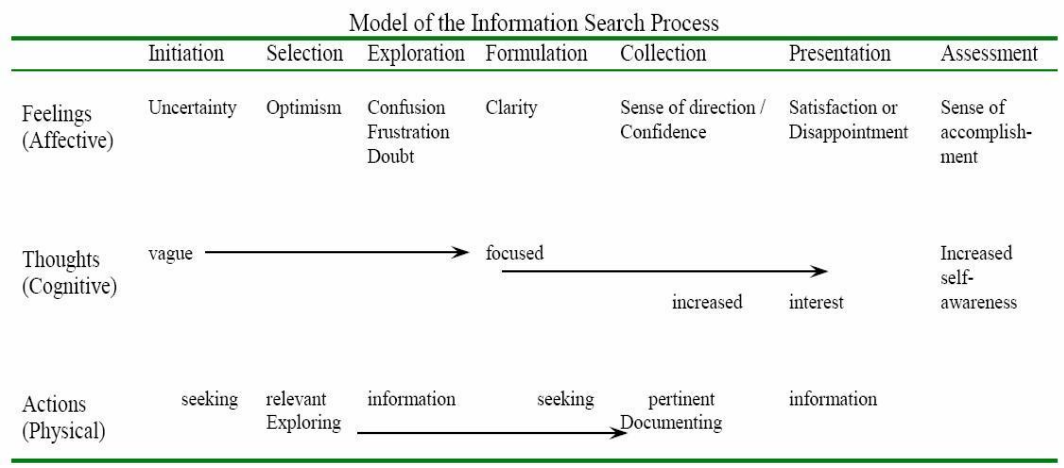

Figure 3. Model "InformationSearchProcess" from Kuhlthau
Source: Kuhlthau (c2016)

Singh and Satija (2007) conducted a survey to scientists of 6 agricultural institutions in India. These scientists include lecturers and researchers from various levels, such as professors, senior scientists and others. The results of this survey indicated that agricultural scientists rely heavily on library/institutional information centers to meet information needs. Library/information center is the most preferred source by various groups of agricultural scientists. To access information scientists are very dependent on library collections, followed by individual collections, collection of supervisors and colleagues.

2. Research Method

This present research is a descriptive research, using survey for data collection. Descriptive and inferential statisticswere utilized to analyze the data. This research was done in the Bogor Agricultural University, located in the city of Bogor, about 55 km. from Jakarta, the capital city of Indonesia. The population of the research was students of Bogor Agricultural University, which at the time of the data collection the total number has reached 28,892 students. The number of samples was determined using the "Table for determining sample size from a given population" of Krejcie*et al.* (1970 in Connaway and Powell, 2010). With a 0.05 accuracy level, the sample size based on that table is 379.

The sampling method used was proportional stratified random sampling, proportional to the number of population of each group. Table 1 describes the number of population by generation and level of education, as well as the number of samples for each group of respondents. Grouping by generation is based on student age. Referring to the Indonesian Internet Service Providers Association implemented internet user surveys in Indonesia from late 2014 to early 2015 (APJII 2015) using the limitations of digital native generation for individuals aged 13-25. Based on these limitations, the student groups aged up to 25 years will be included in the digital natives generation, and students over 25 years old are included in the digital immigrant generation group. For random sampling using random number tables.

Table 1. Sampling Structure

No.	Population (students)			Total number of samples (students)	
	Group	*Digital natives* (DN)	*Digital immigrant* (DI)	DN	DI
1	*S0*	6,243	0	82	0
2	*S1*	17,328	0	227	0
3	*S2*	1,772	2,307	23	30
4	*S3*	75	1,167	1	16
	Total	25,418	3,474	333	46

Notes: *S0*=vocational students*; S1*=undergraduate students*; S2*=master degree students*; S3*=doctoral degree students

Most of the the questionnaires were distributed online, in addition printed questionnaires were also administered other students as respondents. Prior to the distribution pre-test for questionnaires was carried out by distributing to 30 students of Bogor Agricultural University who were selected randomly. This results of the pre-test were analyzed its validity using *product moment* correlation formula and its reliabilities using Cronbach 'Alpha. The total number of filled out questionnaires were 389. Data obtained from questionnaires were analyzed using t-test, and Analysis of Variance.

Xvariable in this present research covers:

a. Individual characteristics, including cognitive potential, affective potential, masteryof ICT, age, and education level;
b. The ability to use searching tools, including intranet and online catalogs, search engines and commercial databases;
c. The environment, including the internet connection, the availability of information, the role of the library, the role of the university figures, and the role of friends;
d. Information literacy, including the ability to express the information needs, and searching the information, the ability to evaluatesources of information, the ability to utilize information to achieve goals, and the ability to understand ethical and legality issues for access and use information.

Yvariable in this present research covers:

a. Information seeking behavior related to print resources and digital information; and
b. Accurate, timely and easiness in obtaining information.

The hypothesis of the research are:

1. There aredifferenciesin information seeking behaviorbetweendigital nativesand digital immigrant students; and
2. There aredifferencies in information seeking behavior of studentsfrom differenteducation level.

3. Results and Analysis

3.1. InformationSeekingBehaviorof Student by Generation

The independent t-test was utilized to know the difference of information seeking behavior between students of digital natives and digital immigrant. The results are presented in Table 2.

Table 2. The Difference in Information Seeking Behavior with Reference to Generation

Variable	Mean (%)		Std. Deviation		P-value
	DN	DI	DN	DI	
X1 Individual characteristics					
X1.1 Cognitive potential	69.51	70.47	12.28	11.12	0.585
X1.2 Affective potential	65.67	63.80	7.28	7.01	0.077*
X1.3 Mastery of ICT	69.40	62.61	12.69	15.79	0.004***
X2 Ability to use search tools					
X2.1 Intranet catalog	61.32	64.73	17.76	18.84	0.192
X2.3 Search engine	82.16	78.91	14.54	16.52	0.133
X2.2 Online catalog	64.91	66.18	18.14	17.16	0.628
X2.4 Commercial databases	58.86	69.45	20.09	19.57	0.000***
X3 Environment					
X3.1 Internet connection	59.82	58.36	16.96	18.03	0.559
X3.2 Information availability	60.54	61.42	14.69	16.35	0.686
X3.3 The role of the library	72.93	72.00	19.74	22.31	0.750
X3.4 The role of the university figures	78.26	77.82	18.49	19.88	0.870
X3.5 The role of friends	79.34	75.64	15.91	19.51	0.186
X4 Information literacy					

Variable	Mean (%)		Std. Deviation		P-value
	DN	DI	DN	DI	
X4.1 Ability to express information needs	71.86	72.73	12.86	14.46	0.676
X4.2 Ability to search information	60.40	64.06	12.30	15.41	0.098*
X4.3 Ability to evaluate information and its sources	65.69	68.36	16.09	16.30	0.255
X4.4 Ability to utilize information to achieve goals	67.56	69.50	12.89	14.28	0.309
X4.5 Ability to understand ethical issues and legality of accessing and using information	66.75	70.42	16.03	16.27	0.117
Y1 Information seeking behavior					
Y1.1 Printed information	53.61	54.91	12.76	15.10	0.549
Y1.2 Digital information	60.92	63.79	15.53	15.20	0.202
Y2 Success in obtaining information					
Y2.1 Accuracy	66.93	68.44	13.28	12.39	0.433
Y2.2 Speed	62.37	64.91	12.74	12.72	0.171
Y2.3 Convenience	63.54	65.16	12.24	12.68	0.365

***) significantly different on the level of 1%; **) significantly different on the level of 5%; *) significantly different on the level of 10%; DN=Digital Natives students; DI=Digital Immigrants students

Based on the results of the independent t-test as presented in Table 2, it showed some very interesting facts. For variable in the individual characteristics, the ICT mastery between digital natives and digital immigrant students was significantly different on the level of 1%. The average ICT mastery of digital natives was higher than that of digital immigrant students. Thus it was evident that digital natives are very clever in utilizing ICT. Then the affective potential between digital natives is significantly different with digital immigrant students, but it was only on the level of 10%. Digital immigrant students are more mature, their feelings, and attitudes, as well as their emotions consistent and relatively stable.

In the ability of using search tool variable, there was 1% significant difference in the ability to use commercial database between digital native and digital immigrant students. The ability of digital immigrant students was higher than for digital native students. Digital immigrant students are graduate students. Lecturers at the postgraduate level demand their students to read journals more than for the undergraduate and vocational students. So it is natural that the ability of digital immigrant students is higher in the use of commercial databases. In digital natives students there are also graduate students, but the number is much more students *S0* and *S1*.

In the information literacy variables, there was one variable that was significantly different between the digital natives and the digital immigrant students, namely the variable of information searching ability, it was at 10% significance level. Digital immigrant students already got experiences in retrieving information while they were in the undergraduate study programs, and for those who already got jobs they may increase their experiences in retrieving information for their work needs. In addition to these variables, there is no significant difference between digital natives and digital immigrant students.

3.2 Information Seeking Behavior of Student by EducationLevel

Analysis of Variance was utilized to find out the difference of information seeking behavior of student based on their educational level, and the result is presented in Table 3.

Table 3. The Difference of InformationSeeking Behavior of Student by EducationLevel

Variables	Education level				p-value
	S0	*S1*	*S2*	*S3*	
X1 Individual characteristics					
X1.1 Cognitive potential	69,2 [a]	69,45 [a]	71,29 [a]	67,00 [a]	0,521
X1.2 Affective potential	66,48 [a]	65,19 [a]	65,74 [a]	61,33 [b]	0,067*
X1.3 Mastery of ICT	70,2 [a]	68,26 [a]	68,89 [a]	60,08 [b]	0,050*
X2 Ability to use search tools					
X2.1 Intranet catalog	63,25 [ab]	59,82 [b]	66,85 [a]	58,75 [b]	0,023**
X2.3 Search engine	86,5 [a]	80,27 [b]	81,1 [b]	80 [b]	0,013**

Variables	Education level				p-value
	S0	*S1*	*S2*	*S3*	
X2.2 Catalog online	65,75 [a]	63,55 [a]	69,04 [a]	65 [a]	0,154
X2.4 Commercial databases	50,25 [b]	59,73 [b]	70,96 [a]	71,25 [a]	0,000***
X3 Environment					
X3.1 Internet connection	54,5 [b]	61,5 [a]	60,41 [ab]	55,63 [ab]	0,012**
X3.2 Availability of information	56,23 [b]	61,42 [ab]	64,19 [a]	56,37 [b]	0,004***
X3.3 The role of the library	75,5 [a]	71,36 [a]	75,07 [a]	68,75 [a]	0,246
X3.4 The role of university figures	83,5 [a]	76,45 [ab]	79,45 [a]	70 [b]	0,008***
X3.5 The role of friends	82,5 [a]	78,09 [a]	79,18 [a]	68,75 [b]	0,015**
X4 Information literacy					
X4.1 Ability to express the information needs	74,62 [a]	70,5 [b]	73,15 [ab]	73,75 [ab]	0,072*
X4.2 Ability to search information	59,56 [b]	59,78 [b]	64,75 [ab]	65,83 [a]	0,009***
X4.3 The ability to evaluate information and resources	66,5 [a]	64,82 [a]	68,9 [a]	68,13 [a]	0,273
X4.4 Ability to use information to achieve goals	70,16 [a]	66,18 [b]	70,27 [a]	67,81 [ab]	0,035**
X4.5 Ability to understand ethical issues and legality of accessing and using information	65,58 [a]	66,52 [a]	71,23 [a]	67,92 [a]	0,121
Y1 Information seeking behavior					
Y1.1 Printed resources	56,21 [a]	51,94 [ab]	57,67 [a]	49,58 [b]	0,002***
Y1.2 Digital information	58,5 [b]	60,7 [ab]	66,38 [a]	60,89 [ab]	0,012**
Y2 Success in obtaining information					
Y2.1 Accuracy	63,5 [b]	67,55 [ab]	69,75 [a]	67,88 [ab]	0,025**
Y2.2 Speed	60,22 [b]	62,35 [ab]	66,74 [a]	62 [ab]	0,014**
Y2.3 Convenience	61,83 [b]	63,47 [ab]	67,1 [a]	62,38 [b]	0,053*

Numbers with different characters on the same line show significant differences; ***) significantly different on the level of 1%; **)significantly different on the level of 5%; *)significantly different on the level of 10%; *S0*=vocational students; *S1*=undergraduate students; *S2*=master degree students; *S3*=doctoral degree students

In the variables of individual characteristics there are significant differences at the level of 10% for affective potential variable and mastery of information and communication technology (ICT). The affective potential variable of higher score occurred for vocational students (*S0*), undergraduate students (*S1*) and master degree students (*S2*), and the lowest occur in doctoral degree students (*S3*). For affective potential of undergraduate and master degree students do not differ very much, now many master degree students are still very young, after graduating their undergraduate program they pursue directly to their master degree program. So the higher value of affective potential is for younger students. Quite a lot of master degree program students are the generation of digital natives. The highest variable for mastery of ICT occurred on *S0*, then followed by *S2*and*S1*students**,** and finally the lowestwas*S3*. The previous researches revealed that the young generation is high level in ICT mastery. Doctoral degree program students are dominant generation of digital immigrant.
For variable on ability using the search tools was significantly different at the 5% level for intranet catalog and search engine. In the ability to use intranet catalog the highest level occurred for *S2* students, it did not differ significantly with the *S0*students, but the difference was significant to *S1*and *S3*. It was concluded that *S2* and *S0*students are looking for books in libraries using intranet catalogs, whereas undergraduate and *S3* students rarely use catalogs in libraries to search for books. *S3*students often photocopy books recommended by lecturers or obtained from friends. Related to the use of search engines the highest ability was for *S0* students, it is significantly different with both the the graduate and undergraduate students. Actually, the researcher's assumption on level of ability to use search engine was for undergraduate students, but the result of this research showed that the highest rank was for *S0* students. There was a significant difference at level of 1% in variable of ability in using commercial database, between students of *S2* and *S3* with students of *S0* and *S1*. Lecturers' demands on the use of international journals for *S2* and *S3* students are higher, therefore they have to use commercial databases intensively. Fritz Heider (in Morrisan, 2013) pointed out that there are several causes of a person's behavior, such as situational causes (the person is influenced by his environment, in this case is the academic environment at the graduate level) and the obligation (feeling must do something, in this case is the obligatory by lecturers reading many international journals). On the other hand, lecturers demand for the utilization of international journals for vocational and undergraduate students are low, cause the students rarely use commercial databases.

The environmental variables related to information seeking behavior were almost all significantly different, only in the role of library variable did not show significantly difference. Variable on student access to campus internet connection is significantly different at 5% level. The highest level for student to access the campus internet connection occurs in undergraduate students, not significantly different from *S2* and *S3* students, but significantly different with *S0* students. Access *S0* students to campus internet connection was the lowest, because the location of *S0* students' campus is differ with both undergraduate and graduate students. It is probably the lack of campus-level infrastructure and facilities for ICT in the *S0*'s campus. Variable of availability of information associated with the availability of information in the Central Library, significantly different at level of 1%. The highest availability of information was perceived by *S2* students, but it was not perceived significantly difference by undergraduate students, but significantly for *S3* and *S0* students. These findings were in line with the findings of the ability in using the intranet catalog searching tool, the *S2* students' ability to use intranet catalog is the highest, as they use the intranet catalog in the library. Likewise, the variable availability of information for *S2* students was very appropriate, because maybe they were accustomed to search for books to the library. For *S1* students the availability of information is also felt high, meaning they are also library users. For *S3*and *S0* students the availability of information in the Central Library is still lacking. Thus the Library should consider to improve the availability of resources for *S3* and *S0* students. Related to *S0* students, the Central Library does not pay much attention to collection development for *S0* students, because their visits to the Central Library are low. It is understandable because the location of the campus for *S0* student is about 10 km from the main campus, where the Central Library of Bogor Agricultural University located. There is a library for *S0* students in their campus. The variable of the role of university figures differs significantly at the level of 1%. The faculty members play important role and they were ranked the highest by *S0* students, almost similar by *S1* and *S2*students, but very much different by *S3* students. Knowledge of *S0* students were very low in their specific subject, so they are very dependent on their lecturers in searching their sources of information. *S1* students' knowledge are still lack, no wonder they are also dependent on the lecturers recommendation for finding the sources of information. For *S2*students, often they still doubts on the sources of information in their fields, therefore they depend very much on their lecturers. *S3* students were more independent in finding information, they have known more the knowledge in their fields, so the role of lecturers is low. The role of friends differs significantly at the 5% level. The difference was mainly for *S3* whose dependent on the role of friends was lowest. The reasons were as follows: first, *S3* students are usually more independent. Second, mostly *S3* are senior so they usually get more experiences in finding their sources of information.

The variables of information literacy consist of 5 (five) variables, 3 (three) of which differed significantly. For variable of ability to express requirement of information significantly different at level 10%. The most optimistic students who are capable to express their information needs were *S0* students, similar situation were also perceived by both the *S2* and *S3* students. Whereas for the *S1* they were skeptical on their ability to express their information needs. Thus the library is required to provide user training for undergraduate students as how to formulate their information needs in order to obtain appropriate information. Related to variable on the ability to retrieve information, there is a significant difference at the level of 1%. The *S3* students are the most capable students to perform the information searching, not significantly different from *S2* students, but was significantly different with *S1* and *S0* students. This fact supported the assumption that the graduate students are indeed the most capable in the mastery of the subject and already experienced in retrieving the information. Libraries should plan training courses on the retrieval of information for both *S0* and *S1*students. The variables in the ability to evaluate the information and the sources were not significantly different among the students at all levels, all of them were high. Thus the students of all levels knowledgeable the sources of information that deserve to be a reference. Variable ability to utilize information to achieve goals differs significantly at the 5% level. The highest score occurred in *S2*and *S0* students, not significantly different with *S3*students, but significantly different with undergraduate students. Thus there is a need to provide training on the utilization of information resources to produce publications for undergraduate students. The variables of ability to understand ethics and legality issues accessing and using information do not indicate any significant differences in the students of various levels. All high percentage figures mean that all students understand the ethics and legality issues of accessing and using information. In general, the variable of information literacy of undergraduate students need attention. Various information literacy training is required.

Variables in the information seeking behavior related to printed information there was a significant difference at the level of 1%. The highest score was for in *S2* and *S0* students, not significantly different with undergraduate students, but significantly different with *S3*students. That is, the widely used printed information from the library are students *S2***,** *S0* and *S1***.** *S3* students may purchase their own printed information or photocopy books or other necessary literature. The digital information variable differs significantly at the 5% level. The highest score occurred in *S2* students, not significantly different with *S3*and *S1*students, but there were significant differences with the *S0* students. Thus it can be concluded that *S2*

students have the highest value in using printed and digital information from libraries. In *S3*students the use of digital information may be related to international journals that are accessed online, while *S0* students use more Indonesian language sources (especially books) which are not yet available in digital format.
The variables of the success in obtaining information are all significantly different. The variable of accuracy in obtaining information differs significantly at the 5% level. The highest level occurred for *S2* students, it was not significantly different with *S3* and *S1* students, but significantly different with *S0* students. There is a need to pay attention on the acquisition on library materials for *S0* students. The present collection in the *S0* library are more on the theoretical skills, whereas students *S0*are more designed to work with practical skills. The variable of speed inobtaining information differs significantly at 5% level. The highest score of *S2* students, did not differ significantly with *S1* and *S3* students, but significantly different with *S0* students. This is closely related to the lack of appropriate information resources for *S0* students. In the variable of ease in obtaining information significant differences occurred at the level of 10%. The highest score was for the *S2* students, not significantly different from the S1 students, but significantly different with *S3* and *S0* students. Referring to the other variables, for *S2*students perceived that finding information they need were easy, as they were more knowledgeable in utilizing intranet catalogs, and the highest in using printed resources means that *S2* students use the information resources in the library so that the three variables were high. *S0*students do not get ease in obtaining information sources because of lack of suitable information source for them. In *S3*students are not easy to obtain information can be caused by several aspects, the first, the available information are irrelevant with their subjects or their needs. Second, they do not have time to come to the library, and the third, exchange of information among the *S3* students is low, in accordance with the findings that *S3*students do not depend on friends and university figures in obtaining information.

4. Conclusions

The present research revealed that the difference between digital natives and digital immigrants is not a dominant factor on the information seeking behavior of students of Bogor Agricultural University. Only 4 (four) variables have significant differences occurred based on generation category, namely ICT mastery and skills on using commercial database (at 1% level), and affective potential and information searching ability (at 10% level). Similar to the previous studies showed that the digital natives generation is very good at using various ICT tools, compared to the generation of digital immigrants. Considering the higher score on commercial database utilization by digital immigrants students, it may be caused by the influence of the education level of respondents. The lecturers demand graduate students to read many international journals.
Differences in information seeking behavior of Bogor Agricultural University students were due to the differences in education levels occur in many variables. Significant differences at the 1% level occur in the skillof using commercial databases, the availability of information in the Central Library, the role of university figures in assisting information retrieval, the ability to trace information, and the behavior of seeking information related to printed information. Significant differences at the 5% level occur in the skill on using intranet catalogs and search engines, campus internet connection, the role of friends in finding information, the ability to use information to achieve goals, information seeking behavior related to digital information, the success of obtaining information from the aspect of accuracy and speed. Significant differences at the 10% level occurred in the variables of affective potential, ICT mastery, the ability to express the information needs, and the success of obtaining information from the convenience aspect.
The following recommendations can be made according to the data obtained. The availability of information sources for *S0* students should be more specific, more practical work materials are needed than theoretical materials. Currently the library collections are more on theory rather than practice works. For *S3* students most likely the absence of journal resources in certain fields of science is still a problem. The Library should subscribe more subjects of electronic journal, as not all information needed for their research programs and coursework are met. As the role of university figures is important in recommending students the information sources to be read, the library should inform intensively to the faculty members on the availability of new library materials. The library should provide some information literacy trainings, such as how to formulate information needs, how to search information efficiently and effectively, and how to use information to achieve goals.

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