



# Information-Seeking Behavior of Andrews University's Distance Learners

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**abstract:** The main purposes of this study are to determine the extent to which the James White Library at Andrews University serves the information needs of graduate students enrolled in distance learning programs and to examine their information-seeking behavior to ascertain how they access material for their online courses. A 14-part questionnaire was developed to collect information for this quantitative, nonexperimental design research. The data showed that although some off-campus students were satisfied with the services and resources delivered, the library might realign its offerings to better meet students' academic needs and devise promotional strategies to increase their awareness of the services it provides.

## Introduction

Over the last decade, Andrews University in Berrien Springs, Michigan, has steadily increased its participation in distance education, offering a range of online programs and over 200 courses worldwide. Unequivocally, the James White Library is a key partner in Andrews University's quest to offer quality education to students studying from a distance. This study seeks to extend the limited body of knowledge regarding the academic library's impact in this area by undertaking an investigation of the information-seeking behavior of a representative sample of widely dispersed learners registered at Andrews University's School of Distance Education during the 2018–2019 academic year.

Exploring the concept of information-seeking behavior, Lokman Meho and Stephanie Haas perceive it as a comprehensive term, which encompasses the various ways



individuals articulate their information needs and select, use, and evaluate information.<sup>1</sup> Similarly, Kelly Kingrey considers information seeking as involving the "search, retrieval, recognition and application of meaningful content."<sup>2</sup>

The main purposes of this study are to determine the extent to which Andrews University's James White Library serves the information needs of graduate students enrolled in distance learning programs and to examine their information-seeking behaviors to ascertain how these students access material for their online courses. Thus, the specific objectives of the study are:

- To identify the information needs of distance learners.
- To analyze information-seeking behavior among Andrews University's distance education students.
- To determine which are the main information resources and services the distance learners use and their satisfaction level.
- To establish how and to what extent the information needs of Andrews University's distance learners are met.
- To determine the extent to which distance learners are aware of the library services offered to students off-site.

It is expected that this study will provide insight and information for improving library services to distance and online students by identifying barriers and issues they face in accessing library resources and services. The authors hope that their conclusions will help develop recommendations to effectively support and meet the information needs of Andrews University's online learners in the digital age, thus promoting improvements and quality assurance at the James White Library.

The findings, although not generalizable, should be useful to academic librarians who are involved in the education and provision of information to distance learning students. The data collected from studies reporting information-seeking behaviors of distance learners can provide useful insights when implementing changes and envisioning improvements and services to better align with students' needs.

### Background/Rationale/Literature Review

The evolution of education has inevitably developed toward an open and distance education model and initiatives across the globe. The growth of distance education in the last decade has been unquestionable, perhaps in part because universities can save money by reducing the number of residential and full-time students. That the formal system of education inherits limitations for equity of access, cost-effectiveness, and expansion might also be, at least partially, responsible for this increasing interest and growth.

Distance learning is often described as the formalized education received while the student is on a location outside the university campus. *Distance learning* is defined by Stella Oladeji as an "educational program designed for those who cannot attend existing education institutions to acquire learning without necessarily becoming regular students of such institutions."<sup>3</sup>

Chutima Sacchanand reports that distance students are generally adult learners, mature, and employed, and they have family responsibilities. They have higher

motivation and are willing to take responsibility for their own education. Their goals are often more clear-cut. Sacchanand says, "Distance students are self-directed, study on [an] independent basis. They learn in a variety of ways and take control over their learning."<sup>4</sup> They often experience a feeling of isolation and remoteness from other students.

It is imperative that distance learners studying online receive the same quality of education as their counterparts on campus. Apart from the way resources are accessed, requested, and delivered, the same types of materials are required, the

same questions are asked, and the same quality of service is expected, including the same level of library services that are provided to their peers on campus.

Jon Ritterbush reports "meager interest in or use of instructional tools such as online tutorials and research guides" and that distance students underutilize library resources and services. The students look to their instructors more than to other sources, such as the library's website. Studies indicate that many faculty members believe distance students already know how to use the library, which could explain why some faculty do not refer students to library resources or do not incorporate library instruction into their courses. Ritterbush concludes that "ongoing research is necessary to better understand the resource needs of distance students and instructors."<sup>5</sup>

Several literature review papers during this last decade depicted the concern of library and information science professionals and researchers with identifying the information needs of distance learners and ensuring the provision of quality services.<sup>6</sup> Thus, the role of libraries in supporting distance learners is paramount and needs examining.

Academic librarians around the globe have surveyed online students as a tool to better understand their information-seeking behaviors; their use of library services, websites, and resources; and their library needs, expectations, satisfaction, and challenges. These studies were conducted to identify distance learners' general perceptions and usage of the services provided by their academic libraries.<sup>7</sup>

Areas commonly studied and reported in the specialized literature are students' desired means of obtaining help; their opinions about the most important services;<sup>8</sup> their awareness of existing services;<sup>9</sup> their patterns and practices in undertaking assignments; their strategies for finding sources of information and asking for help; and their levels of connection to the university library.<sup>10</sup> Other commonly studied areas are how successful and confident students feel in their ability to find resources<sup>11</sup> and identification of students' preferences for communicating research needs.<sup>12</sup>

**... distance students are generally adult learners, mature, and employed, and they have family responsibilities. They have higher motivation and are willing to take responsibility for their own education.**

**... many faculty members believe distance students already know how to use the library, which could explain why some faculty do not refer students to library resources or do not incorporate library instruction into their courses.**



A plethora of objectives are sought when data are collected from distance learners. The most common goals are the identification of information services and sources students at a distance use to accomplish their academic endeavors and obligations, followed by how the channels they use help them find needed information.

On occasion, researchers propose more specific and even unique purposes for investigating the relationship of distance learners with the library. The purpose of a study conducted by Christopher Owusu-Ansah, Antonio Rodrigues, and Thomas Van Der Walt was "to explore the extent to which individual factors such as academic tasks, preference for print sources and information skills influence distance learners' use of digital libraries" at the University of Education, Winneba in Ghana.<sup>13</sup> The results of a LibQUAL+ Survey were used by Janice Lewis to determine the quality and adequacy of library services for distance learning students at East Carolina University in Greenville, North Carolina, for an accreditation review.<sup>14</sup> Cynthia Lewis and Jacline Contrino identified gaps between users' and designers' mental models of digital libraries, which often result in adverse user experiences.<sup>15</sup> Stephanie Buck investigated the study habits of distance education students at Oregon State University in Corvallis to "gain a better understanding of how distance learners engage with their study environment" using ethnographic methodology (photo elucidation).<sup>16</sup>

The purpose of this investigation is to better understand the information-seeking behavior of Andrews University's distance students. The terms *distance students*, *off-campus students*, and *distance education students* will be used interchangeably to mean students who take classes online.

## Methods

### Research Design

A 14-part questionnaire was developed to collect the information needed for this quantitative, nonexperimental design research. Items were selected based on a literature review of other relevant studies and were customized to fit the actual function and setting of the library as it provides resources and services to off-campus students. The data were compiled to present a composite picture of students' information-seeking behavior, which includes their awareness, needs, preferences, perception of usefulness, and satisfaction with the services provided.

The questionnaire was sent by e-mail through the university's survey system Class Climate to the whole population ( $N = 1,061$ ) of off-campus students who attended online classes since fall of 2018 and were registered for classes in the spring of 2019. The students' e-mail addresses were provided by the Office of Institutional Effectiveness. The e-mail sent to the students included an invitation to participate in the research, a consent disclosure, and instructions on how to fill out the questionnaire.

The questionnaire was developed using modified questions previously developed and used in earlier studies.<sup>17</sup> The coherence, suitability, and appropriateness of the questions and survey structure were tested and modified.

Of the 172 surveys that were returned, 142 were utilized. Data analysis included descriptive statistics to summarize the results.



## Results

From a sample population of 1,061 graduate distance learners spread across the globe, a total of 172 responded, yielding a response rate of 16 percent. Class Climate was the tool used to develop the questionnaire and summarize the results. The figures were obtained using SPSS, and the tables were developed using Word. The order in which the tables and figures are presented in this article follows the order in which the questions were presented in the survey. Table 1 outlines the distribution of the academic programs and distance learners who participated.

**Table 1.**  
Participants in the study, by academic program

Program	N	Percentage
Theological Seminary	63	44.3%
Educational Leadership	29	20.4%
Health Sciences	21	14.7%
Education	9	6.30%
International Development	9	6.30%
Business Administration	6	4.50%
Behavioral Sciences	5	3.50%
<b>Total</b>	<b>142</b>	<b>100%</b>

As Table 1 shows, almost half (44.3 percent) of the participants were graduate students from the Theological Seminary, followed by Educational Leadership students (20.4 percent) and those from the School of Health Sciences (14.7 percent). The large number of participants from the seminary could be expected since it is the biggest graduate program at the university. A large percentage of students who participated in this study are from the United States and enrolled at the Theological Seminary. Although the university teaches more than 200 classes online each semester, the seminary not only teaches online courses but also offers off-site intensive programs in many parts of the world. Once the class is over, students remain enrolled so they can complete their assignments online.

Students from all the programs that offer distance education classes are represented in this study. Andrews University's distance education graduate students live in more than 90 countries around the world. Table 2 depicts the world regions where these students live. Interestingly, the same number of foreign and American students participated in the survey—that is, 71 international students and 71 from the United States.



Table 2.

Number of study participants, by world regions

Region	N	Percentage
North America	71	50.0%
Europe	31	21.8%
Africa	16	11.2%
Latin America	10	7.0%
Asia	5	3.5%
South America	5	3.5%
Middle East	3	2.8%
Pacific	1	0.7%
<b>Total</b>	<b>142</b>	<b>100%</b>

The survey requested participants to indicate the percentage of classes that require the use of library services and resources. Figure 1 displays the results. The majority (60.6 percent) of the classes taken by off-campus students necessitate the use of library services, and very few (9.2 percent) did not require the library at all.

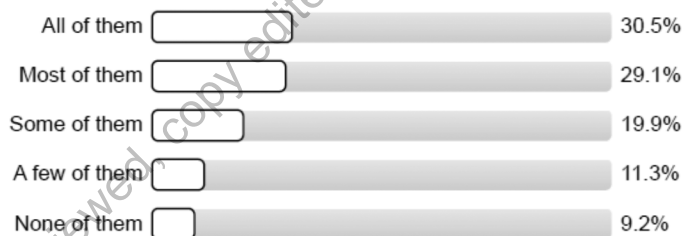


Figure 1. Percentage of distance education classes at Andrews University requiring use of library services and resources.

### Use Frequency of Library Services

The frequency with which respondents used library services, on a five-point Likert-type scale, is shown in Table 3, where 1 = never; 2 = rarely; 3 = sometimes; 4 = often; and 5 = always. The library services are arranged in order of their mean value. Table 3 shows that an average of 1.69 (close to once in a semester) was obtained when students were asked, "How frequently do you use the library services offered to off-campus students?" In general, students "hardly ever" use the services provided to them.

**Table 3.**  
Frequency of use of library services

Library service	Mean frequency	Standard deviation*
Library's online catalog	2.57	1.06
Periodicals A–Z†	2.40	1.11
Off-Campus Services page	2.16	1.18
Database tutorials	1.62	0.86
LibGuides	1.56	0.98
Online brochures	1.43	0.83
Questions to a librarian	1.34	0.61
Ask a Librarian service	1.33	0.59
Interlibrary loan for articles	1.28	0.61
Interlibrary loan for books	1.26	0.58
Average	1.69	0.84

\*The lower the standard deviation, the more tightly the values cluster around the mean.

†Periodicals A to Z is an online listing of periodicals available in electronic or print versions from the library.

As noted from Table 3, the library's online catalog was the service most used by the participants. Following the catalog were Periodicals A–Z, an online listing of periodicals available; the Off-Campus Services page, a page specifically prepared for off-campus students where students have access to information, resources, and services designed to meet their needs; and the database tutorials (M = 2.57, 2.40, 2.16, and 1.62, respectively). The least used services were interlibrary loan for articles and interlibrary loan for books, M = 1.28 and 1.26, respectively. The total mean was 1.69, that is, a frequency of almost once per semester. The participants, in general, stated that the Off-Campus Services page was the resource most used.

Respondents were asked to indicate, from a list provided, why they do not use the library services. Figure 2 portrays the percentage of participants marking each of the reasons listed. The reason most cited

**The reason most cited by the distance education students (29.1 percent) for not using the library is “I have not needed to use these services for my courses,” followed by “I don’t know how I can get these services,” selected by 20 percent.**

by the distance education students (29.1 percent) for not using the library is “I have not needed to use these services for my courses,” followed by “I don’t know how I can get these services,” selected by 20 percent. This is the same percentage that indicated “I don’t know how to use online services.”



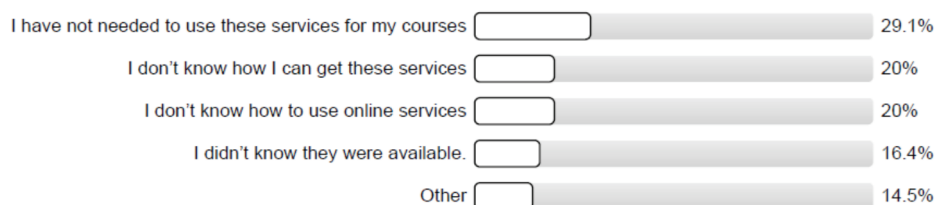


Figure 2. Reasons distance learners do not use the services of the James White Library. Services are the support and assistance that the library provides to its patrons, including interlibrary loan, database tutorials, and consultations with a librarian.

Asked how often they used the Off-Campus Services link, the majority of the respondents (51 percent) answered "never" or "rarely." Only 6 percent of the distance students responded "always."

Library instruction was singled out from the other library services provided to distance education students. The survey asked participants to indicate how they received such instruction. The results are plotted in Figure 3. Over half (55.2 percent) of the respondents never participated in a formal library instruction session, and only 6.2 percent took part in a one-on-one consultation with a librarian.

Figure 2. Reasons distance learners do not use the services of the James White Library. Services are the support and assistance that the library provides to its patrons, including interlibrary loan, database tutorials, and consultations with a librarian.

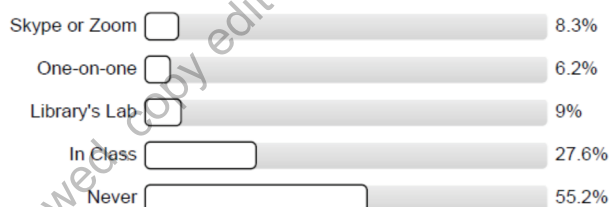


Figure 3. The means by which distance students participate in library instruction sessions.

### Use of Information Resources

The frequency with which the library's website was used is depicted in Figure 4. A five-point Likert-type scale was employed, where 1 = yearly, 2 = once per semester, 3 = once per month, 4 = once per week, and 5 = daily. As Figure 4 demonstrates, 37.1 percent of the respondents used the library's website an average of once a month, 21 percent consulted it once a semester, 21.9 percent used it once per week, and only 2.9 percent went to it daily.



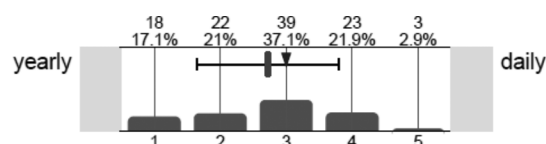


Figure 4. Frequency with which distance students use the James White Library's website.

An attempt was made to establish the types of library resources distance learners used for course-related study. Their preferences were registered using a five-point Likert-type scale where 1 = never; 2 = rarely; 3 = sometimes; 4 = frequently; and 5 = always. As recorded in Table 4, "online journals," followed by "website publications" and "open access materials" were the main resources used by the participants. They indicated that they used those resources "sometimes," scoring means of 3.39, 3.16, and 3.05, respectively.

**Table 4.**  
Mean use of library resources

Library resource	Mean rank	Standard deviation*
Online journals	3.35	1.29
Web publications (Internet)	3.07	1.30
Open access materials	3.00	1.25
Materials through Digital Commons	2.42	1.33
E-books	2.28	1.34
Dissertations	2.23	1.20
Archives	2.16	1.19
Reference books	2.06	1.16
Scanned articles	1.70	1.06
Printed books through interlibrary loan	1.43	0.89
<b>Average</b>	<b>2.40</b>	<b>1.20</b>

\*The lower the standard deviation, the more tightly the values cluster around the mean.

As a follow-up to the previous question, distance learners were asked to indicate the reasons why they do not use the library's resources. Figure 5 depicts their responses. The reasons most cited by the students (22.5 percent) for not using the resources at the library were "I have not needed to use these resources for my courses" and "I don't know how I can get these resources." None of the respondents answered "My teachers or classes do not require the use of library materials."

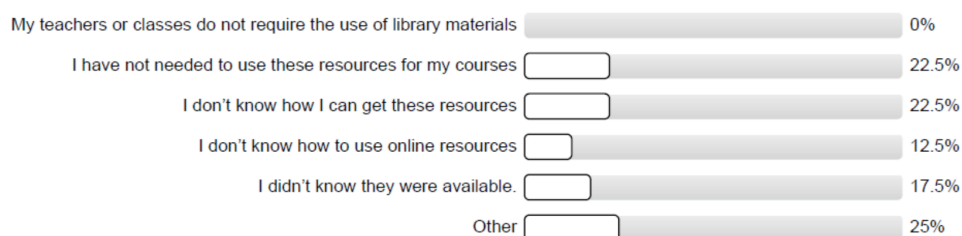


Figure 5. Reasons distance students have not used the resources of the James White Library. Resources are materials offered for research and study, including books, e-books, databases, journals, and newspapers.

**Off-campus students, in general, considered journal articles ( $M = 4.53$ ) as the most important source for their assignments and research, followed by e-books ( $M = 4.25$ ).**

### Importance of Sources

The level of importance students attribute to the sources they use to accomplish assignments and research is depicted in Table 5. Off-campus students, in general,

considered journal articles ( $M = 4.53$ ) as the most important source for their assignments and research, followed by e-books ( $M = 4.25$ ). Lecture notes and handouts were considered the least important ( $M = 3.88$ ).

**Table 5.**

**Importance of resources for assignments and research**

Resource	N	Mean	Standard deviation*
Printed books	136	3.91	1.16
Online books	143	4.25	0.92
Journal articles	139	4.53	0.76
Book reviews	138	3.60	1.23
Lecture notes/handouts	139	3.88	1.14
Internet	136	4.34	0.87
<b>Average –</b>	<b>3.50</b>	<b>1.01</b>	

\*The lower the standard deviation, the more tightly the values cluster around the mean.

# Awareness of the Services Offered by the Library

The overall awareness students have of the services offered to off-campus learners by the James White Library as well as the percentage of students who know about the Off-Campus Services link on the library's home page are presented in Table 6. The majority of the participants (61.5 percent) were aware of the services available to them through the library, while 55.7 percent knew about the off-campus link on the home page.

**Table 6.**  
Participants' awareness of the James White Library's services

Question	Yes	No
Awareness of James White Library's services for off-campus students	61.5%	38.5%
Awareness of link to off-campus services on the library's home page	55.7%	44.3%

To better understand how distance students learned about these services, the survey asked participants how they found out about the assistance the library made available. Figure 6 depicts the different ways these students discovered the services and sources offered. The majority of the students (61.9 percent) learned about the library's website and services through their teachers. The library's website came in second place, with one-third (32.4 percent) of the students citing it. Only 15.2 percent of the students answered that this awareness came from a librarian.

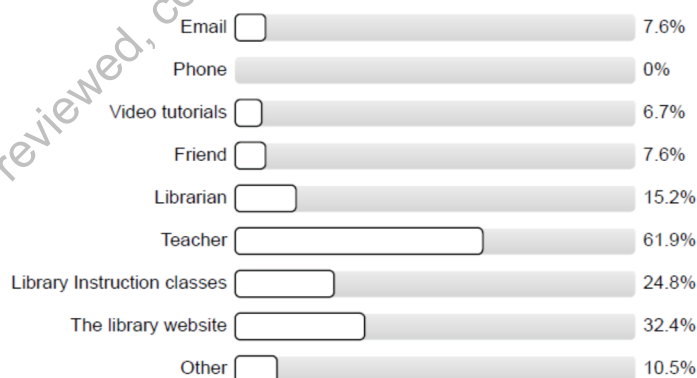


Figure 6. How distance students learn about the website and services of the James White Library.



### Information-Seeking Behavior Patterns

Students use different methods to discover information to complete their assignments. Figure 7 provides the percentage of students who use various ways to obtain such information. The majority of the participants used Google to find information to complete academic requirements (80.7 percent), and "I speak/write to a librarian" was the least used (7.6 percent).



Figure 7. How distance students find information to complete assignments, papers, and research.

The survey asked students the frequency with which they contacted a librarian or staff member for assistance to locate information. The results are presented in Figure 8. They indicate that 40.4 percent of the students seek assistance from a librarian only once per semester, and 1.8 percent ask for help 10 to 14 times per semester. The low frequency of contacting a librarian could be one reason for the low library usage verified in this study.

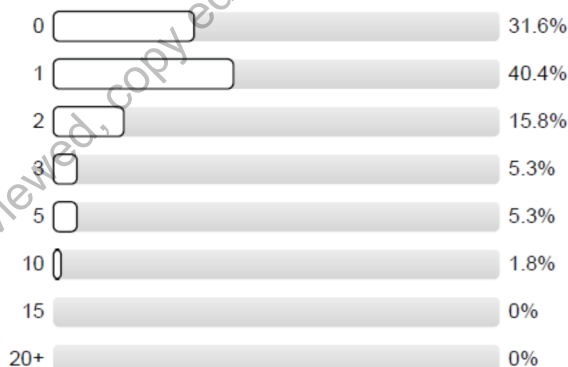


Figure 8. Average number of times in a typical semester that distance students ask a librarian or staff for assistance to locate information.

### Meeting Information Needs

Respondents were asked to specify their preferred information format to accomplish their academic obligations. The results are reported in Figure 9. Electronic resources were

the favorite information type of the distance learners, with 72 percent of the participants choosing them. Close to 20 percent indicated that they preferred print materials, and 8 percent favored the audiovisual format.

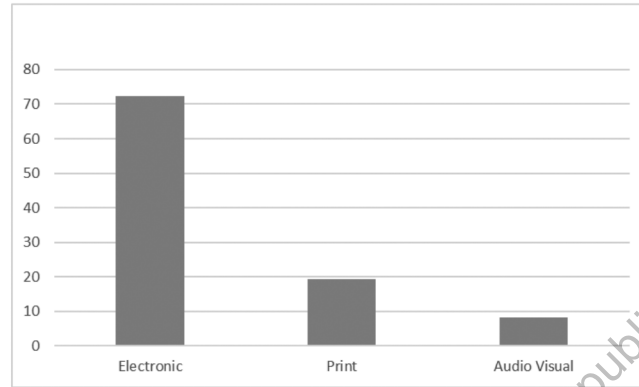


Figure 9. Information formats preferred by distance students.

To better understand how effective the library's off-campus services were, the survey asked students to indicate the usability of the library's Off-Campus Services web page. The options were "incomprehensible," "difficult," "somewhat easy," "quite easy," and "very easy." The results are tabulated in Figure 10. As shown, 36 of the respondents rated the web page as "somewhat easy" to use. Another 36 percent rated it as "quite easy," 15 percent as "very easy," and 13 percent as "difficult" to use.

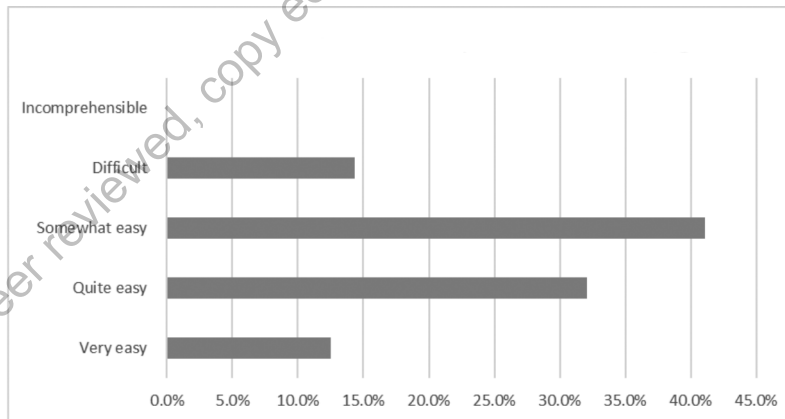


Figure 10. How distance students rate the usability of the library's Off-Campus Services web page.

The survey asked the distance education students whether the Off-Campus Services page met their needs. Figure 11 presents the overall degree to which the web page met students' needs on a five-point Likert-type scale, where 1 = never; 2 = rarely; 3 = sometimes; 4 = often, and 5 = always. The data showed that 77.7 percent of the students indicate that the Off-Campus Services web page met their needs "sometimes" to "always."

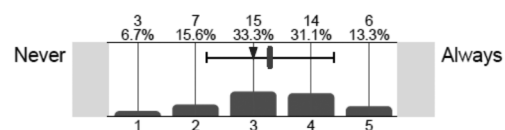


Figure 11. How often the Off-Campus Services web page meets the information needs of distance learners.

Challenges and Barriers

Table 7 summarizes the difficulty students encounter when using the services provided by the library. A five-point Likert-type scale was used, where 1 = very difficult; 2 = difficult; 3 = neutral; 4 = easy; and 5 = very easy. As shown on Table 7, the mean was 3.58, which indicates that students found it neither difficult nor easy to use the services. The interlibrary loan system was considered the most difficult (2.81) of the services, while the library’s home page ranked as the easiest to use, with a mean of 3.62, which almost equals “easy.”

Table 7.  
Level of difficulty in using the services provided by the James White Library

Service	N	Mean	Standard deviation*
The library’s web page	113	3.64	1.24
Databases/e-journals	117	3.55	1.24
Tutorials	57	3.51	1.46
The library’s online catalog	115	3.59	1.33
E-books	89	3.42	1.30
LibGuides	54	3.25	1.48
Interlibrary loan system	52	2.83	1.43
Average	129	3.58	1.16

\*The lower the standard deviation, the more tightly the values cluster around the mean.

The study investigated the level of success students achieved when accessing the information they needed for their assignments. Figure 12 provides the frequency of students reporting success using a five-point Likert-type scale, where 1 = never; 2 = rarely; 3 = sometimes; 4 = often; and 5 = always. The results indicate that, in general, off-campus students often have success in accessing what they need from the library (M = 3.7). Almost 55 percent of the participants chose that response.

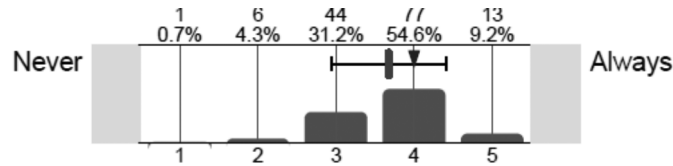


Figure 12. How often distance students succeed in accessing needed information resources.

The participants' confidence level in using electronic resources was also asked. As shown in Figure 13, almost half the respondents (46.2 percent) answered that they were "very confident" in their abilities to successfully use the electronic resources offered by the library, and 37.1 percent found doing so "very easy."

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Figure 13. Distance students' level of confidence in using electronic resources.

### Satisfaction Level

The answers to the question "How satisfied have you been with the adequacy of the collections (electronic resources, databases, books, journal, etc.) for your program of studies?" are reported in Table 8, using a five-point Likert-type scale where 1 = not satisfied; 2 = somewhat dissatisfied; 3 = neutral; 4 = satisfied; and 5 = extremely satisfied. The mean was 3.35. A total of 44.5 percent of the respondents declared that they were "somewhat satisfied" with the collection's adequacy to fulfill their information needs. Very few (7.3 percent) answered either "not satisfied" or "extremely satisfied."





Table 8.

Participants' satisfaction with the James White Library's collections

N	Not satisfied	Slightly dissatisfied	Moderately satisfied	Very satisfied	Extremely satisfied
110	7.3%	9.1%	31.8%	44.5%	7.3%

Participants were also asked how satisfied they were with the library's support services and with the assistance they received from a librarian. Table 9 shows the results on a five-point Likert-type scale, where 1 = not satisfied; 2 = slightly satisfied; 3 = somewhat satisfied; 4 = satisfied; and 5 = very satisfied. The students' satisfaction level with the library's support services registered a mean of 3.31. A total of 43.7 percent of the respondents declared that they were relatively satisfied. A low percentage of students were either "not satisfied" (12.6 percent) or "very satisfied" (11.8 percent). A mean of 4.11 was obtained when participants of this study were asked "How would you rate your satisfaction with the service you received from a librarian?" This indicates that the respondents, in general, were "satisfied" or "very satisfied" (4 = 44.7 percent and 5 = 36.8 percent, respectively).

Table 9.

Participants' level of satisfaction with support services from the James White Library and from a librarian

	N	Not satisfied	Slightly dissatisfied	Moderately satisfied	Very satisfied	Extremely satisfied
Support services from the library	119	12.6%	10.9%	21%	43.7%	11.8%
Support services from a librarian	38	5.3%	2.6%	10.5%	44.7%	36.8%

The survey asked participants to agree or disagree with four statements related to how adequately the library impacts students' academic success. A five-point Likert-type scale was used to collect the answers, where 1 = strongly disagree; 2 = disagree; 3 = neu-

tral; 4 = agree; and 5 = strongly agree. See Table 10. In general, the off-campus students were neutral about the four statements that were presented to them. The statements "The library aids in my advancement in my academic discipline" (M = 3.57) and "The library enables me to be more efficient" (M = 3.48) received the highest mean scores, between "neutral" and "agree."

## Table 10.

### Impact of the James White Library on students' academic success

Statement	Mean	Standard deviation*
The library aids in my advancement in my academic discipline.	3.57	1.13
The library enables me to be more efficient.	3.48	1.08
The library helps me stay abreast of developments in my field.	3.36	1.11
The library provides me with the information skills I need.	3.27	1.07
<b>Average</b>	<b>3.42</b>	<b>1.09</b>

\*The lower the standard deviation, the more tightly the values cluster around the mean.

## Discussion

This research unearthed data on the frequency with which off-campus students used the services and resources provided by the library. Thus, this discussion will highlight the possible relationships between frequency use data and other findings of this study, in an attempt to identify probable causes for the low use reported by the off-campus students. Only then will the library be able to change the situation, devise plans to develop new services, and offer new or different resources. This discussion will provide data to the James White Library's evidence-based decision process, advancing the improvement of services offered to distance students at Andrews University.

The usage of the library was measured in multiple ways. The results demonstrated that off-campus students used the services offered by the library, on average, "once per semester," a much lower frequency than expected. The mean was only 1.69, as shown on Table 3, where 1 is equal to never and 5 is equal to once per week on a five-point Likert-type scale.

This study demonstrated that half (51 percent) of the students "never" or "rarely" used the Off-Campus Services link on the library's web page. When compared to usage of the library's web page, this result comes as no surprise, since the page was used daily by only 2.9 percent of the off-campus students and once per week by only 21.9 percent of the participants (see Figure 4). Table 4 shows that off-campus students rarely, on average (M = 2.4), use the library's resources.



The data collected from these tables and graph indicate a low usage rate of the library by off-campus students. However, a few earlier studies reported positive results.<sup>17</sup> For example, 72 percent of off-campus students used the library at the Royal Roads University in Victoria, British Columbia,<sup>18</sup> as did 62 percent at Jacksonville State University in Jacksonville, Alabama.<sup>19</sup> At Kent State University in Kent, Ohio, Joe Clark reported that 83 percent of the participants consulted online reference databases, 74 percent used online sound recordings, and 65 percent requested interlibrary loan services.<sup>20</sup>

The results obtained in this study, however, more closely reflect the data from studies by Zao Liu and Zheng Yang, by Chinwe Nwezeh, and by Yingqi Tang and Hung Tseng, where more than half of the participants indicated that they never or rarely utilized the library.<sup>21</sup> The current study and those conducted by Merinda Hensley and Robin Miller at the University of Illinois at Urbana-Champaign and by Mirah Dow and her team at Emporia State University in Emporia, Kansas, report that less than half the participants used the library once a month, that is, 37.1 percent, 42 percent, and 33 percent, respectively.<sup>22</sup>

Ideally, the library should strive to identify the reasons for the low usage indicated in this study. Only then will it be able to implement changes based on the findings of this research and develop new services that might attract more students, elevating the usage count and the efficacy of the services provided.

As we analyze the findings as a whole, several outcomes emerge which most likely cannot be the reason for the observed low library usage. That is, these factors probably did not have a negative impact or influence the low usage frequencies.

The students subject of this research do not attend the physical library and so depend heavily on e-books. Figure 9 indicates that 72 percent of the students preferred e-books to the printed format, meaning that their overall high preference for e-books did not have a negative impact on their general usage rates of the library.

This result is similar to the one obtained by Liu and Yang in 2004.<sup>23</sup> Seventy-nine percent of the participants of that study used e-books. Less than half (43 percent) of study participants used e-books at the University of Alaska Anchorage, as reported by Lorelei Sterling, Jennifer McKay, and Christine Ericson in 2017.<sup>24</sup>

Another factor that could influence usage is the types of materials or sources students find more relevant as they work on their assignments. Again, since these students only use the electronic library, journal articles found through the library's databases were considered the most important materials (see Table 5). Many studies throughout the last decade came to the same conclusion. Research by Hensley and Miller and by Emily Mitchell and Brandon West concluded that off-campus students used the library mainly to access electronic journal articles.<sup>25</sup> An overwhelming majority (90 percent) of the students surveyed by Maria Brahme and Lauren Walters at Pepperdine University in Malibu, California, rated databases as their main or most important resource.<sup>26</sup> More than 70 percent designated databases, e-journals, or electronic articles as most important in other studies published in the last decade.<sup>27</sup>

The level of usability of the web page could also impact the frequency of use. According to the results shown in Figure 10, however, only 12 percent of the respondents considered the off-campus web page difficult to navigate.

Some studies attributed low usage rates to technological barriers. For example, Benzies Boadi and Patricia Letsolo reported that students lacked easy access to materials

offered by the National University of Lesotho's library in Roma, Lesotho,<sup>28</sup> and 50 percent of the British student participants in Fytton Rowland and Iris Rubbert's survey were overwhelmed with the use of technology.<sup>29</sup> This study, however, confirmed the findings of many other investigations in which a low percentage of students (less than a quarter) found difficulty in using the library's web page or gaining access to its resources.<sup>30</sup>

The reasons why students had not used the library's resources could explain the low usage rate identified in this research. However, since only 22.5 percent of the participants indicated that they did not need to use the resources for their coursework and the same percentage revealed that they did not know how to access the materials, the reasons provided might not affect negatively the usage rate.

Students who sought assistance from a librarian were at the minimum "satisfied" ( $M = 4.00$ ) with the services provided (see Table 9). This finding could indicate that satisfaction was not a direct determinant of the low usage levels. However, these data could be misleading when the low usage rate in general is taken into consideration. If more students had sought assistance, the usage ratio might have been higher.

Two interrelated components of this study could be considered as predictors of usage—students' success level in accessing needed information available at the website (see Table 10) and their confidence level in using the electronic materials (see Table 7). This study found that participants were often ( $M = 3.66$ ) successful in their attempts to access needed information. Fifty-five percent of them agreed that they were often successful, as shown in Table 10.

Some published research reports that subjects claimed a high level of success in accessing needed information. Adam Gambo Saleh, for example, determined that 57.3 percent of the subjects (off-campus students) found it easy to find materials needed.<sup>31</sup> Maria Brahme, Lizette Gabriel, and Paul Stenis at Pepperdine University found that 14 of 23 subjects (60.8 percent) ended their searches with a positive feeling.<sup>32</sup> On the other hand, three studies published in the decade after 2010 reported differing results. Olugbade Oladokun concluded from a study at the University of Botswana in Gaborone that "library and information needs of the [off-campus] students were not significantly met."<sup>33</sup> Dow and her colleagues at Emporia State University found in 2012 that 82 percent of the participants had challenges evaluating best information, encountered too many bad links, and were confused using relevant search terms, which contributed to their failure in locating and accessing academic information.<sup>34</sup> At the University of London, Sandra Tury, Lyn Robinson, and David Bawden recorded in 2015 that only 10 percent of the subjects were always successful and less than 50 percent of the students considered that the library fully answered or provided for their needs.<sup>35</sup>

In terms of how confident off-campus students were using electronic resources, 46.2 percent of the respondents answered they felt "very confident" (see Figure 13), and 37.7 percent found use of the resources "very easy" (see Figure 11). This finding contrasts, to some degree, with the data provided by Brahme and Walters in 2010, when they reported that students were less confident in their selection of research resources.<sup>36</sup>

Awareness can influence use frequency. However, this study indicates that a total of 61.5 percent of the participants were aware of the services offered to off-campus students and that 55.7 percent of them also knew about the Off-Campus Services link on the James White Library's home page (see Table 6). Only 16.4 percent answered "I didn't



know that they were available." Thus, awareness levels most likely did not influence the low usage indicated by this study. While 32.4 percent of the respondents learned about the library's website and services by navigating the site, 61.9 percent learned through their teachers (see Figure 6). Students, in general, knew that the library offered special services and materials for off-campus students.

This study confirms the research conducted at Louisiana State University in Baton Rouge by Andrea Hebert, who determined that only 25 percent of the participants were unaware of the services offered by the library. The study also found that 75 percent of the participants knew that the library's web page detailed the services offered.<sup>37</sup> Tang and Tseng at Jacksonville State University came to a similar conclusion. They reported that less than 50 percent of the students did not know the library delivered books, journals, videos, or CDs, and that only 20 percent were unaware of the range of electronic resources available.<sup>38</sup>

These are surprisingly optimistic results, considering that other studies conducted over a 20-year period consistently report disappointing figures. Many of them indicate that more than 50 percent and even 67 percent of the participants were unaware of the services offered by their institution's library.<sup>39</sup> Carol Tipton found that 51.4 percent of off-campus students did not know they had access to the library services.<sup>40</sup> Joe Clark determined that less than half of the students knew about ways they could receive assistance from a librarian.<sup>41</sup> Susie Skarl and Darcy Del Bosque reported that 60 percent of the students in their study were not aware that librarians at the university's library offered personal consultations and that 52 percent were unaware of the availability of subject or course guides.<sup>42</sup>

One would expect that need is a powerful agent or predictor of use. Only 29.1 percent of the participants declared that they "didn't need to use the library's services" (see Figure 2). The majority of the off-campus students felt the need to seek information from the library to successfully accomplish their assignments. Whether these respondents actually sought the library's help is not clear. Most likely they did not because the data reveal, in general, a low usage rate. Tipton found that 40 percent of the respondents to her survey declared that they had no need to use the library's services, although 43.1 percent felt a necessity for further training.<sup>43</sup>

Whether classes require or recommend use of the library can also have an impact on library use. The results shown in Figure 9 demonstrate that almost 60 percent of the participants indicated that either all or most of their classes required use of the library,

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and only 9.2 percent declared that none of their classes had this requirement. Figure 6 reveals that 61.9 percent of the participants reported that they learned about the James White Library's website through their teachers. Thus, the data suggest that class requirements did not negatively impact the library's use frequency by off-campus students. Teachers need to partner with librarians in valuing

and promoting information literacy and library use to their students. Many students see teachers as mentors and are willing to follow their advice when doing so might improve

their grades. On the other hand, students might feel that library use is not essential for their learning and academic success.

From this survey, we can propose that a number of factors have no bearing on the low usage of the resources and services offered by the library. These factors include the level of e-book preference, the usability level of the Off-Campus Services' web page, the satisfaction with the services provided by a librarian, the success obtained by students when accessing needed information, the confidence students have using electronic sources, the awareness of the services offered, the level to which students' information needs were met by the library, and the number of classes that require library use.

On the other hand, some results obtained from this study might have a direct influence or impact on the observed low usage frequency. Two explicit questions were asked. One was why students did not use off-campus services, and the other was why students did not use the James White Library's resources. To the first question, 29.1 percent of the participants answered that they "did not need to use the services" offered, 20 percent answered they "didn't know how to get them," and 20 percent affirmed that they "didn't know how to use the online services" (see Figure 2). To the second question, 22.5 percent answered that they "did not need to use them," 22.5 percent that they "did not know how to use them," and 17 percent that they "didn't know that these services were available" (see Figure 5).

These answers could reflect two factors. Teachers might not require or even recommend that students use the library's resources to accomplish their assignments. The other factor could be a lack of training. Almost 40 percent of the participants indicated that they either did not know that the library services were available or did not know how to use them. Obviously, students who did not know about the availability of services or had difficulty using them would automatically not use them.

It might be possible to attribute the low usage off-campus students make of library services by analyzing implicit data uncovered by this study. Figure 6 shows that 32.4 percent of the students learn about the library's home page by trial and error, that is, navigating it without previous knowledge, 24.8 percent through library instruction classes, and only 15.2 percent by contacting a librarian or a library staff member. That less than half (40 percent) of the participants indicate that they learn about the library's home page through a formal and intentional way, and 24.8 percent by attending a library instruction class, could lead to a large number of students not becoming frequent users. That less than half of the sample studied—that is, 44.3 percent—were aware of the Off-Campus Services' link embedded in the library's web page might also result in a low use rate (see Table 6).

Only 7.6 percent of the participants sought the assistance of a librarian to help them navigate the library's web page and find the needed information to complete assignments (see Figure 7). How

knowledgeable students are in using tools to discover and obtain information from the library's web page to complete their coursework might affect their satisfaction with the services provided, and in turn, their decision and willingness to use the services.

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**Only 7.6 percent of the participants sought the assistance of a librarian to help them navigate the library's web page and find the needed information to complete assignments**

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Students were also asked how many times in a semester they requested a librarian for assistance to locate a source they wanted. Figure 8 indicates that 31.6 percent of the respondents "never" asked a librarian for help, and 40.4 percent sought assistance only "once per semester." A meager percentage of students (1.8 percent) asked a librarian to help find a specific source 10 times during a semester. Refraining from seeking professional assistance or being unwilling to do so could lead to low usage rates.

Librarians are always eager to assist patrons, and they devise means and tools to facilitate contact, such as one-on-one consultations, chat service, LibGuides with contact information, and programmed instruction classes. Further studies are needed to identify why many students are reluctant to contact the library or a librarian to assist them with their information needs. Could it be that librarians are not friendly enough, do not understand the queries well enough to provide a timely and relevant answer, or do not pose a good image? Or maybe many students do not know how or to what extent librarians can assist them. No matter what the answer is, librarians would profit if more promotional initiatives were developed to better engage with the library's patrons.

Even though a few published research studies in the last two decades reported a high percentage of off-campus students seeking assistance from a librarian,<sup>44</sup> they seem to be exceptions. The majority of the studies report similar results to the ones obtained

### **a very small percentage of off-campus students ask librarians to assist them with their information needs.**

in this survey. That is, a very small percentage of off-campus students ask librarians to assist them with their information needs. Boadi and Letsolo found that students depended instead on colleagues, personal collections, family members, friends, and coworkers.<sup>45</sup> Librarians were not even mentioned. Sinead Byrne and Jessica Bates indicated that only 7.2 percent of

the participants in their study at University College Dublin, Ireland, asked a librarian for assistance, and only 1.8 percent requested a recommendation from a librarian.<sup>46</sup>

Hensley and Miller reported that 18 percent of the students in their study consulted with a subject specialist, 15 percent contacted a librarian by phone, and 18 percent exchanged e-mails.<sup>47</sup> Dow and her coauthors found that 54 percent of the off-campus students enrolled at Emporia State University did not ask librarians for assistance to locate information and 85 percent did not ask for help to evaluate the appropriateness of information.<sup>48</sup> Only 6 percent asked a librarian for assistance. A similar result was obtained by Jessica Mussell and Rosie Croft. Only 10 percent of a sample of 654 students sought any type of assistance from a librarian.<sup>49</sup> Tang and Tseng determined that 39 percent of the participants in their study asked the off-campus librarian for assistance, and 33 percent consulted a subject librarian. The authors confirmed that "some percentage of distance education students do not take advantage of personal assistance that the library offers due to lack of awareness."<sup>50</sup> Hebert reported that only 12 percent of the subjects in her study asked a subject librarian for assistance.<sup>51</sup> Steve Black concluded that "patrons avoid asking librarians for help for a variety of reasons."<sup>52</sup> And finally, Mitchell and West indicated that off-campus students at the State University of New York (SUNY) at Oswego considered help from a librarian as a low priority.<sup>53</sup>

Failed experiences might dissuade students from further attempts to use the library. The library's web page can be overwhelming, and many times it is less user-friendly than



one would expect. Written answers in this survey reflected this. Thirty-six respondents indicated that they had difficulty in using and finding relevant or needed resources. A mean of 3.58 was obtained from students asked how difficult it was to use the library services, meaning that they thought it was neither "difficult" nor "easy" (see Table 7). This could be a major reason for the reluctance many students feel about using the library's web page.

Librarians are knowledgeable and usually exhibit a high level of willingness to assist patrons. Since many students, as this research has detected, either do not know how to use the services offered or are unaware of their availability, the connection with a librarian could significantly increase usage rates.

Some studies support the current study's conclusion regarding the proportion of off-campus students who declare difficulty using the library. Boadi and Letsolo asserted in 2004 that the students from the National University of Lesotho lacked easy access, which affected their information-seeking behavior.<sup>54</sup> In 2001, Tipton observed that 48 percent of the participants of a study conducted at the Texas A&M University System found it difficult to access the services the library provided.<sup>55</sup> The study conducted by Dow and her team at Emporia State in 2012 revealed that 82 percent of the participants felt challenges with their lack of content expertise and technical language skills. The authors also report that students had difficulty evaluating the best information, experienced search term confusion, and felt frustration with bad links.<sup>56</sup>

Other research indicates that students had less difficulty. The study conducted by Lesley Moyo and Ellysa Cahoy at Penn State University demonstrated that only 22.6 percent of the participants found it "difficult" or "very difficult" to get resources.<sup>57</sup> Liu and Yang determined that only 28 percent of the off-campus student participants in their study "very often" and "often" experienced difficulty in using the university's library system.<sup>58</sup> Brahme and Walters from Pepperdine University reported that 20 percent of the participants declared that using databases was difficult and obtaining books and articles was distressful.<sup>59</sup> Adam Saleh determined that 57 percent of the off-campus students in his study attest that it was easy finding materials needed, and 20.3 percent encountered difficulties.<sup>60</sup>

Distance education students declared that the Off-Campus Services page meets their needs only "sometimes" ( $M = 3.09$ ). These results are reported in Figure 11. Could these results have a negative effect on students' disposition to use the online library? Considering that the needs of the students are not met by many of the services available and many others require some effort to use them efficiently, one might consider the need to change how some of the services are structured, presented, and accessed. The result exposed by this study accord with Olugbade Oladokun's finding at the University of Botswana: "Library and information needs of the students were not significantly met."<sup>61</sup>

The satisfaction level with a product, service, customer service, or with an organization's overall performance, could be strong predictors of different types and levels of usage. The survey used to collect data for this research uncovered several indicators related to the respondents' satisfaction with the services and resources provided by the library. A close analysis of the results indicates that, in general, the off-campus students who answered the questionnaire were neutral about the library's overall contribution to their academic advancement and growth. Their satisfaction with the collection's adequacy to meet their academic needs had a mean score of 3.36 (see Table 8); with the



library's support services, 3.36 (see Table 9); and with the library's adequacy to impact students' academic success, 3.59 (see Table 10). The satisfaction level with the services provided by a librarian reached a mean score of 3.42, also meaning that the participants were neutral (see Table 8). While satisfaction could promote repeated use, dissatisfaction might produce the opposite result. In many cases, customers will avoid a product or service which does not meet their immediate needs and is difficult to use. This study echoes many others which report that students were unsatisfied with a specific service or with the services in general offered by their library.

According to Dow and her coauthors, the great majority (82 percent) of the off-campus students from Emporia State who participated in their study encountered challenges in using the library system.<sup>62</sup> Tury, Robinson, and Bawden found that only 10 percent were always successful and less than 50 percent had their needs fully met at the University of London.<sup>63</sup> Sixty-seven percent of the participants in Rowland and Rubbert's study declared that they were unsatisfied with the services offered via the Internet. Also, 48 percent disclosed that the library did not have enough materials and resources to meet their needs.<sup>64</sup> Many other researchers provided data showing that students were unsatisfied with the specific services and resources provided by the library.<sup>65</sup>

Results from many other studies indicate higher levels of satisfaction, however. A study by Michael Alewine records that an overwhelming majority (93 percent) of off-campus students at the University of North Carolina at Chapel Hill were satisfied with the services provided by the library.<sup>66</sup> Only 6 percent of the participants in Tury, Robinson, and Bawden's study were never successful.<sup>67</sup> Tipton reported that 89.5 percent of the participants in her 2001 study were satisfied with the services provided by the library and 88.4 percent with the support services.<sup>68</sup> Rowland and Rubbert, also in 2001, found that 75 percent were satisfied with searching for relevant information sources.<sup>69</sup> Brahme, Gabriel, and Stenis, in 2016, reported that 14 of 23 students in their study ended their searches with a positive feeling of being successful in accessing articles.<sup>70</sup>

The percentage of students who answered "good" or "excellent" in Evadne McLean and Stephen Dew's study at the University of the West Indies in Kingston, Jamaica, varied from 77 percent to 87 percent when asked about how satisfied they were with several services offered by the library.<sup>71</sup> Optimistic figures in relation to students' satisfaction level were also presented by the literature throughout the last two decades,<sup>72</sup> including the study conducted by Skarl and Del Bosque in 2019.<sup>73</sup>

Instruction on library use is offered to students, in general terms, with the expectation that the more students are acquainted with the services and resources provided by the library and the better students know how to use them, the more they would be inclined to use the library. The results obtained in this survey seem to confirm this expectation. Although 20 percent of the participants answered "I don't know how to use online services" and another 20 percent said "I don't know how I can get these services," over half (55.2 percent) had never attended a library instruction session and only 6.2 percent had held "one-on-one" consultation meetings with a librarian. These findings could be considered a strong indicator of the low usage frequency identified by this study (see Figure 3). Students may think they have mastered online research due to their experience googling to access information. Thus, they might feel that there is nothing that a librarian can add to their electronic research skills and so they avoid information literacy programs offered by the library.

The great majority (84 percent) of off-campus students from Penn State University who participated in the study conducted by Moyo and Cahoy declared that they did not use the instructional resources and online tutorials provided by the library.<sup>74</sup> On the other hand, Mussell and Croft obtained slightly more optimistic data. Seventy-two percent of the participants of their study at Royal Roads University declared that they participated in online tutorials.<sup>75</sup> Only 20.2 percent of the off-campus student participants in the study conducted by Stephen Dew at Texas A&M considered “library instruction” as one of the least important services offered by the library.<sup>76</sup>

## Conclusion

The current research has supplied preliminary data that can be used to assess the usability of library services to distance learning students at Andrews University and also to enhance the number and quality of services offered to this group of students. The impetus for this article was to gain insights about the information-seeking behavior of Andrews University’s distance learners, encompassing their frequency of library use, the types of information they need to accomplish academic requirements, their level of awareness regarding the services and products offered by the library, and their level of satisfaction with these services. Despite the study’s limitations, it gathered valuable information about how the library’s web page is used by distance students.

This study also gave the librarians at the James White Library an opportunity to broaden their understanding of the off-campus learning community. This survey was beneficial for a number of reasons—it generated much-needed conversations about the information literacy needs of these students, highlighted important lessons about how students use the library’s website, provided information about the library’s deficiencies and limitations in securing a better quality of education to these students, created a dialogue about distance learners’ needs, and offered solutions for enriched scholarship.

The usability data provided by this survey will enable the off-campus services librarian to develop new services or realign current ones to match students’ perspectives, expectations, and information needs. This survey was an effort to support online education at Andrews University by considering the distance students’ perspective in relation to the library’s offerings. Some key issues surrounding library services to remote users must be actively dealt with to meet the needs of off-campus students. Among these issues are:

1. The scarce use of library resources by the university’s off-campus students.
2. The faculty’s tendency to use their lecture notes and textbooks in teaching while downplaying the importance of libraries and information materials.
3. A lack of awareness among many students of services offered by the library and of the off-campus services link available at the library’s web page.

Steps must be taken to build awareness of the multiplicity of services available to distance learners. This need is of particular importance because many of the services available were considered as highly needed by those who participated in this study. Nonetheless, many students were unaware that these services existed.

Although a large percentage of the study’s participants claimed they frequently used the Off-Campus Services link to browse databases, very few use the “Get Started



Link" and the tutorials available. This could partially explain the low overall usage of the library in general.

The results presented in this study clearly revealed that Google was the means the great majority of the participants used to find information to complete academic requirements, and that seeking the assistance of a librarian was the least used. Only 7.6 percent of the participants declared that they seek the help of a librarian. Less than half of the distance learners seek assistance from a librarian once per semester.

More than 75 percent of the respondents said that they use their own search terms to find resources when looking online for information or sources. One must question

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**... this study clearly revealed that Google was the means the great majority of the participants used to find information to complete academic requirements, and that seeking the assistance of a librarian was the least used.**

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how successful the students are in finding relevant and reliable resources, without using controlled vocabulary, the standardized headings used by catalogers and indexers to describe content. This could be a result of deficiency in information literacy skills. Could librarians have failed to teach controlled vocabulary or

search strategies in their information literacy courses? Or could this result reflect a lack of formal training by the off-campus students?

The informational needs of distance education students are only partially being met. Unmet needs could directly affect the quality of their academic outcomes.

Students have a moderate level of difficulty in accessing the needed information. The library needs to seriously consider improving the accessibility of its services or aligning its training to cater to this difficulty.

More than half of the participants did not participate in library instruction sessions. Library instruction efforts need to be reinforced through intentional and directed promotional programs. Promoting the instruction sessions could lead to higher usage volume, improve students' satisfaction level, increase their success and confidence level in obtaining needed information, improve their learning outcomes, and enhance the quality of their academic experience.

Roughly one-fourth of the students said that they did not use the services and resources offered by the library because they did not need them, did not know how to use them, or did not know they were offered. The library might address this issue by developing a more robust promotional effort, a stronger instructional program, and a more robust partnership initiative with faculty.

Off-campus students at Andrews University were, to a certain degree, satisfied with the overall performance of the library to meet their information needs, with some room for improvements. Nevertheless, students found the adequacy of the library to impact their academic success mediocre at best.

This research unearthed data about Andrews University's off-campus students' information-seeking behavior by assessing the library's engagement with this community of students and gathering their feedback on the library's competence in providing them with needed information services and resources. Thus, the James White Library's team

should strive to ensure that distance learners receive the same level of library services as their campus-based counterparts.

Further research is necessary to better equip the library decision makers with information and insights on how to improve and more closely align the library's offerings with the off-campus students' needs. The research questions could be:

1. Why do students not make better use of the library's service portfolio?
2. Why do users not seek assistance from a librarian on a more regular basis?
3. How might librarians impart the value of information literacy to students and faculty?
4. How might the library increase students' awareness of its service portfolio?
5. What measures can the library take to boost off-campus students' academic success?
6. How can key players, such as faculty and higher education administrators, contribute to the successful alignment between the library's offerings and off-campus students' information-seeking behaviors and needs?
7. What information literacy delivery methods do off-campus students prefer? For example, do they favor asynchronous tutorials, synchronous webinars, or other methods?

It is important to answer these and similar questions. They will play a crucial role in the evidence-based decision process when academic library administrators develop strategies to more effectively equip off-campus students to succeed within the online educational environment. The challenges revealed in this study are unequivocal opportunities to make improvements and shape the future of Andrews University's off-campus learners.

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This mss. is peer reviewed, copy edited, and accepted for publication, portal 22.2.