Information-Seeking Behaviour of college students at Kuwait University representing various academic majors

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Abstract:

This paper reports on the findings of an investigation of the information behavior of college students representing various disciplines. The study particularly focused on the practices, techniques, and difficulties associated with the information seeking behavior of students when they search for information resources to conduct course-related assignments. The data were collected from undergraduate students enrolled at Kuwait University. A survey questionnaire was distributed to students in their classes during one academic semester. This research was funded by the Kuwait University research sector. Results showed that college affiliation is significantly related to students' practices, routines and techniques when using information. It was also found that the academic major is significantly related to means by which students use various tools (document sharing programs, online time management programs with sharing, Wikis for creating and sharing web content, photo-sharing sites, virtual research environment, blogging). Significant differences are found between college affiliation and the difficulties encountered by students when working on assignments (getting started, defining a

topic, narrowing down a topic, coming up with search terms, finding articles in databases, determining whether or not a website is credible, figuring out where to find sources in different parts, evaluating sources, reading through the material, taking notes, integrating different sources from research, knowing when to cite a source).

Keywords: Information-Seeking Behavior, Information literacy, Academic majors, Disciplines, Universities.

سلوك البحث عن المعلومات لدى طلبة كليات جامعة الكويت من مختلف التخصصات العلمية

د. نجود عبد الكريم مؤمن

الملخص:

تقدم هذه الدراسة النتائج التي وصل إليها التحقيق في السلوك المعلوماتي لطلبة الجامعة، الذين يمثلون مختلف التخصصات. ركزت الدراسة بشكل خاص على الممارسات والتقنيات والصعوبات المرتبطة بسلوك طلب المعلومات لدى الطلاب عندما يبحثون عن موارد المعلومات لإجراء مهام متعلقة بموادهم العلمية. تم جمع البيانات من طلاب البكالوريوس المسجلين في جامعة الكويت. بينت النتائج أن التخصص الأكاديمي مرتبط بشكل كبير بالوسائل التي يستخدمها الطلاب في استخدام أدوات مختلفة (برامج مشاركة المستندات، وبرامج إدارة الوقت عبر الإنترنت مع المشاركة والويكي لإنشاء محتوى الويب ومشاركته ومواقع مشاركة الصور والمدوّنات، وبيئة البحث الافتراضية والتدوين). وانتهت الدراسة إلى وجود فروق ذات دلالة إحصائية بين الانتماء الجامعي والصعوبات التي يواجهها الطلاب عند العمل في المهام (البدء، وتحديد موضوع ما، وتضييق نطاق الموضوع، والخروج بعبارات البحث، وإيجاد المقالات في قواعد البيانات، وتحديد ما إذا كان موقع الويب ذا مصداقية، وتحديد مكان للعثور على مصادر في أجزاء مختلفة، وتقييم المصادر، والقراءة من خلال المواد، وتدوين الملاحظات، ودمج مصادر مختلفة من بحثي، ومعرفة متى يجب ذكر مصدر).

الكلمات المفتاحية: سلوك البحث عن المعلومات، محو أمية المعلومات، التخصصات الأكاديمية، التخصصات، الجامعات.

INTRODUCTION:

This research project investigated the information-seeking behavior and information literacy skills of undergraduate students from various disciplines at Kuwait University. In Particular, the research focused on the practices and techniques adopted by students when they need to search for information resources to conduct course-related assignments. The research also investigated the difficulties students encounter when they search for information resources in the digital age. The methodology involved two means, a survey questionnaire, and interviews. The questionnaire collected data from students enrolled in different programs at Kuwait University.

This study is grounded in information-seeking behavior research. It is hoped that this study represents a wide-scale analysis of information behavior at Kuwait University. The main objectives are to investigate how undergraduate students find and use the information they need for their course-related research. The study aims at answering the following questions:

1) How do undergraduate students from various disciplines at Kuwait University find and select the information they need for their assignments?

2) What obstacles and difficulties do undergraduate students face when they search for information related to their course work?

3) What recommendations can be suggested for campus-wide administrators and academics to collaborate in enhancing the information literacy of undergraduates and thus improving their information-seeking behavior?

LITERATURE REVIEW:

Information literacy is the ability to recognize when information is needed, can locate the information, evaluate it and use it effectively (Willer, 2015), and is a very important key to success for all students who are seeking information. For students to be literate, they should know how to determine the extent of information needed, access the information needed efficiently, evaluate the sources and use the information ethically and legally (ACRL, 2015). Preparing students for lifelong learning by being information literate before graduation is a very important educational goal. Students could be information literate before graduating if all higher education institutions considered the importance of information literacy instruction and implement it as programs in their universities (Rehman & Al Awadhi, 2017). Unfortunately, information literacy instruction is not integral to many of the higher education programs, which leads to a lack of information skills among students (Julien, Gross, & Latham, 2018).

Over the last five years, several studies have tackled the information literacy of students at Kuwait University. In their 2-part study, Rehman and Al Awadhi (2013) as well as Al Awadhi and

Rehman (2012) carried out two related projects, the first one having been conducted to assess the relevance and usefulness of a 3-credit information literacy course of information and computing literacy for undergraduate students in the college of social sciences at Kuwait University.

The other study complemented the first one and aimed at evaluating the outcomes, benefits and the obstacles related to the 3-credit information literacy course. The study found that students performed significantly better for the overall information literacy after taking the course. The evaluation was done through focus group discussions with students and instructors. Discussions with students showed that students felt the course would be more useful and beneficial if they have taken it in their first year at college and that it would have helped them more with other courses. The discussions also tackled the obstacles students faced when they took the information literacy course. These two studies support the proponents of integrating information literacy with the core courses of undergraduate studies. The limitation of these studies, however, is that they were conducted in one college only. There is a need for a large-scale study that covers all majors offered by Kuwait University, and this study intends to fill this gap and expand on the sphere of information literacy.

Earlier studies have covered some other schools, but existing knowledge is still insufficient. Flywel and Jorosi (2018), for example, have investigated the information literacy skills

among undergraduate students at the University of Livingstonia in Malawi and concluded that the majority of the students are still significantly lacking in information literacy skills. Al-Muomen, Shaw, and Courtney (2016) also compared the library behaviors of at the social science students Kuwait University with those of undergraduates at Indiana University. The researchers found significant differences between the Kuwait and Indiana students; Kuwaiti students were found to ask for assistance more often than Indiana students and did not evaluate web- and library-based information as rigorously compared to Indiana students. This indicates that the students may be deficient in library and information skills (Al-Muomen, Shaw, & Courtney, 2016). A limitation of this study, however, lies in that participating students from Kuwait University come from only one academic major; thus, there is a need for more studies to cover all majors and find out whether academic majors are significantly related to the levels of information literacy skills. This study intends to do that. Other studies have also been conducted at Kuwait University; however, they focused on graduate students (Alkhezzi & Hendal, 2017; Al-Muomen, Morris & Maynard 2012). Information literacy should be produced wherever it is possible within all colleges and universities to improve student's information skills and to reach the object of being information literate, which helps students in their daily classroom projects and assignments, in their career life after graduating and affecting their knowledge to be lifelong learners (Travis, 2017).

Erlinger (2018), Stonebraker and Fundator (2016), Singh & Derakhshan, (2011) & Weiner (2011) focused on the importance of information literacy instruction in higher education institutions, they studied the difference between students that underwent integrated information literacy instruction alongside their curriculum and students that didn't do so. They synthesized that higher education institutions with the integration of information literacy instruction in their curriculum produce more successful students than others. Additionally, Kim and Shumaker (2015) found that students who had undergone a course in which information literacy training that is integrated were more likely to have higher levels of information literacy skills and recognize the importance and impact of information literacy as compared to students who underwent a course with an inconsistent level of engagement with information literacy.

Travis (2017) stated that information literacy skills in higher education is important to prepare the students for the workforce after graduating, because students when they become employees they will be in need to have the skills of locating, understanding, using information effectively to solve their problems in the workforce and improve their routine job (Cook, 2014). Success in most jobs requires the ability to learn new skills and be confident in interacting with information to deliver the maximum business value. If undergraduate students have information literacy skills, they will able to face the work

environment after graduating (Travis, 2017).

The Association of College and Research Libraries (2015) stated that information literacy is about recognizing when information is needed and knowing how to locate and critically evaluate the information contents and apply it effectively. Librarians and information specialists have a significant role to enhance information literacy instruction in the academics' settings where the environment is applicable because students are asking librarians many more complex levels of reference questions than before. Students are asking how to search for a specific resource and how to find information on the internet. Often, students are using search engines that bring too much information for students which is difficult for students to reach the right information needed. Many librarians are now taking part in developing information literacy programs targeting researchers, teachers, and students alike to improve their research and data management practices (Carlson & Johnston, 2015; Peters & Vaughn, 2014). A number of these programs have been found to have a positive impact on student success (Burgoyne & Chuppa-Cornell, 2015; Tibenderana, Mayende, Kigozi, & Osamai, 2017).

After knowing the importance of information literacy skills, it is essential to integrate it into all programs in education institutions (Drabinski, 2014). Concerns about integrating the information literacy into the curriculum are very important and have been under consideration in the past years

since there is a lack in the information literacy programs in many educational institutions because they are reluctant about the benefits from integrating such a program in their curriculum (Raven & Rodrigues, 2017). However, according to Kong (2014), teaching IL across different subjects and academic majors will increase the awareness of this concept and improve the students' abilities of searching and be information literate for their long-life learning, regardless of their discipline.

A noteworthy example of initiatives done for information literacy skills development is that which was done at Indiana University. Recognizing the importance of information literacy skills for the academic and professional success of their students, the University of Indiana carried out a campus-wide assessment on students' perceptions of their skills at finding, evaluating, using, and citing information sources, as well as faculty teaching practices in courses that required research assignments (Kissel et al., 2016). For this undertaking, faculty members and librarians worked together to formulate the assessment in accordance with the Association of College and Research Libraries (ACRL, 2015), as well as to devise strategies in response to the results. The collected data were shared with other academics and administrators, and using the community practice model, the Community of Practice on Information Literacy consisting of faculty and librarians identified and disseminated a collection of peda-

gogical practices, including teaching strategies and research assignment procedures, that would best promote information literacy engagement and development within the university (Kissel et al., 2016). Most recently, Indiana University has designed and implemented information literacy aids and instruction approaches in their online learning portal (Courtney & Wilhoite-Mathews, 2015).

In teaching information literacy skills, high importance is placed on the method used for delivering instruction to students. For effective instruction delivery, active learning is considered, specifically collaborative learning, which is used to build and enhance the information literacy skills of undergraduate students (Ford, Izumi, Lottes, & Richardson, 2015). Pinheiro and Simõe (2012) broadly defined collaborative learning as "any instructional method that engages students in the learning process, the core elements of active learning are student activity and engagement in the learning process" (p. 383). It is imperative that instructors encourage students to cultivate their collaborative skills and provide them with opportunities to develop their IL skills in the process (Chen, 2015).

Jacobs (2017) states that using tools students are already familiar with, such as the Web 2.0 and social networks where students mostly seek help and information, can greatly help improve their IL skills. Another technique for collaborative learning is teamwork, designed to encourage students to enhance their IL skills in the context of a group. These skills are

developed through feedback, collaboration, and cooperation between students and the instructor (Hurvitz, Benvau, & Parry, 2015).

Among the tools used for collaborative learning is the utilization of the Web 2.0 platform. Popescu (2014) and Duta and Martinez-Rivera (2015) support the use of online environments in the educational setting, arguing that it provides opportunities for both individualism and collaboration, allowing students to display their work and do accurate individual research on various topics while also being able to communicate their ideas with other individuals. This technology affords students different modes of communicating with each other and gathering information and has changed the way students learn nowadays, as they resort to utilizing Web 2.0 tools to create, share and gather information from peers, rather than authoritative sources (Kintsanas, Dabbagh, Chirinos, & Fake, 2016). Incorporating Web 2.0 tools into IL programs provides students opportunities for interactive learning, and building on their existing skills through collaboration, by creating authentic content, and sharing their knowledge with their peers.

Zheng, Niiya, and Warschauer (2015) found that collaborative practice in teacher education programs, using Wikipedia, resulted in increased awareness of how to critically assess information on the web. Additionally, collaboration with the public in creating and editing content provided the opportunity to recognize the value in constructing knowledge and citing sources. Kong (2014) also demonstrated how stu-

dents effectively improve their IL skills using digital tools. Aside from helping students understand the importance of collaboration as it fostered good communication and problem-solving skills in addition to sharing knowledge, using digital means to learn information literacy were also found to improve their cognitive and meta-cognitive skills, particularly in summarizing information, interpreting ideas, evaluating outcomes, and making decisions (Kong, 2014). Therefore, integrating Web 2.0 tools in IL programs encourages students to actively participate in the learning process and become critical thinkers, instead of just transferring IL skills in a traditional teaching approach. As they deal with vast amounts of information on the web, students will learn how to quickly search, critically assess valid and authoritative information, and how to use it effectively.

The effects of information literacy programs can be significantly facilitated as well by the facilities and functions of the setting of the program. Lange, Canuel, and Fitzgibbons (2015) mentioned that in planning the building of any library, there should be strong attention to design classrooms and labs that equipped with many computers to deliver the information literacy program effectively. The atmosphere and the equipment are very helpful for teaching information literacy skills to students. The place should be convenient and adequate for teaching so that students will feel that there is a special place for this program which makes it unique and different

from other courses (Chen, 2015). Moreover, faculty members who don`t have information literacy instruction in their curriculum can arrange a learning session with librarians to learn information literacy skills such as print and electronic resources that are available in the library (Kissel et al., 2016). These arrangements designed in the library would help increase substance in those sessions that have been scheduled between the faculty members and librarians.

After integrating and implementing information literacy instruction programs in a university`s curriculum, it is important to measure how information literacy instruction contributes and affects students' learning and development. Bliquez & Belanger (2012), Bracke, Maybee, and Weiner (2016), and Marzal (2010) investigated the assessment project for information literacy instruction in universities. Different aspects needto be tackled in an assessment of an information literacy instruction program, as outlined by Bracke, Maybee, and Weiner (2016). An important aspect to evaluate is whether or not, and to what extent, students were improving their IL skills, and to what extent their learning resulted from the program teachings. Another focuses on the students' resulting performance in relation to locating and evaluating information and scholarly resources for classroom interactions, tests, and final projects. After the outcomes have been assessed, institutions must create learning activities, analyze the data and come up with the final verdict on the effectiveness of the programs and

what necessary changes have to be made on the information literacy programs (Bracke, Maybee, & Weiner, 2016).

Bracke, Maybee, and Weiner (2016) stated that well-designed material assessments would increase the development of the program and the learners, as well as to enhance and improve the content that was taught in the program. Learners can benefit from the assessment process as the assessment reflects what they have learned and how the information literacy programs have been useful to them. Assessment should also be repeated on information literacy programs to make changes in the instructions over time so that the pedagogical skills will increase (Paterson & Gamtso, 2017).

McClurg, Powelson, Lang, Aghajafari, and Edworthy (2015) emphasized that evaluation of the information literacy programs is a fundamental element for improving students' information behavior and increasing more success in the education environment. Assessments can utilize pre-surveys and post-surveys, which usually gather students' ability and aptitude for information literacy before and after taking the program using short questionnaires (Grigg & Dale, 2017). Pre-surveys are useful in identifying the prior knowledge level of the students in information literacy. This will help to assess their skills after they finish the program to check if they have benefitted from the instruction that they were taught in the program. This can also measure their way of searching, locating information, their ability to evaluate the websites,

their ability to access online databases and search effectively and use the information efficiently (Bracke, Maybee, and Weiner, 2016). Assessment is a necessity for information literacy programs because it will facilitate and improve the librarian's instructional abilities and academics. Also, it will improve the student's information literacy skills.

It can be concluded from the synthesis of the review that there is a need for a large-scale study to contribute to the advancement of information literacy and information-seeking behavior of undergraduate students. Academics, as well as librarians, need to have a continuous evaluation and measurement of information literacy skills of students and work out to enhance those skills.

METHODOLOGY:

This research project employed a questionnaire administrated to 500 undergraduate students studying at Kuwait University representing all majors. The questionnaire was based on scales that were used in Project Information Literacy, a large-scale U.S. study about college students. The project focuses on how college students find, evaluate and select information for their use in coursework for this research conducted at Kuwait University, the focus was on the use of information resources concerning coursework assignments. The questionnaire had five scales and reliabilities of each showed high internal consistency as follows:

• Information resources students use when they search for their course assignments (Cronbach's alpha was 0.83);

• Students' research style, different practices, routines, and techniques when they approach assignments (Cronbach's alpha was 0.92);

• Various tasks students use for support during their course-related research process (Cronbach's alpha = 0.96);

• Amount of importance students place on certain matters when they write their course-related assignments (Cronbach's alpha = 0.96);

• Difficulties students encounter in their information search and use process (Cronbach's alpha = 0.96).

The questionnaire was based on the original one used in Project Information Literacy but was adapted to the nature of this study's scope and population. Attached is the Appendix one (The survey). For the Arabic-nature disciplines, the Arabic version was used; however, it was given in English for majors that are English-taught. The scales were adapted to be consistent with the culture of Kuwait University, translated into Arabic since most undergraduate courses are instructed in Arabic. All academic years were included in the distribution of the survey. All majors have included: Law, Arts, Science, Medicine, Engineering and Petroleum, Allied Health, Education, Sharia and Islamic Studies, Business Administration, Pharmacy, Dentistry, Social Sciences, and Life Sciences. Data entry was conducted using the Statistical Package for

the Social Sciences (SPSS).

RESULTS AND DISCUSSION

Demographics

Out of 558 participants, 55.7% were females opposite to 42.5% males. In terms of age, 50.0% were in the category of (18-20) years-old; 29.0% belong to the age category of (21-22) years old; 11.1% belong to the age category of 23-25-years-old; whilst only 8.2% were above 25 years old. As for the academic year, a majority of 50% was enrolled in the second and third years of college; 15.4% in the fourth year, and 14.5 were in their first academic year while only 8.6% were enrolled in the fifth academic year and more. The study, which covered students from various majors to find out in academic major has a significant association with information-seeking behavior. The largest population 21.5% was Social Science students, followed by Arts with a percentage of 18.8%, Science (15.6%), Business (13.8%). The smallest numbers came from colleges of Law, Medicine, Engineering and Petroleum, Allied Health Science, Pharmacy, Dentistry, and Life Sciences. For the cumulative Grade Point Average (GPA), out of 558 undergraduate students, the highest percentage of students have a GPA category of 2.4-2.6 (106; 19%) and 2.7-3.0 (134; 24.0%). Figures 1 to 5 illustrates the breakdown of the demographics of respondents.

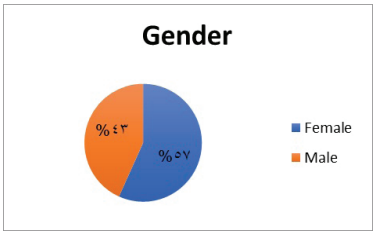

Figure 1. Pie chart of breakdown of gender

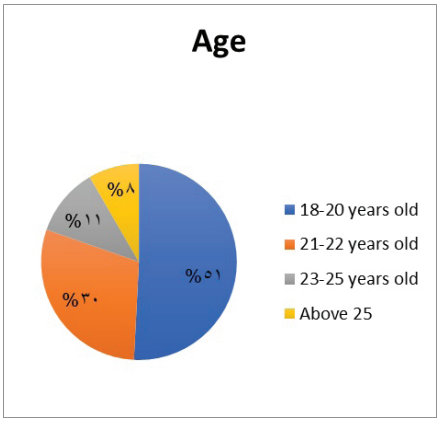

Figure 2. Pie chart of breakdown of age

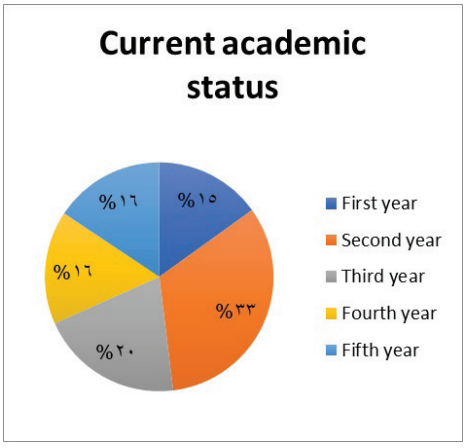

Figure 3. Pie chart of breakdown of current academic status

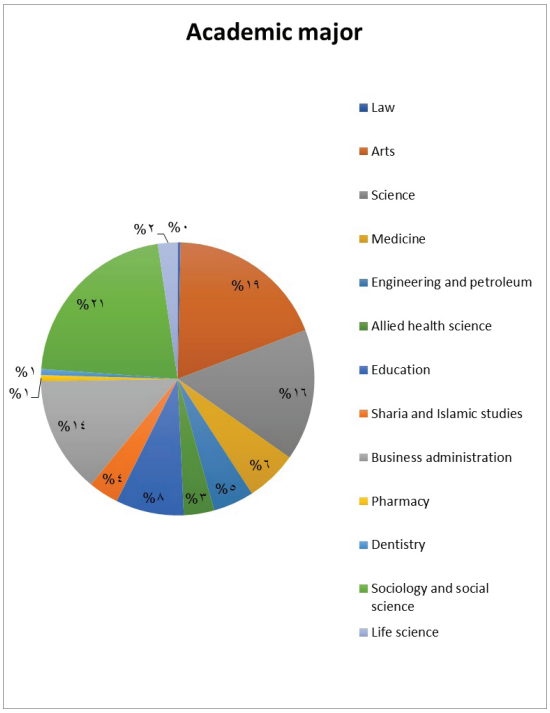

Figure 4. Pie chart of breakdown of academic major

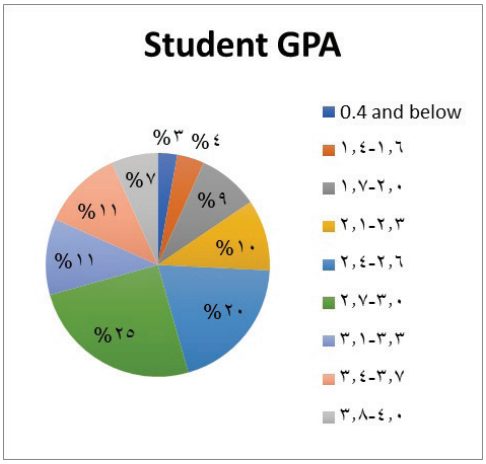

Figure 5. Pie chart of breakdown of student GPA

The following section of the results focuses on the statistically significant differences found in the analysis. The information-seeking behavior variables used in the analysis included: different practices, routines and techniques students use when approaching assignments, productivity tools used to help in doing their assignments, important considerations when doing course-work, in addition to the difficulties students encounter when searching for information. One-way ANOVA was conducted to find differences in students' information-seeking behavior and the following variables: age, college, academic year, and GPA.

Difference of Students' Information-Seeking Behavior by Students' Age:

One-way ANOVA results showed insignificant differences in students' information-seeking behaviors of number of times they consider the following sources when they search for their course assignment with different college/academic major ($F(3, 545) = 0.46$, $p = 0.71$); different practices, routines, and techniques when they approach assignments ($F(3, 543) = 1.69$, $p = 0.17$); various tasks students' use for support during their own course-related research process ($F(3, 540) = 0.47$, $p = 0.70$); how students write up their research for class assignments ($F(3, 543) = 1.69$, $p = 0.17$); and opinion about the difficulties they encounter from the moment they receive the assignment until they turn in their research paper ($F(3, 540) = 0.47$, $p = 0.70$) by difference of age, at $p > 0.05$.

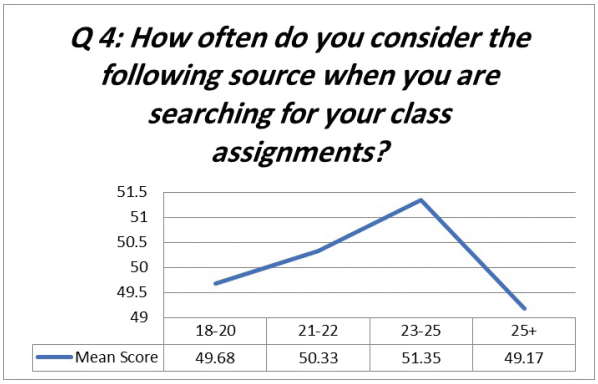

Figure 6. Graph summary of responses of on Q4 students' information-seeking behavior by Students' Age.

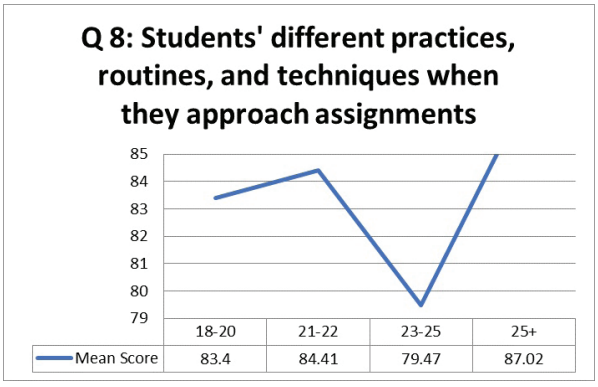

Figure 7. Graph summary of responses of on Q4 students' information-seeking behavior by Students' Age.

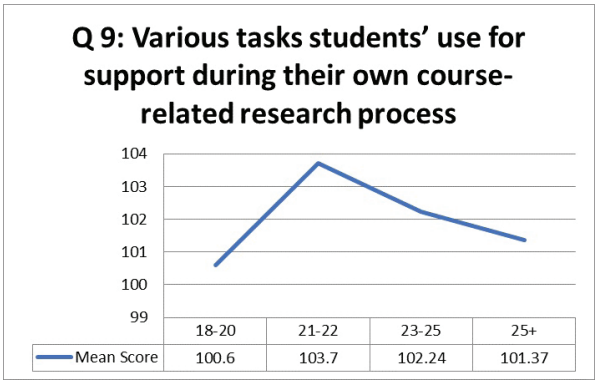

Figure 8. Graph summary of responses of on Q9 students' information-seeking behavior by Students' Age.

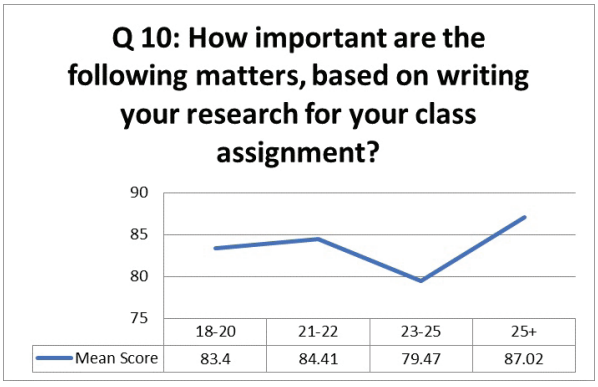

Figure 9. Graph summary of responses of on Q10 students' information-seeking behavior by Students' Age.

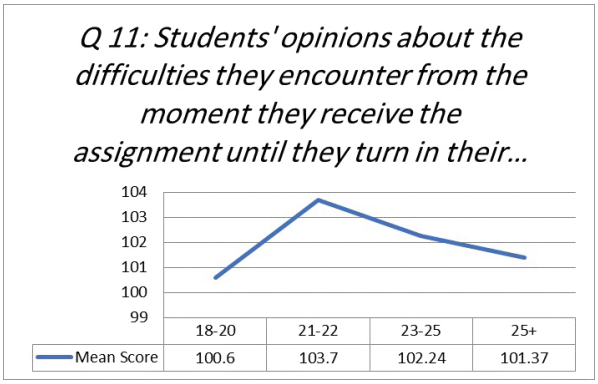

Figure 10. Graph summary of responses of on Q11 students' information-seeking behavior by Students' Age.

Differences of Students' Information-Seeking Behavior by Students' College/Academic Major:

One-way ANOVA test results showed a significant difference in students' information-seeking behaviors of number of times they consider the following sources when they search for their course assignment with different college/academic major ($F(12, 545) = 2.35$, $p = 0.006$); different practices, routines, and techniques when they approach assignments ($F(12, 545) = 2.79$, $p = 0.001$); various tasks students' use for support during their own course-related research process ($F(12, 543) = 2.47$, $p = 0.004$); how students write up their research for class assignments ($F(12, 542) = 3.04$, $p < 0.001$); and opinion about the difficulties they encounter from the moment they receive the assignment until they turn in their research paper ($F(12, 540)$

= 1.80, p = 0.045) by the difference of students' college/academic major, at $p < 0.05$. The significant differences showed that students with different college/academic major have differences in the number of times they consider the different sources when they search for their course assignment with different college/academic major; different practices, routines, and techniques when they approach assignments; various tasks students' use for support during their own course-related research process; how students write up their research for class assignments; and opinion about the difficulties they encounter from the moment they receive the assignment until they turn in their research paper.

In terms of students› information-seeking behavior about different practices, routines, and techniques when they approach assignments according to their college, students who enrolled in college of Law (M = 55.50, SD = 7.77) have the highest frequency of number of times they consider the following source when they search for their classes› assignment and the second highest were students who enrolled in college of Life Sciences (M = 55.00, SD = 11.24). Furthermore, the groups of students have the least frequency of number of times they consider the following source when they search for their classes› assignment were students who enrolled in College of Dentistry (M = 34.75, SD = 17.50) or the least who ask different practices, routines, and techniques when they approach assignments per their college.

In terms of students' information-seeking behavior about various tasks they use for supporting during their course-related research process according to their college, students who enrolled in college of Pharmacy (M = 44.50, SD = 2.38) have the highest in terms of various tasks they use for supporting during their course-related research process and the second highest were student who enrolled in College of Law (M = 43.00, SD = 2.82). These were followed by student who enrolled in College of Education (M = 41.84, SD = 8.84), student who enrolled in College of Life Sciences (M = 40.92, SD = 7.33); and students who enrolled in the College of Science (M = 40.31, SD = 8.17). Moreover, students who enrolled in College of Dentistry (M = 29.75, SD = 14.08) who show the least various tasks they use for supporting during their course-related research process according to their college.

In terms of students' information-seeking behavior about selecting amount of importance for the following matter based on writing their research for their class assignment according to their college, students who enrolled in college of Law (M = 88.50, SD = 13.43) had the highest amount of importance Kuwaiti students place on the following matters when they are writing their research paper for their course assignment and the second highest of importance ratings were student who enrolled in College of Life Sciences (M = 88.23, SD = 19.20). These were followed by student who enrolled in College of Science (M = 87.18, SD = 11.22), student who enrolled in Col-

lege of Social Science (M = 86.73, SD = 12.74); and student who enrolled in College of Education (M = 86.40, SD = 15.58). Moreover, students who enrolled in College of Dentistry (M = 57.25, SD = 32.47) showed the least selecting amount of importance for the following matter based on writing their research for their class assignment.

In terms of students' information-seeking behavior about their opinion in regards to the difficulty they encountered from the moment they got the assignment until they turned in their research paper according to their college, students who enrolled in college of Life Sciences (M = 111.38, SD = 18.12) have the highest agreement in the statement that students' opinions about the difficulties they encounter from the moment they receive an assignment until they turn in their research and the second highest agreement to that statement were those students who enrolled in College of Education (M = 108.07, SD = 24.51). These were followed by student who enrolled in College of Pharmacy (M = 106.75, SD = 19.10), student who enrolled in College of Law (M = 106.50, SD = 10.60); and student who enrolled in College of Social Science (M = 106.23, SD = 22.36). Moreover, groups of students with the least agreement in the said statement were students who enrolled in College of Dentistry (M = 75.50, SD = 42.24) who show the least difficulty they encountered from the moment they got the assignment until they turned in their research paper.

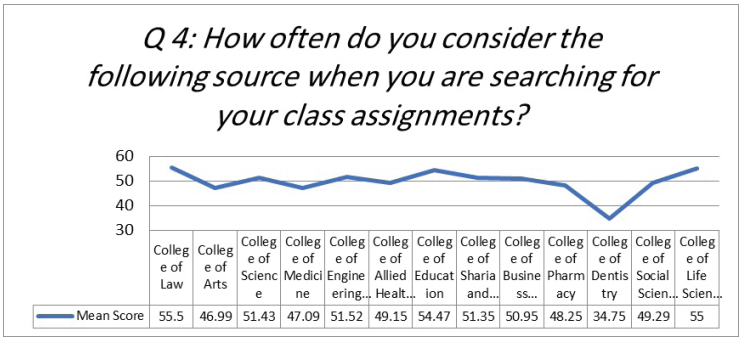

Figure 11. Graph summary of responses of on Q4 students' information seeking behavior by Students' College.

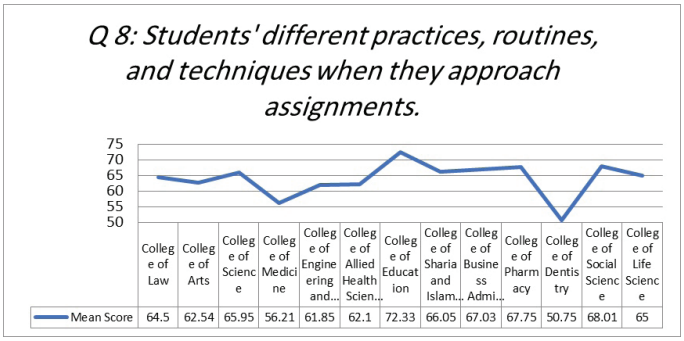

Figure 12. Graph summary of responses of on Q8 students' information seeking behavior by Students' College.

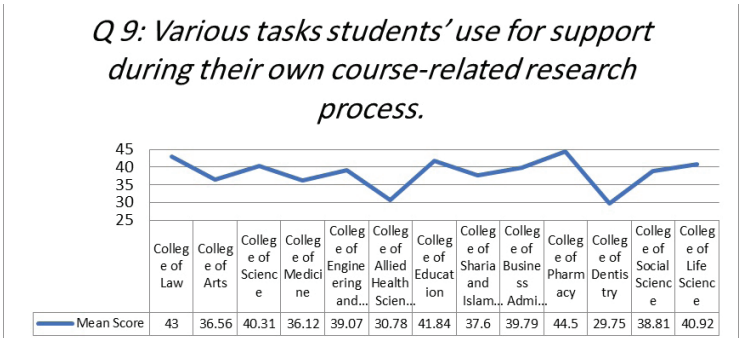

Figure 13. Graph summary of responses of on Q9 students' information seeking behavior by Students' College.

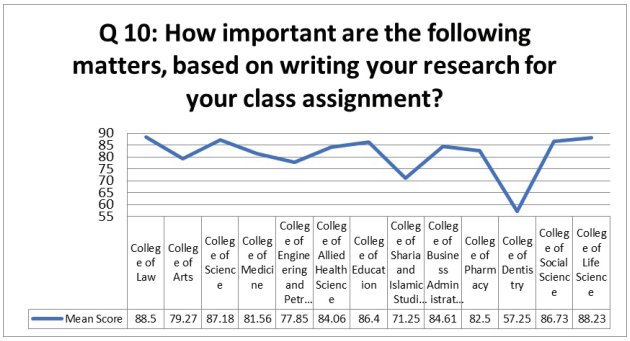

Figure 14. Graph summary of responses of on Q10 students' information seeking behavior by Students' College.

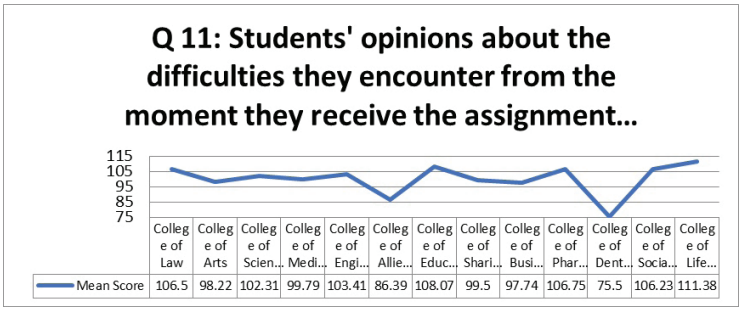

Figure 15. Graph summary of responses of on Q11 students' information seeking behavior by Students' College.

Students' Information-Seeking Behavior by Students' GPA:

One-way ANOVA results showed insignificant differences in students' information-seeking behaviors of number of times they consider the following sources when they search for their course assignment with different college/academic

major (F(8, 526) = 0.78, p = 0.62); different practices, routines, and techniques when they approach assignments (F(8, 526) = 0.69, p = 0.70); various tasks students' use for support during their own course-related research process (F(8, 524) = 1.18, p = 0.31); how students write up their research for class assignments (F(8, 523) = 0.72, p = 0.67); and opinion about the difficulties they encounter from the moment they receive the assignment until they turn in their research paper (F(8, 521) = 0.47, p = 0.88) by difference of GPA, at p > 0.05.

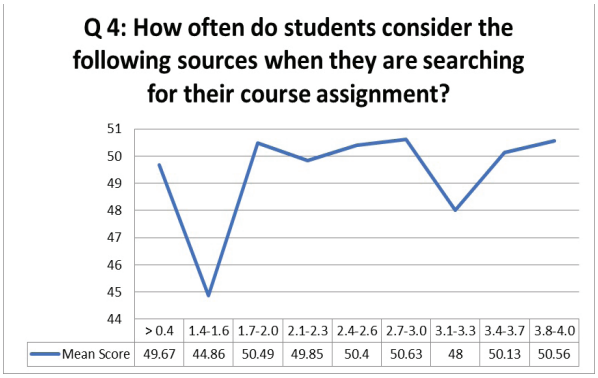

Figure 16. Graph summary of responses of on Q4 students' information seeking behavior by Students' GPA.

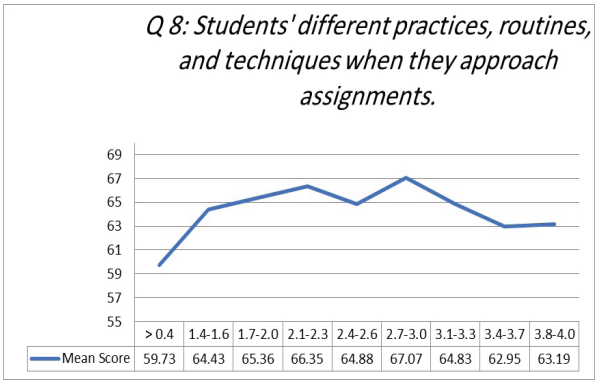

Figure 17. Graph summary of responses of on Q8 students' information seeking behavior by Students' GPA.

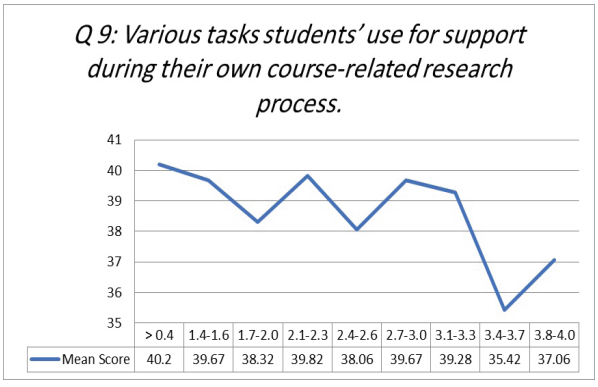

Figure 18. Graph summary of responses of on Q9 students' information seeking behavior by Students' GPA.

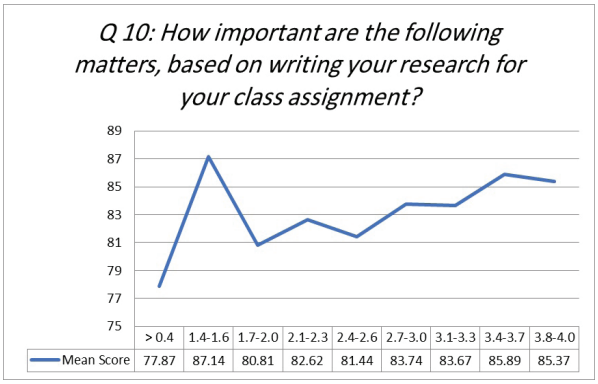

Figure 19. Graph summary of responses of on Q10 students' information seeking behavior by Students' GPA.

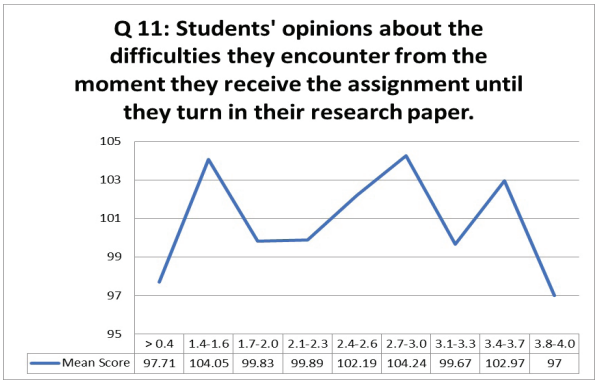

Figure 20. Graph summary of responses of on Q11 students' information seeking behavior by Students' GPA.

The difference of Students' Information-Seeking Behavior by Students' Academic Year:

One-way ANOVA was conducted to find differences in students' opinions about the difficulties they encounter from the moment they receive an assignment until they turn in their research paper, which is evaluated by the academic year in which the students are enrolled. One-way ANOVA results showed significant differences in Kuwaiti students› information-seeking behaviors of different practices, routines, and techniques when they approach assignments ($F(4, 496) = 3.08$, $p = 0.02$) and opinion about the difficulties they encounter from the moment they receive the assignment until they turn in their research paper ($F(4, 492) = 3.21$, $p = 0.01$) by the students' academic year they were enrolled, at $p > 0.05$. The significant differences showed that students enrolled in the different academic year have differences in the different practices, routines, and techniques when they approach assignments and also an opinion about the difficulties they encounter from the moment they receive the assignment until they turn in their research paper.

In terms of students' research style, different practices, routines, and techniques when they approach assignments, students who are in their fourth academic year ($M = 68.08$, $SD = 11.59$) have the highest frequency of having different practices, routines, and techniques when

they approach assignments and the second highest were those students in their third academic year (M = 67.84, SD = 14.23). Furthermore, the groups of students have the least frequency of having differed in research style, different practices, routines, and techniques when they approach assignments were students who are in their first academic year (M = 60.60, SD = 21.19) and second academic year (M = 64.25, SD = 16.46).

Furthermore, these groups of students differed in their opinions about the difficulties they encounter from the moment they receive an assignment until they turn in their research paper. Students who are in their fourth academic year (M = 105.44, SD = 21.90) have the highest agreement in the statement that students› opinions about the difficulties they encounter from the moment they receive an assignment until they turn in their research and the second highest agreement to that statement were those students in their third academic year (M = 103.72, SD = 22.50). Furthermore, groups of students with the least agreement in the said statement were students who were in their first academic year (M = 91.69, SD = 35.49) followed by students who were in their second academic year (M = 101.10, SD = 26.96).

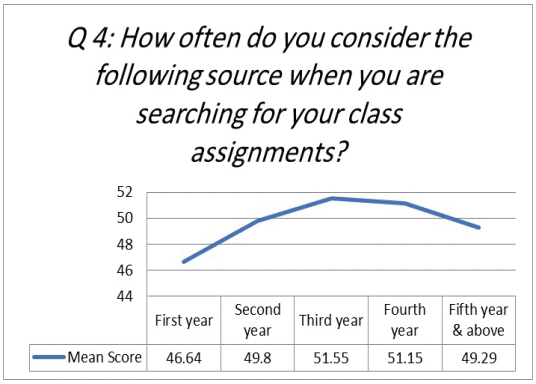

Figure 21. Graph summary of responses of on Q4 students' information seeking behavior by Students' academic year.

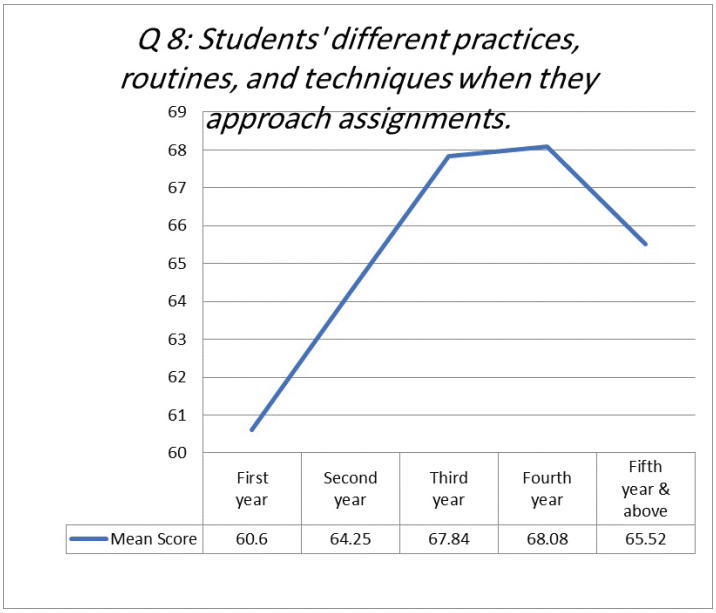

Figure 22. Graph summary of responses of on Q8 students' information seeking behavior by Students' academic year.

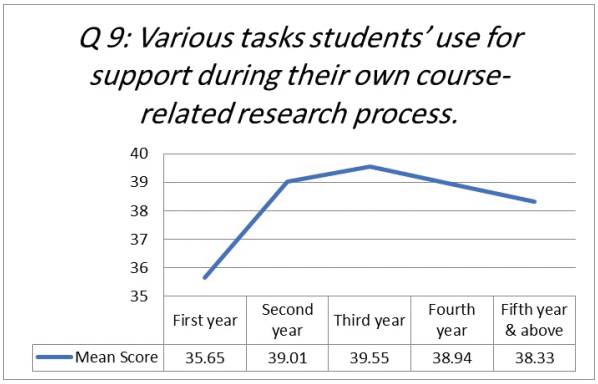

Figure 23. Graph summary of responses of on Q9 students' information seeking behavior by Students' academic year.

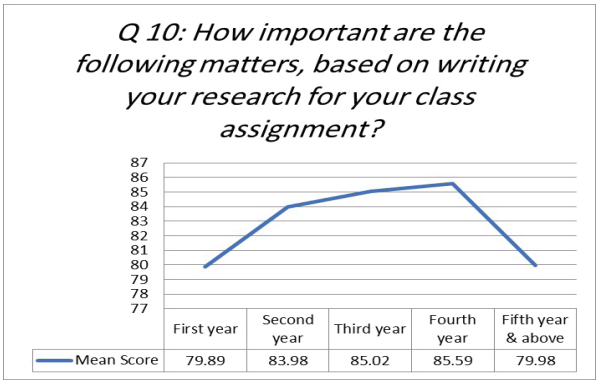

Figure 24. Graph summary of responses of on Q10 students' information seeking behavior by Students' academic year.

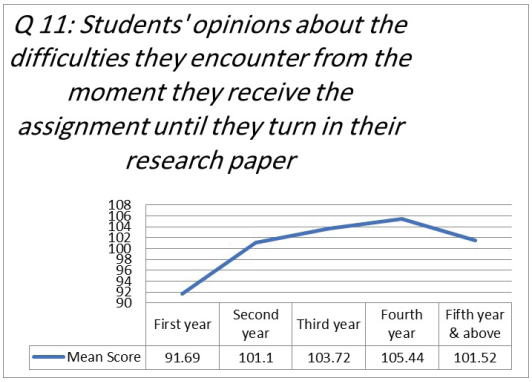

Figure 25. Graph summary of responses of on Q11 students' information seeking behavior by Students' academic year.

Past research has highlighted that despite the increasing recognition of the importance of information literacy in the academic world (Rehman & Al Awadhi, 2017), however, there is still a lack of knowledge on the best way to facilitate information literacy development among students (Raven & Rodrigues, 2017). Thus, this study aimed to investigate the information seeking behavior of students at Kuwait University to hopefully gain insight on the steps that can be taken to better integrate information literacy instruction into the system. This section relates the results from the survey analysis to the main objective of the research in accordance with the related literature. Implications are drawn from the results to come up with conclusions and recommendations. The discussion will mainly focus on elements that were significantly associated with the information-seeking behavior

of undergraduate students from all disciplinary areas.

The results revealed that among the four variables investigated in relation with information-seeking behavior of students at Kuwait University, differences in students' information-seeking behavior were not significantly associated with students' GPA or age, but were significantly associated with students' college affiliation/academic major and academic year. These will be more comprehensively discussed in the subsections below.

College Affiliation:

It can be concluded that several significant factors affect the information-seeking behavior of students at Kuwait University. An academic major is a significant factor as the results have shown when it comes to the sources students consider when they do their assignments (course reading, blogs, search engines, Wikipedia, research databases, libraries, instructors, encyclopedias, classmates, friends/family, personal collections). The One-ANOVA analysis showed that students who enrolled in the colleges of Law, Life Sciences, Education, and Engineering had the highest reported frequency of times they considered different sources when looking for information for assignments, whilst students who enrolled in Dentistry reported the least number of times they considered the above information resources for their assignments. These results indicate a lack of information literacy among some

academic fields and this needs to be addressed by understanding why certain disciplines like Dentistry was least in using electronic resources for their assignments.

Results also revealed a significant relationship between college affiliation and the different practices, routines, and techniques students adopt when doing their assignments. Students from the colleges of Law and Life Sciences most frequently used a variety of techniques--including working on their own perspectives, developing outlines, developing an overall research guide, using a system for organizing the research, and using interlibrary loans—while students from the college of Dentistry showed the least frequency in terms of using these different practices, routines and techniques when they approach course-related assignments.

In addition, the ANOVA analysis showed significant differences between college affiliation and the various tasks or tools students use for support during their course-related research process. Among those techniques (highlighting features for underlining texts, using digital sticky notes, citation-making programs, social bookmarking, microblogs, document sharing programs, online time management programs with sharing, Wikis for creating and sharing web content, photo-sharing sites, virtual research environment, blogging, voice over internet protocol). In this term, Pharmacy students topped the list in showing a significant difference, followed by Law, Education, and Life Sciences. Dentistry ranked low-

est in the way students use various tasks and tools to support their course-work assignments.

Results showed a significant difference between college affiliation and the importance placed on matters related to (getting good grades, passing courses, meeting the number of the citation required, doing a comprehensive investigation about research, improving writing skills, learning something new, impressing the instructor, impressing parents with grades). Law, Life Sciences, and Science had the highest means. Dentistry was least in selecting the amount of importance placed on the above matters when it comes to course-work assignments. The tests also revealed a significant difference between college and the difficulties students encounter when working on assignments (getting started, defining a topic, narrowing down a topic, coming up with search terms, finding articles in databases, determining whether a website is credible, figuring out where to find sources in different parts, evaluating sources, reading through the material, taking notes, integrating different sources from my research, knowing when to cite a source). Life Sciences, Education and Pharmacy had the highest means; whilst Dentistry showed least in expressing difficulties they encounter when doing assignments. These findings are aligned with previous research that has found cross-disciplinary differences in students' research experiences and behavior. Pinto and Sales' (2015) study investigated attitudes, behavior, and

skills in information literacy among more than a thousand undergraduates from different academic majors. According to the findings, students from the Arts & Humanities, as well as the Social & Legal Sciences, scored significantly highest in the three dimensions, while students from the Health Sciences, Engineering, and Architecture scored lowest, needing the most improvement relating to information literacy. Along with the current study's findings, this may be attributed to prominent differences across disciplines regarding information literacy. Kuglitsch (2015) contends that various disciplines have varying perceptions on the importance of information literacy and the skill standards that their professionals must attain. Additionally, Weller and Monroe-Gulick (2014) found that researchers from certain disciplines may utilize different research methodologies compared with others, which also affects their behavior relating to information.

Taken together, the findings of the current study and those of previous studies appear to indicate the need for a system through which information literacy can be taught to students in a way that will be relevant to their respective academic majors. In her article on library instruction, Drabinski (2014) discussed that reflection on the context of every instruction program or student is very important as it ensures that the learning students will obtain from the course will be meaningful and applicable to them. Researchers (Junisbai, Lowe, & Tagge, 2016; Weller & Monroe-Gulick, 2014) suggested

that librarians can provide discipline-specific support to the various departments within the institution in the form of training in specific research methodologies and specific skill development based on each department's needs (Kong, 2014).

Academic year

The academic stage proved to be significant concerning information-seeking behavior of students at Kuwait University. Among the participants, fourth-year students (mostly graduating) scored the highest mean in their research practices, routines, and techniques (coming up with a thesis, develop an outline, develop an overall research plan, use a system for organizing information, use interlibrary loan). Conversely, the lowest scores were obtained by first year students, indicating that they are most in need of training in information literacy. The test also showed significant differences in the various tasks students use for support in their assignments. Fourth-year students reported the highest mean score whilst first-year students showed the lowest mean.

Considering past research, the finding that positive information seeking behavior is lowest among students of earlier year levels is not surprising. Kim and Dolan (2015) conducted a study on the information literacy skills of first year college students and found that the majority of the students have done research assignments and papers during high school; they did not learn how to use library databases or

properly conduct research. As a result, they tackle higher level research assignments in college with a relatively low level of information literacy. Additionally, Saunders, Severyn, and Caron (2017) found that even when information literacy skills are being taught in several high schools, many information literate research skills do not seem to transfer to students' academic experiences in college. If students do receive information literacy education in high school, many do not seem to be able to make connections between the principles they learned and possible applications in their actual school work (Varlejs & Stec, 2014). Altogether, this indicates that information literacy education and training must be implemented and continued as there is no guarantee that students who have been taught information literacy in high school can apply this knowledge in college.

Another significant difference was found between students' academic stage and their opinions on the difficulties they encounter from the moment they get an assignment until it is done. Fourth year students reported the highest mean score, expressing the most difficulties, while first year students expressed the least. . Lowe et al. (2015) conducted a study on librarians' perceptions on undergraduate students' information literacy skills, and there was a general consensus among the participants that research assignments do tend to increase in difficulty across academic levels in college. In the case of the current study, the result that fourth year students

tend to most frequently report the difficulties they encounter in their research assignments could be interpreted in that either they may be more aware of their shortcomings in information literacy, or the research assignments students are required to do become more and more difficult as the student progresses through college. However, it is also generally expected that college students' proficiency in information literacy can increase over time (Shields, 2014).

The study's findings advance the current knowledge of undergraduates' information-seeking behavior and how this may be connected by individual characteristics. Although there have been studies examining undergraduates' information literacy skills and behavior (Al-Muomen, Shaw, and Courtney, 2016; Flywel & Jorosi, 2018), our study has improved on these studies in many ways. First, this study included a relatively large sample of students. Second, our sample covered a wide variety of disciplines and academic levels and was thus able to provide a more comprehensive comparison of students' behavior. Finally, our study provides a more detailed perspective on the state of information literacy particularly in the context of Kuwait University, which allows for the recommendation of plans of action that is highly relevant to the institution.

Limitations and Future Directions:

This study had several limitations. Initially, the questionnaire used in the study was in Arabic, but it was also translated into English for students who were English-taught. Although the scales in the questionnaire exhibited high internal consistencies, it is unsure whether the same could have been said for the translated scales. Additionally, there were an unequal proportion of students from different academic majors and academic levels, which may have contributed to skewed or inaccurate results for certain participant groups due to their small size. Any future studies should be more equally distributed across the different colleges and year levels to increase the results' reliability. In addition, future research should focus on examining not only the frequency of students' behavior but also the identification of the specific information-seeking behaviors used by students of different disciplines or academic years.

RECOMMENDATIONS:

Based on the results, academics and administrators at Kuwait University including, faculty members and librarians may consider:

- Integrating sessions within the curricular of the undergraduate courses, especially in their first year at college where they can have intensive training on how to search

for information sources such as search engines and research databases. Faculty members can give their students assignments for which it is essential to use those resources.

• All of who are involved in information-seeking and literacy should consider the significant relationship between the nature of the discipline and the routines and practices of students when it comes to searching for information for their course work. As shown in the results, students enrolled in some majors such as Dentistry needs a lot in terms of information search skills, compared to other disciplinary areas.

• It is also essential for faculty members to focus on finding some techniques that will help undergraduate students refine their research practices, routines, and techniques. This can be done by giving very specific assignments that require students to use certain search strategies. As the survey and follow-up interviews have shown, students expressed concern that finding information in the digital age is becoming even more difficult for them. The role of faculty is very important because the highest percentage (28.5%) of students in the survey said they considered instructors as an information source then they conducted their assignments.

• Besides, faculty members can highlight to their students, in all disciplinary areas, techniques related to the

organization of the information found. These vital techniques include: using citation-making programs, social bookmarking, microblogs, document sharing programs, online time management programs, wikis for creating and sharing web content, and blogging. Results showed that a large number of undergraduate students at Kuwait University still lack knowledge of how to use those techniques and therefore lose the potential of making the best out of them in their course-related work.

• The role of librarians and the library should be emphasized especially that results have shown that the highest percentage of students (28.1%) indicated that they "never" consider librarians as a source of information

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