Navigating the Digital Realm: Unravelling Information Literacy within Moroccan English Department Students - A Spotlight on Selecting Finding Tool Features

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ABSTRACT :.This article delves into the information literacy competencies of Moroccan English department students, with a specific focus on their proficiency in selecting finding tools. Amid concerns about overreliance on mainstream search engines, the study investigates students' abilities to distinguish between freely available internet search tools and subscription-based databases. Informed by diverse research sources, the inquiry reveals subtle patterns, highlighting collective weaknesses in certain areas and notable strengths in others. The findings illuminate the intricate dynamics of students' information literacy, offering valuable insights for educators aiming to design instructional strategies and enhance this skill.

KEYWORDS : Information literacy, finding tools, digital information, academic research, Moroccan English departments, LMD system, search strategies, subscription-based databases, internet search tools, educational technology.

I.   INTRODUCTION

In an era dominated by digital information, the ability to adeptly navigate and utilize various finding tools is crucial for academic success (Bhatt &MacKenzie, 2019). This article researches the universe of information literacy amongst Moroccan English department students, with a specific emphasis on their proficiency in selecting finding tools. Information literacy, composed of a set of skills in evaluating, accessing, and professionally and academically utilizing information, is crucial in the educational landscape of this era (Association of College and Research Libraries, 2015).

The skill set of selecting finding tools is particularly intriguing, as it gauges students' capability to harness the functionalities of digital tools for optimal research outcomes. As we engage in this exploration, we seek to unravel the strengths and weaknesses of students within this skill set, offering valuable insights into the broader landscape of information literacy. Through a detailed examination of eight key items, this article aims to contribute meticulous perspectives that can inform both educational practices and future research endeavours.

This study aims to investigate the specific weaknesses and strengths demonstrated by Moroccan English department students in the skill set of Selecting Finding Tools, while also exploring how this competency varies among undergraduate, graduate, and doctoral levels. Hence the research question goes as follows:

-    What are the specific weaknesses and strengths exhibited by Moroccan English department students in the skill set of Selecting Finding Tools, and how does this competency vary across undergraduate, graduate, and doctoral levels?

Stay tuned as we dissect each item of this skill set, unveiling a comprehensive understanding of how Moroccan English department students navigate the digital landscape in their pursuit of knowledge and academic excellence.

II.   REVIEW OF LITERATURE

1.1.   *The status of IL in the Moroccan LMD system*

There is a dearth of research on the status of information literacy in the Moroccan Licence Master and Doctorate (LMD) system. However, some studies have examined the current state of higher education in Morocco and its relation to information literacy. According to a study by (Biaz et al., 2014), they maintain that 'in addition to the lack of knowledge regarding techniques, there is some deficiency in skills related to information literacy. It seems that some users, who feel confident in their ability to use complex tools, confuse their own technical capabilities with their informational capabilities, which explains their low appreciation of

aspects related to information literacy' (p. 3603) . Moroccan universities face various challenges related to the quality of education, research, and innovation, which affect the development of information literacy skills among students. Worth noting is that the Moroccan LMD system is facing challenges such as out-dated curricula (especially), limited access to resources, and a lack of training for faculty members to integrate information literacy into their courses.

Another study by (El Hassani,2015) found that the Mohammed VI Library's initiative was successful in promoting IL among students and faculty. The students' knowledge, skills, and attitudes towards information resources improved significantly after participating in the library's IL programs and services. The study also found that the library's initiative was able to overcome some of the challenges of promoting IL in Morocco, such as lack of awareness of IL and lack of resources.

In all, these studies suggest that information literacy is not clearly integrated into the Moroccan LMD system. There is a need for more attention to be allocated to developing information literacy skills amongst students working on the integration of information literacy into curricula. Additionally, faculty members and doctoral students should be receiving continuous trainings to promote the development of information literacy skills in the Moroccan higher education system so that it becomes a culture and common practice within the Moroccan higher education.

III.   METHODOLOGY

During the Spring Semester of 2022, data has been collected using the SAILS test the items of which are based on the ACRL framework, formerly called the Information Literacy Competency Standards for Higher education. According to (Stainback & Stainback 1985), the approach of inquiry in any research should be one that would best address the research questions, and the research question of this article is meant to pinpoint the strengths and weaknesses of students in the skill set of selecting finding tools. The Association of College & Research Libraries (ACRL) developed theInformation Literacy Competency Standards for Higher Education (originallyapproved in 2000; rescinded in 2016). The framework consists of five standardsthat focus on what students should be able to do with information (See https://www.ala.org/acrl/standards/ilframework). The first standard is about students' ability to 'recognize wheninformation is needed'. The second standard is about 'students' ability tolocate, evaluate, and use needed information effectively and efficiently'. Thethird standard is about the students' ability 'to use information ethically andlegally'. The fourth standard is about the students' ability 'to communicateinformation needed effectively'. The fifth and final standard is about the students'ability 'to understand the economic, social, and political value of information'.

In the SAILS project, the team regrouped the ACRL outcomes andobjectives into eight skill sets which are:

Developing a Research Strategy

Selecting Finding Tools

Searching

Using Finding Tool Features

Retrieving Sources

Evaluating Sources

Documenting Sources

Understanding Economic, Legal, and Social Issues

The test assesses the dimensions of each skill set with a variety of multiple-choicequestions for quantitative data. For this study, we focused on the skill set of selecting finding tools. We opted for the BYOT way of testing, see https://www.projectsails.org/site/. BYOT stands for Build Your Own Test. The items of the test are ordered by difficulty and values range from 0 to 1000. We selected items that are within a reasonable level of difficulty; therefore, we did not go beyond 600.

Multi-sampling is how we approached this study. It consists of students fromdifferent English departments around Morocco. Since the SAILS test is online-based, it allowed sampling variance and representation. The test was administered to Undergraduate, Master's and doctorate students. The reason behind this choice is to pinpoint the students' areas of weakness and strength as they move up the ladder of academia through the outcomes and objectives of the test items.

IV.   RESULTS

Our investigation, rooted in the Standardized Assessment of Information Literacy Skills (SAILS) based on the ACRL framework, follows a meticulous approach to uncover the multifaceted landscape of information literacy. Based on our research question, we navigated through the skill set of selecting finding tools and engaged in a dialogue with the numbers, exploring patterns that illuminate strengths and expose areas for growth. Moreover, we also examined the nuances across different academic levels, recognizing the diversity that shapes information literacy competencies of the undergraduate, graduate and doctorate students of Moroccan English departments.

Selecting finding tools
Item 19. *What is a list of books, journal articles, or other materials about a certain topic?*

Table 1. Descriptives

Item 19				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.46	.502	.057
Master's Students	45	.67	.477	.071
Doctoral Students	102	.68	.470	.047
Total	225	.60	.491	.033

The second skill set, selecting finding tools, is reflected in the descriptive statistics table for item 1. It shows that the Master's and Doctoral students have higher mean scores than Undergraduate students, with the total mean score closer to the mean scores for Master's and Doctoral students. The standard errors are relatively low, suggesting that the sample means are likely to be representative of the population means. We ran the ANOVA test to see if there are any significant differences.

Table 2. ANOVA

Item 19					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.292	2	1.146	4.920	.008
Within Groups	51.708	222	.233		
Total	54.000	224			

The ANOVA test of table 2 shows a significant difference in mean scores item 19 amongst the three student group. The between groups factor was significant ($F(2, 222)=4.920$, $p=.008$), indicating that there is variability in mean scores between the groups. The within groups factor was also substantial, indicating considerable variability in scores within each group. On the whole, the results suggest that there is a statistically significant difference in mean scores for item 19 among the three student groups.

Item 22. *What is a computer system that shows what journal articles have been published on a certain topic?*

Table 3. Descriptives

Item. 22				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.53	.503	.057
Master's Students	45	.64	.484	.072
Doctoral Students	102	.65	.480	.048
Total	225	.60	.490	.033

Table 3 shows that the doctoral students had the highest mean scores in item 22 (M=.65) followed by the Master's students (M=.64) and then the Undergrads (M=.53). The standard deviations of the three groups were similar (ranging from .480 to .503), which indicates a relative consistency in scores variability. The total mean score was .60 with a standard deviation of .490. The 95% confidence intervals for the mean scores of the three groups did not overlap, which suggests that there may be significant differences in mean scores between the groups which encourages running an ANOVA test.

Table 4. ANOVA

Item 22

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.742	2	.371	1.552	.214
Within Groups	53.054	222	.239		
Total	53.796	224			

The ANOVA test indicates that there was no significant difference in mean scores for item 22 among the three student groups, as the F-value of 1.552 did not exceed the critical value necessary for statistical significance (p=.214). This suggests that any observed differences in mean scores among the groups may have been due to chance rather than actual differences in performance on the question.

Item 140. *Academic libraries* *have collections of materials in print and electronic formats. Many of these materials are made available to users on the Internet but are not included in what we traditionally think of as free Web content.*

*The **World Wide Web** is a means of sharing information on the Internet. People typically use browsers and mobile devices to access information on the Web, including free content. Given the preceding descriptions, what can you say about the following statement? Statement: Just about anyone can add information to it.*

Table 5. Descriptives

Item 140

	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.59	.495	.056
Master's Students	45	.58	.499	.074
Doctoral Students	102	.66	.477	.047
Total	225	.62	.487	.032

Table 5 presents the mean scores for the undergrads, Master's and doctoral students at a level of (M. 0.59.), (M. 0.58.), (M. 0.66.0) respectively. For the Standard Deviation, we notice that it is highest amongst the undergrads students at a level of 0.495, and lowest amongst the doctoral students at a level of 0.477. The total mean score of the whole sample is (M. 0.62) with a standard deviation of 0.487, and a 95% confidence interval ranging from 0.55 to 0.68. The results are quite close and encourage an ANOVA test to see if there are any significant differences.

Table 6. ANOVA

Item 140

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.289	2	.145	.607	.546
Within Groups	52.840	222	.238		
Total	53.129	224			

The ANOVA results suggest that there are no statistically significant differences in the mean scores for Item 140 (associated with the skill of selecting finding tools) across the different academic levels. This implies that the proficiency levels in this skill set, though moderate in performance, are relatively similar among Undergraduate, Master's, and Doctoral Students.

Item 521. *If you want to find a report of a research study that is written by the people who conducted the research, which type of resource is the best choice?*

Table 7. Descriptives

Item 521

	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.73	.446	.051
Master's Students	45	.76	.435	.065
Doctoral Students	102	.72	.453	.045
Total	225	.73	.446	.030

The second skill set, selecting finding tools, is reflected in the descriptive statistics table for Item 521. This skill assesses students' ability to use appropriate tools to locate information effectively. Undergraduate Students have a mean score of 0.73, showing moderate proficiency, while Master's Students score slightly higher at 0.76. Doctoral Students show a similar proficiency with a mean score of 0.72. The overall proficiency level is comparable across academic levels, as indicated by similar mean scores and overlapping Confidence Intervals. This suggests consistent competency in using tools to find information among students at different academic levels.

Table 8. ANOVA					
Item 521					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.050	2	.025	.125	.882
Within Groups	44.412	222	.200		
Total	44.462	224			

The ANOVA table for Question 521, which assesses the skill of selecting finding tools, indicates a non-significant result (p = .882). This suggests that there is no statistically significant difference in the mean scores of this skill among different academic levels. The low F-value of 0.125 further supports the absence of a significant effect. Thus, it can be inferred that students at various academic levels demonstrate similar proficiency in the ability to use appropriate tools for information retrieval.

Item 522. *In the library, all of the following are effective ways to locate major reference sources appropriate to a subject discipline, such as linguistics, music, or biology, except*

Table 9. Descriptives				
Item 522				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.23	.424	.048
Master's Students	45	.31	.468	.070
Doctoral Students	102	.40	.493	.049
Total	225	.32	.469	.031

In the context of the skill set centered around "Selecting Finding Tools," the mean scores reveal discernible differences across various academic tiers. Among these, undergraduate students present a mean score of 0.23, potentially implying a relatively modest performance in this specific competency. Contrarily, master's students and doctoral students exhibit mean scores of 0.31 and 0.40, respectively, suggesting a more proficient aptitude. This divergence in mean scores could potentially allude to a heightened capability among higher-level students in effectively choosing appropriate tools for information retrieval, as opposed to their undergraduate counterparts. Nonetheless, a more in-depth analysis is essential to ascertain the statistical import of these variances. Therefore, we ran an ANOVA test.

Table 10. ANOVA					
Item 522					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.305	2	.653	3.018	.051
Within Groups	48.010	222	.216		
Total	49.316	224			

The ANOVA results for Item 522 illustrate intriguing patterns. The analysis reveals a statistically significant F-value of 3.018 with a corresponding p-value of .051, suggesting a potential tendency of differentiation among the academic levels concerning the skill of selecting finding tools. This indicates that there could be variances in the students' performance across different academic tiers. Consequently, while there is an indication of possible distinctions, further examination is required to confidently ascertain whether these variances hold statistical weight or not. Therefore, we ran a post hoc test for multiple comparisons.

Item 523.*All of the following criteria are useful when identifying a resource to use for your research except:*

Table 11. Descriptives

Item 523				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.37	.486	.055
Master's Students	45	.60	.495	.074
Doctoral Students	102	.57	.498	.049
Total	225	.51	.501	.033

The descriptive analysis (Table 11) provides a comprehensive understanding of the participants' performance across different academic levels. Notably, the mean scores reveal varying degrees of proficiency in this skill set. Undergraduate Students exhibit a mean score of .37, indicating a moderate level of skill, while Master's Students demonstrate a higher mean of .60, suggesting a stronger performance in constructing and refining research strategies. Doctoral Students also present a noteworthy mean of .57, reflecting a substantial competence in this aspect. These findings are further illuminated by the confidence intervals, which provide a range within which the true population mean is likely to fall. For Undergraduate Students, the confidence interval spans from .26 to .48, indicating the potential variability in their actual mean score. Master's Students exhibit a confidence interval of .45 to .75, highlighting the broader range of their performance. Similarly, Doctoral Students' confidence interval of .47 to .67 emphasizes the potential variation in their skill level. It is noteworthy that the overall mean score for this skill set among all participants is .51, indicating a moderate performance level. These insights underscore the varying degrees of competence among different academic levels in constructing and refining research strategies.

Table 12. ANOVA

Item 523					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.202	2	1.101	4.524	.012
Within Groups	54.038	222	.243		
Total	56.240	224			

The analysis of variance (ANOVA) results for Item 523, as depicted in Table 32, indicates a significant difference in the mean scores across the different academic levels." The sum of squares between groups is 2.202, with degrees of freedom (df) equal to 2, resulting in a mean square of 1.101. The calculated F-value of 4.524 is associated with a p-value of .012, which is below the conventional threshold of .05 for statistical significance. These findings suggest that there are variations in the performance levels of participants from different academic levels within the skill set of constructing and refining research strategies. The ANOVA outcome provides evidence to support the hypothesis that there is a significant difference in mean scores across academic levels for this specific skill set. Further post hoc tests could be conducted to identify specific differences between academic levels.

Item. 584. *If you want to locate good journal articles on a specific topic, which of these is the best way to start?*

Table. 13. Descriptives

Item 584				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.67	.474	.054
Master's Students	45	.69	.468	.070
Doctoral Students	102	.70	.462	.046
Total	225	.68	.466	.031

In Table 13, we observe the descriptive statistics for Item 584, which pertains to the skill set of "Locating and Accessing Information Resources." The mean values offer insights into the performance of students at different academic levels. For Undergraduate Students, the mean is .67, accompanied by a standard deviation of .474. Master's Students exhibit a slightly higher mean of .69, with a standard deviation of .468. Doctoral Students' performance is reflected in a mean of .70 and a standard deviation of .462. These average scores suggest a relatively consistent performance trend across the academic tiers within this skill set. Notably, the majority of students have achieved scores above the midpoint, indicating a reasonable level of competence in this particular skill area.

Table 14. ANOVA					
Item 584					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.039	2	.020	.090	.914
Within Groups	48.556	222	.219		
Total	48.596	224			

In Table 14, we examine the ANOVA results for Item 584, focusing on the skill set "Locating and Accessing Information Resources." The analysis explores the variance between different academic levels. The between-groups sum of squares is .039, distributed across 2 degrees of freedom, leading to a mean square of .020. The computed F-value of .090 is accompanied by a significance level of .914. The outcome suggests no statistically significant differences in the performance across academic tiers within this skill set. The within-groups sum of squares is 48.556, distributed across 222 degrees of freedom, resulting in a mean square of .219. The total sum of squares is 48.596, with a total of 224 observations. These findings indicate that there are no noteworthy distinctions in the mean scores of students at different academic levels concerning this particular skill set.

What time period does this source cover?

TITLE Colonial America: An Encyclopedic History
EDITOR Tanya W. Braithwaite
IMPRINT New York, NY: Castle Publishing, c2018
DESCRIPTION 4 v.: ill., maps; 29 cm.
NOTE Includes bibliographical references and indexes.
NOTE Topics include: African Americans -- Agriculture industries -- Arts and culture -- British colonies -- Dutch colonies -- Economy, business, and labor -- European Americans -- Everyday life -- French colonies -- Geography -- Health and medicine -- Military and diplomatic affairs -- Native Americans (American Indians) -- Politics, law, and government -- Spanish colonies -- Women and gender issues -- Transatlantic trade -- Race and ethnicity.
SUBJECT United States -- Civilization -- To 1783 -- Encyclopedias.
OCLC # 53289922.
ISN/STD GBA558970
LCCN 2003023235
CALL NUMBER E175 .D29 2018

Table 15. Descriptives				
Item 613				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.65	.479	.054
Master's Students	45	.69	.468	.070
Doctoral Students	102	.67	.474	.047
Total	225	.67	.472	.031

Table 15 shows the performance details for Item 613. This table gives us the average scores, the spread of scores (standard deviation), and how confident we are about these scores (confidence interval) for students at various academic levels. For undergraduate students, the average score is .65, and their scores vary within .479. Master's students scored around .69 on average, with a spread of .468. Doctoral students got an average score of .67, with scores differing by .474. When we look at all students together, the average score is .67, with a spread of .472. This information helps us understand how students are doing in terms of evaluating information and sources across their academic levels.

Table 16. ANOVA					
Item 613					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.035	2	.018	.078	.925
Within Groups	49.965	222	.225		
Total	50.000	224			

The ANOVA results presented in Table 16 for Item 613 indicate that there is no significant difference in the scores for the "Evaluating Information and Sources" skill set among students at different academic levels. The F-statistic is .078, and the associated p-value is .925, which is much greater than the commonly used significance level of .05. This suggests that the variation in scores observed between the academic levels is likely due to chance rather than meaningful differences.

V.   DISCUSSION

Among the diverse skill sets encapsulated within information literacy, the capacity to select finding tools emerges as a critical aspect. This skill set requires students to discern between freely available internet search tools and subscription-based databases, distinguish various research sources, and understand the nuances of tools like library catalogs and periodical indexes. In this section, we delve into the strengths and weaknesses exhibited by Moroccan English department students across different academic levels in mastering these aspects of selecting finding tool features.

In contemporary education, the significance of honing these skills cannot be overstated. As D'Couto and Rosenhan (2015) highlight, an over-reliance on familiar search strategies, often manifested through ubiquitous tools like Google, can impede students' deeper understanding of information retrieval mechanisms. Bhatt and MacKenzie (2019) further underscore the dilemma where students may unknowingly reinforce pre-existing opinions through search engines, hindering the exploration of new ideas. It is against this backdrop that we explore the details of students' proficiency in selecting finding tool features.

Items of weak performance

Item 522: Here, the mean scores are .23 (undergraduate), .31 (graduate), and .40 (doctoral). These scores suggest that all groups have a weaker understanding of the differences between freely available Internet search tools and subscription-based databases.

The outcome and objective: *2.1.3.6 identifies the differences between freely available Internet search tools and subscription or fee-based databases.*

In item 522, the mean scores indicate varying levels of understanding across student groups regarding the distinctions between freely available Internet search tools and subscription-based databases. Notably, undergraduate students achieved a mean score of .23, graduates scored .31, and doctoral students scored .40. These results suggest a general weakness across all groups in discerning the disparities between freely accessible online search tools and databases that require a subscription or fee. This finding underscores the need for focused attention on enhancing students' awareness and comprehension of the diverse features and accessibility of digital information retrieval platforms.

Items of moderate performance

Item 19: The mean scores for this item are .46 (undergraduate), .67 (graduate), and .68 (doctoral). These scores indicate that all groups have moderate abilities in deciding when it's appropriate to use general and subject-specific information sources.

- The outcome and Objective :*1.1.3.2 Demonstrates when it is appropriate to use a general and subject-specific information source (e.g., to provide an overview, to give ideas on terminology).*

In item 19, the mean scores illustrate varying levels of competence across student groups in determining the suitability of employing general and subject-specific information sources. Specifically, undergraduate students attained a mean score of .46, graduates achieved .67, and doctoral students scored .68. These results suggest that all groups exhibit a moderate proficiency in discerning when it is appropriate to utilize both general and subject-specific information sources. This finding highlights a noteworthy competency in understanding the contextual relevance of different information sources, contributing to the development of well-rounded information literacy skills.

Item 22: In this case, the mean scores are .53 (undergraduate), .64 (graduate), and .65 (doctoral). This shows a moderate ability to distinguish among indexes, online databases, and collections of online databases.

- The outcome and objective*: 2.1.3.4 Distinguishes among indexes, online databases, and collections of online databases, as well as gateways to different databases and collections.*

For item 22, the mean scores indicate a moderate proficiency across all student groups in distinguishing among indexes, online databases, and collections of online databases. Specifically, the mean scores are .53 for undergraduates, .64 for graduates, and .65 for doctoral students. This suggests that students possess a reasonable ability to differentiate between various types of information repositories in the digital landscape. The findings emphasize a foundational skill in navigating the complexities of online resources, contributing to a more nuanced understanding of available information tools.

Item 140: With mean scores of .59 (undergraduate), .58 (graduate), and .66 (doctoral), it's evident that all groups have a moderate ability to explain the difference between the library catalog and a periodical index.

- The outcome and objective*: 2.3.2.2 Explains the difference between the library catalog and a periodical index.*

The mean scores for Item 140 reveal a moderate ability among all student groups—undergraduate, graduate, and doctoral—to explain the difference between the library catalog and a periodical index. This finding aligns with the objective of the skill set, emphasizing the importance of understanding and articulating distinctions between different information sources within the library context. While the scores are relatively consistent across the groups, the moderate level suggests room for improvement in enhancing students' proficiency in distinguishing between library catalog resources and periodical indexes. This competence is crucial for effective navigation and utilization of diverse information repositories available in academic settings.

Item 523: In this case, the mean scores are .37 (undergraduate), .60 (graduate), and .57 (doctoral). These scores indicate that graduates perform better than the other two groups in using different research sources to find different types of information.

- The outcome and Objective: *2.3.1.4 Uses different research sources (e.g., catalogs and indexes) to find different types of information (e.g., books and periodical articles).*

For Item 523, the mean scores underscore variations in the performance of different student groups—.37 for undergraduates, .60 for graduates, and .57 for doctoral students. Notably, graduates exhibit a higher proficiency compared to their undergraduate and doctoral counterparts in using various research sources to locate diverse types of information. This finding is consistent with the targeted outcome and objective of the skill set, emphasizing the importance of employing different research sources, such as catalogs and indexes, to access varied types of information, including books and periodical articles. The results highlight the potential strengths of graduate students in navigating and utilizing a broader spectrum of resources for their research needs.

Item 584: The mean scores are .67 (undergraduate), .69 (graduate), and .70 (doctoral). These scores suggest a moderate ability to identify the differences between indexes, online databases, and collections of online databases.

- The outcome and objective: *2.1.3.4 Distinguishes among indexes, online databases, and collections of online databases, as well as gateways to different databases and collections.*

In addressing Item 584, the mean scores indicate a similar and moderate proficiency across student levels—.67 for undergraduates, .69 for graduates, and .70 for doctoral students. This implies that all groups possess a comparable ability to discern distinctions among various information sources, specifically indexes, online databases, and collections of online databases. The outcome aligns with the expected competency outlined in the skill set, emphasizing the importance of students being able to differentiate between these different types of resources. The consistent performance across undergraduate, graduate, and doctoral levels suggests a shared understanding of these distinctions among the students, showcasing a stable and moderate level of proficiency in this aspect of information literacy.

Items of strong performance

Item 613: For this item, the mean scores are .65 (undergraduate), .69 (graduate), and .67 (doctoral). This indicates quite strong abilities in using different research sources for finding different types of information.

- The outcome and Objective: *2.3.1.4 Uses different research sources (e.g., catalogs and indexes) to find different types of information (e.g., books and periodical articles).*

Concerning Item 613, the mean scores exhibit robust performance across the three student groups—.65 for undergraduates, .69 for graduates, and .67 for doctoral students. These scores suggest a pronounced proficiency in the ability to utilize various research sources for locating diverse types of information. The outcomes align closely with the stipulated objective (2.3.1.4), emphasizing the importance of students employing different research sources, such as catalogs and indexes, to access a range of information types, including books and periodical articles. The consistently high scores across all academic levels indicate a shared strength among the students, signifying a commendable mastery of this particular facet of information literacy.

VI.　　CONCLUSION

The examination of students' performance in selecting finding tools reveals intriguing patterns. Notably, the data indicate a collective weakness in understanding the differences between freely available internet search tools and subscription-based databases. This echoes concerns raised by Bhatt and MacKenzie (2019) regarding students' limited grasp of search engine functionalities, potentially limiting their exposure to diverse perspectives.

In contrast, the findings suggest a moderate to strong proficiency in distinguishing among various research sources. Graduates, in particular, excel in this aspect, reflecting the enhanced discernment acquired through advanced academic training. Such nuances are critical for fostering an understanding of information retrieval tools and align with the assertions of Foster and Gibbons (2007) on the importance of research skills in undergraduate education.

Additionally, the exploration of students' strengths and weaknesses in selecting finding tools illuminates key areas for pedagogical emphasis. The observed weaknesses highlight the necessity of targeted interventions to enhance students' understanding of diverse information retrieval mechanisms. Simultaneously, the strengths evidenced in discerning different research sources underscore the positive impact of academic progression on

these skills. This analysis contributes valuable insights for educators, emphasizing the need for need-based instructional approaches to fortify students' information literacy skills.

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