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Exploring the Digital Maze: Unveiling Information Literacy within Moroccan English Department Students with a Focus on Developing a Research Strategy

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Abstract:
This study explores the realm of information literacy amongst Moroccan English department students, unravelling the intricacies of their abilities in developing a research strategy. Getting data from the Standardized Assessment of Information Literacy Skills (SAILS) test, the research scrutinizes the performance of undergraduate, graduate, and doctoral students. The focus on the specific skill set of developing a research strategy sheds light on the students' competencies in areas such as conferring with instructors, identifying research topics, and understanding the role of desired end products in information retrieval. The findings reveal nuanced strengths and weaknesses among students at different academic levels. This exploration not only contributes to the understanding of information literacy within the Moroccan English departments' context but also provides insights for curriculum designers and faculty seeking to enhance students' proficiency in navigating the digital information landscape.

Keywords: Information literacy, research strategy, SAILS test, higher education, Moroccan English department, academic levels, digital information landscape, competency assessment

1. Introduction

With today's exponential growth of technology and the ever-burgeoning World Wide Web, the dilemma of information access has become an excess of information rather than a lack of information. Consequently, this wind of change has blown over notions such as education, pedagogy, instruction, communication, integration, and literacy, to name a few, and has resulted in the necessity of revising and redefining these. The tsunami of information has made it necessary that information seekers, in general, and students, in particular, be literate enough when it comes to sifting through the overload of information that they get bombarded with once in front of the screen or in a library. Therefore, what has become at the forefront of today's social, economic, professional, and especially educational realms is what has come to be named information literacy.

Information literacy skills have become essential in navigating the large amount of information available in a digital era. This means that even individuals who know how to use different media available nowadays may not necessarily be literate enough to find certain information for a specific need (Gibson, 2012; Shantaram, 2012). As technology advances and develops in educational practices and scenarios, it is imperative to understand what individuals develop and use information literacy skills in academic and professional settings to succeed there. Although the English language is, over the course of decades, becoming more important in Morocco, information literacy is 'still in its infancy' (Nfissi, 2013, p.87); therefore, students would definitely face unique challenges when it comes to developing their information literacy skills in the digital age because 'Information literacy has not yet been fully integrated into the Moroccan university curriculum' (Nfissi, 2013, p.88). In fact, Moroccan higher education students encounter difficulties while doing research because they get an amplitude of instruction on the mechanics of doing research, whereas so little (if not none) instruction on research strategy and information

This study aims to investigate the specific weaknesses and strengths demonstrated by Moroccan English department students in the skill set of developing a research strategy, 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 developing a research strategy, and how does this competency vary across undergraduate, graduate, and doctoral levels?

2. Literature Review

Information literacy has become a crucially important skill for today's digitally-engulfed world, where information is over-abundant and swiftly reached. Before the 70s, information literacy as a notion did not exist, as accessing information was enclosed within libraries and other sources that are physical. However, with the rise of digital technologies and the World Wide Web, accessing information has caused an unprecedented explosion, making locating, evaluating and using information more challenging than ever as opposed to how easy it seems to laymen. The advent of information literacy as a skill is a result of these changes in the information landscape.

The earliest mention of information literacy goes back to the 1970s when it was named bibliographic instruction. Paul Zurkowski, who first coined the term in the late 1980s, defined the concept as 'the ability to use information effectively, efficiently, and ethically' (Zurkowski, 1974). Since then, this definition has been rectified and enhanced to include not only being able to use information but also to find, assess, and utilize it in an ethical and responsible manner.

The birth of Information Literacy as a discipline in higher education is a natural reason for the critical importance of information in any academic discipline. The boom of information technologies and digitalization has led to an explosion of information in all fields, and the ability to access and use this information has become an increasingly critical skill for any kind of student.

Loads of studies have been carried out to explore information literacy in higher education. A study by Foster and Gibbons (2007) maintains that students who received information literacy instruction performed better academically and had higher retention rates than those who did not receive instruction on the field. Another study by Oakleaf (2010) contends that information literacy instruction is correlated positively with students' success in higher education, as well as their ability to know how to use information in their daily lives.

The appearance of information literacy in higher education has also been a precursor to the development of different frameworks and standards for the instruction and assessment of information literacy skills. The Association of College and Research Libraries (ACRL) Framework for Information Literacy for Higher Education (within which this study is conducted), developed in 2015, outlines six core concepts that students should understand to be information literate; this includes authority, information creation, and research as inquiry (ACRL, 2015). Academic libraries have widely used the framework as a template for creating information literacy programs to integrate into curricula and evaluate student learning results.

As the information nature and environment have changed and accessing information has become more widespread thanks to digital technologies and the World Wide Web, information literacy has risen to become a crucially needed skill for students in higher education. Academic libraries have started developing programs to guide the instruction of information literacy in response to this demand. Also, numerous frameworks and standards have been created to encourage these initiatives. Information literacy will definitely become increasingly important for students to excel at school and in their careers, given the fact that the importance of information as literacy is increasingly proving to be an inevitable necessity.

3. Methodology

During the Spring Semester of 2022, data were 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 developing a research strategy. The Association of College & Research Libraries (ACRL) developed the Information Literacy Competency Standards for Higher Education (originally approved in 2000; rescinded in 2016). The framework consists of five standards that focus on what students should be able to do with information (See https://www.ala.org/acrl/standards/ilframework). The first standard concerns students' ability to 'recognize when information is needed.' The second standard deals with 'students' ability to locate, evaluate, and use needed information effectively and efficiently'. The third standard is about the students' ability 'to use information ethically and legally'. The fourth standard is about the students' ability 'to communicate information 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 and objectives 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-choice questions for quantitative data. For this study, we focused on the skill set of developing a research strategy. We opted for the BYOT way of testing (see https://www.projectsails.org/site/). BYOT stands for Build Your Own Test. The items in the test are ordered by difficulty, and the values range from 0 to 1000. We selected items that were within a reasonable level of difficulty; therefore, we did not go beyond 600.

3.1. Sample

Multi-sampling is how we approached this study. It consists of students from different 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.

4. 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 developing a research strategy 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.

- Item 215: *Your search for articles on your topic, learning styles, has produced many articles that discuss learning styles in a particular context or regarding a specific group of learners. What is the best course of action?*

Item 215				
	N	**Mean**	**Std. Deviation**	**Std. Error**
Undergraduate Students	78	.67	.501	.057
Master's Students	45	.67	.477	.071
Doctoral Students	102	.87	.640	.063
Total	225	.76	.571	.038

Table 1: Descriptives

To evaluate the skill of developing a research strategy, students were asked to answer a series of questions. The descriptive statistics in table 1 are for item number 215. They are organized by student level. 78 is the number of undergraduate students with a mean score of M = 0.67 (Std = 0.501), 45 is the number of master's students with a mean score of M = 0.67 (Std = 0.477), and102 is the number of Doctoral students with a mean score of M = 0.87 (Std = 0.640). The total size of the sample makes N = 225 in number with a mean score of M = 0.76 (SD = 0.571). The scores for all groups and the total sample are positively skewed, with the majority of students reporting low levels of item 215. This encouraged the ANOVA test.

Item 215					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	2.364	2	1.182	3.712	.026
Within Groups	70.676	222	.318		
Total	73.040	224			

Table 2: ANOVA

The ANOVA test was conducted to make clear the differences in item 215 scores across the undergraduate, master and doctorate students. Results presented in table 2 indicate a statistically significant difference in item 215 scores between student levels, $F_{(2, 222)} = 3.712$, p = .026. The effect of the between-groups accounted for 2.364 of the total variance, while the effect within-groups accounted for 70.676 of the total variance. The total variance in item 215 scores was 73.040. On that, Post-hoc tests were conducted to further examine the nature of the differences between groups.

- Item 532: *All of the following criteria are useful for evaluating the usefulness of a magazine article except:*

Item 532				
	N	**Mean**	**Std. Deviation**	**Std. Error**
Undergraduate Students	78	.53	.503	.057
Master's Students	45	.49	.506	.075
Doctoral Students	102	.54	.501	.050
Total	225	.52	.501	.033

Table 3: Descriptives

Item 532 serves as an indicator of the skill level. Table 3 presents the descriptive statistics for item 532 across student levels. Respectiveley, the mean scores for the undergraduate, master's, and doctoral student groups were .53, .49, and .54. The total mean score for all levels came up as .52, with an SD of .501. The results suggest that, on average, students have a moderate level of proficiency in developing a research strategy regarding this item. The 95% confidence intervals for the mean scores suggest that the true population means are likely to fall within the reported ranges.

Item 532					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.079	2	.040	.157	.855
Within Groups	56.036	222	.252		
Total	56.116	224			

Table 4: ANOVA

The ANOVA test for item 532 did not show a significant difference between the mean scores of the three academic levels. The F-value of .157 is not statistically significant at the alpha level of .05. Hence, we cannot reject the null hypothesis that there is no significant difference between the mean scores of the three groups in this item.

- Item 548*: What is the best thing to do when you need help with library research?*

Item 548				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.44	.499	.057
Master's Students	45	.36	.484	.072
Doctoral Students	102	.37	.486	.048
Total	225	.39	.489	.033

Table 5: Descriptives

The mean proficiency score for this item was 0.39, showing a slightly lower level of proficiency than item 532. 0.44, 0.36, and 0.37 are the mean scores of the undergrads, master's and doctoral students, respectively. Again, these results show no significant difference between the groups according to the ANOVA test in table 6 below. These results suggest that English department students in universities around Morocco have a moderate level of proficiency when developing a research strategy and that there are no significant differences in this skill set between the three academic levels except in item 215 so far, which showed that doctorate students performed slightly better than the undergraduates and master's students.

Item 548					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.248	2	.124	.517	.597
Within Groups	53.334	222	.240		
Total	53.582	224			

Table 6: ANOVA

The ANOVA results for Item 548 reveal no significant difference in mean scores among the academic levels (Undergraduate, Master's, Doctoral). The calculated F-ratio of 0.517, with a corresponding p-value of 0.597, indicates that any observed variations in scores could be due to chance rather than meaningful distinctions between the groups. Another item in the same skill set was also evaluated, and the results showed similar mean scores for the three groups.

- Item 614: *Your instructor tells your class about a research consultation service available at the library. What would be the best way to find out more about this service?*

Item 614				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.69	.465	.053
Master's Students	45	.64	.484	.072
Doctoral Students	102	.52	.502	.050
Total	225	.60	.490	.033

Table 7: Descriptives

The descriptive data in table 7 indicates that the mean score for this item was highest among the undergrads, with a mean score of 0.69 and a standard deviation of 0.465. The master's students performed slightly lower, with a mean score of 0.64 and a standard deviation of 0.484, while doctoral students' performance was the lowest, with a mean score of 0.52 and a standard deviation of 0.502. Hence, we performed the ANOVA TEST, which shows that the difference in mean scores between the groups was statistically significant.

Item 614					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.408	2	.704	2.984	.053
Within Groups	52.387	222	.236		
Total	53.796	224			

Table 8: ANOVA

The statistically significant difference between the groups (p =.053) suggests that the differences in mean scores may not be due to chance alone. Therefore, we ran a post-hoc analysis in order to see which academic levels differed significantly from one another.

- Item 633: *The following definition of a primary source is applied in which discipline: A work of poetry or prose*

Item 633				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.81	.397	.045
Master's Students	45	.84	.367	.055
Doctoral Students	102	.81	.391	.039
Total	225	.82	.387	.026

Table 9: Descriptives

Table 9 provides descriptive statistics for Item 633 within the skill set of developing a research strategy. The mean scores for this item indicate that all three groups of students, including Undergraduate Students (M = 0.81), Master's Students (M = 0.84), and Doctoral Students (M = 0.81), exhibit relatively high levels of proficiency in this aspect of research strategy. The narrow standard deviations and small standard errors further suggest that the scores are consistent and reliable. The 95% Confidence Intervals for the mean scores indicate that the true means are likely to fall within the specified bounds. Overall, this suggests that all three academic levels have relatively strong skills in the particular area assessed by item 633.

Item 633					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.042	2	.021	.138	.871
Within Groups	33.487	222	.151		
Total	33.529	224			

Table 10: ANOVA

The ANOVA test results for item 633 indicate that there is no statistically significant difference in the mean scores among the different academics. The between-groups' Sum of Squares is relatively small (0.042) compared to the within-groups' Sum of Squares (33.487), resulting in a non-significant F-value of 0.138. Therefore, there is no statistically significant evidence to conclude that the academic levels differ significantly in terms of their proficiency in this specific aspect of developing a research strategy.

- Item 642: *All of the following are good ways to identify a research topic for a class project except:*

Item 642				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.50	.503	.057
Master's Students	45	.56	.503	.075
Doctoral Students	102	.55	.500	.050
Total	225	.53	.500	.033

Table 11: Descriptives

Table 11 gives the descriptive statistics for item 642. The mean scores and standard deviations of the student's performance within the different academic levels are as follows: the Undergraduate Students (Mean = 0.50, SD = 0.503), Master's Students (Mean = 0.56, SD = 0.503), and Doctoral Students (Mean = 0.55, SD = 0.500). The mean scores of all three academic levels are relatively close, ranging from 0.50 to 0.56, with small differences among one another. The mean scores are quite low, which indicates weak performance in all three groups.

Item 642					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.134	2	.067	.266	.767
Within Groups	55.866	222	.252		
Total	56.000	224			

Table 12: ANOVA

The ANOVA results for item 642, further supported by the descriptive statistics, show no significant difference in the mean scores across academic levels (Between Groups Sum of Squares = 0.044, F = 0.182, p = 0.834). This implies that, in terms of this specific research strategy, the proficiency levels of the three academic groups do not significantly differ from each other.

- Item 643: *Your professor gives you an assignment to write a 10-page paper on a topic you know little about. The paper is due in 8 weeks. All of the following activities would be efficient ways to start except:*

Item 643				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.46	.502	.057
Master's Students	45	.38	.490	.073
Doctoral Students	102	.50	.502	.050
Total	225	.46	.500	.033

Table 13: Descriptives

In table 14, the descriptive statistics indicate that the 78 undergraduate students had a mean score of .46 with a standard deviation of .502. Amongst the 45 master's students, the mean score was .38, with a standard deviation of .490. Finally, the 102 doctoral students had a mean score of .50 with a standard deviation of .502. The total sample of 225 students had a mean information literacy score of .46 with a standard deviation of .500. The ANOVA results for item 643 would help determine if these observed differences in mean scores are statistically significant.

Item 643					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.466	2	.233	.934	.395
Within Groups	55.462	222	.250		
Total	55.929	224			

Table 14: ANOVA

The results of ANOVA test show that there is no statistically significant difference in mean scores between the three groups of students (undergraduate, master's, and doctoral). The corresponding p-value of .395 indicates that the null hypothesis of equal group means cannot be rejected. The within-groups' variability had a sum of squares of 55.462 and 222 degrees of freedom, resulting in a mean square of .250. The total variability had a sum of squares of 55.929 and 224 degrees of freedom. Therefore, based on these results, there is not sufficient evidence to conclude that the mean information literacy scores of the three groups differ significantly from each other.

- Item 646: *Who may be the most qualified to assist you when you need help narrowing your research topic?*

Item 646				
	N	Mean	Std. Deviation	Std. Error
Undergraduate Students	78	.50	.503	.057
Master's Students	45	.42	.499	.074
Doctoral Students	102	.53	.502	.050
Total	225	.50	.501	.033

Table 15: Descriptives

Table 15 of the descriptive statistics shows that the undergraduate students had a mean score of .50 with a standard deviation of .503. Amongst the 45 master's students, the mean score was .42, with a standard deviation of .499. The 102 doctoral students had a mean score of .53 with a standard deviation of .502. On the whole, the 225 students had a mean score of .50 with a standard deviation of .501. An ANOVA test was run to see if there was a statistically significant difference between the groups.

Item 646					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.359	2	.180	.714	.491
Within Groups	55.890	222	.252		
Total	56.249	224			

Table 16: ANOVA

The ANOVA test scores indicated that there were no significant differences in the mean scores among the three groups of students (undergraduate, master's, and doctoral). The F-ratio for the between-groups variability was .714 with 2 and 222 degrees of freedom, resulting in a p-value of .491. This indicates that the null hypothesis of equal group means cannot be rejected. The within-groups' variability had a sum of squares of 55.890 and 222 degrees of freedom, resulting in a mean square of .252. The total variability had a sum of squares of 56.249 and 224 degrees of freedom.

5. Discussion

According to Sin (2016), given the abundance of information that students get while doing research, they tend to use strategies that lead them to a phenomenon named *'satisfac*tion.' The latter term means that students stop searching for information when they think that what they have is 'good enough' (Sin, 2016, p. 1794). However, research, as dictated in academia, is a process that does not stop at having a few articles or books to do research; rather, it is an operation of seeking information continuously. Further, faculty and librarians frequently perceive that students excessively depend on familiar search methods like Google (D'Couto & Rosenhan, 2015). Additionally, numerous students lack an understanding of the functioning of search engines, and these engines often validate their pre-existing viewpoints on a topic rather than introducing them to new ideas (Bhatt & MacKenzie, 2019). Hence, in delving into the intricacies of Information Literacy within the realm of Developing a Research Strategy, our exploration aimed to uncover the nuanced landscape of strengths and weaknesses among students in Moroccan English departments. Guided by the targeted objectives of each item within this skill set, we sought to discern the proficiency levels across undergraduate, graduate, and doctorate students.

The core of our investigation lies in aligning the outcomes with the specific objectives outlined for each item. This comprehensive analysis allows us to pinpoint areas where students exhibit proficiency and where challenges may persist. Through a lens focused on the intricacies of research strategy development, our goal is not only to illuminate the current state of information literacy but also to contribute insights that can inform pedagogical approaches and curriculum enhancements.

This discussion is structured to elucidate the nuanced performance variations within the Developing a Research Strategy skill set. By deciphering the strengths and weaknesses exhibited by students across academic levels, we aim to offer a granular understanding that transcends traditional assessments. The synthesis of these findings holds the potential to shape tailored interventions that foster robust information literacy skills and pave the way for more adept scholarly pursuits in the digital age.

5.1. Developing a Research Strategy and Analyzing the Strengths and Weaknesses Evident in This Skill Set

5.1.1. Items of Weak Performance
- Item 548: The mean scores for this item are .44 (undergraduate), .36 (graduate), and .37 (doctoral). These scores are relatively low, suggesting that all groups struggle to identify and narrow topics effectively.
- The outcome and objective *(1.1.4.3): Narrow a broad topic and broaden a narrow one by modifying the scope or direction of the question.*

Examining item 548, which evaluates the ability to narrow down or broaden research topics effectively, the mean scores shed light on the challenges faced by students across different academic levels. Undergraduate students attained a mean score of .44, graduates .36, and doctoral students .37. These scores, notably on the lower side, indicate a common struggle among all groups in effectively identifying and refining research topics. The outcome and objective (1.1.4.3) emphasize the importance of narrowing a broad topic or broadening a narrow one through modifications to the scope or direction of the research question. The consistently lower performance across undergraduate, graduate, and doctoral levels in this skill area suggests an area for potential improvement and focused instructional attention.

- Item 643: In this case, the mean scores are .46 (undergraduate), .38 (graduate), and .50 (doctoral). The performance, particularly for graduates, is weaker when deciding when to abandon a topic based on the initial search results.
- The outcome and objective *(1.4.1.3): Decide when it is necessary and when it is not necessary to abandon a topic depending on the success (or failure) of an initial search for information.*

Analyzing item 643, which focuses on deciding when to abandon a topic based on initial search results, the mean scores provide valuable insights. Undergraduate students scored .46, graduates .38, and doctoral students .50. Notably, the performance, especially among graduates, appears weaker in this aspect, suggesting challenges in determining when to move on from a topic based on the initial search outcomes. This observation aligns with the outcome and objective (1.4.1.3), emphasizing the importance of developing the skill to decide when it is and is not necessary to abandon a topic, depending on the success or failure of the initial search for information.

5.1.2. Items of Moderate Performance
- Item 532: In this item, undergraduate students scored .53, graduates .49, and doctoral students .54. The scores are close, indicating that all groups perform at a similar, moderate level when it comes to identifying an initial question and modifying it as necessary.
- The outcome and objective *(1.1.4.1): Identify an initial question that might be too broad or narrow and one that is probably manageable.*

For item 532, assessing the ability to identify an initial question and modify it as necessary, the mean scores provide an overview of students' proficiency in this crucial skill. Undergraduate students achieved a score of .53, graduates .49, and doctoral students .54. Notably, the scores are closely aligned, indicating that all three groups perform at a similar, moderate level in this aspect of research. The outcome, focusing on the ability to recognize the appropriateness of a research question in terms of breadth and manageability (1.1.4.1), emphasizes that students across academic levels demonstrate competence in refining and adjusting initial research queries, a fundamental aspect of effective research practice. This similarity in performance suggests a consistent development of this specific skill set across the academic spectrum.
- Item 614: Undergraduate students scored .69, graduates .64, and doctoral students .52. These scores indicate that undergraduates and graduates have a stronger ability to decide when a research topic has multiple facets or needs to be put into a broader context than doctoral students.
- The outcome and objective *(1.1.5.3): Decide when a research topic has multiple facets or may need to be put into a broader context.*

Analyzing item 614, which gauges the capacity to discern when a research topic possesses multiple facets or requires a broader contextualization, the mean scores provide valuable insights. Undergraduate students achieved a mean score of .69, graduates .64, and doctoral students .52. These scores suggest that undergraduates and graduates exhibit a stronger ability in this skill than doctoral students. The outcome and objective (1.1.5.3) emphasize the importance of determining when a research topic is multifaceted or necessitates a broader context. The variations in scores across academic levels highlight a nuanced aspect of information literacy, indicating potential areas for targeted interventions and instructional enhancements.
- Item 642: Undergraduate students scored .50, graduates .56, and doctoral students .55. These scores suggest a moderate ability to use various technologies for managing information, but there is room for improvement in this skill.
- The outcome and objective *(2.5.5): Use various technologies to manage the information selected and organized.*

Exploring item 642, which evaluates the use of various technologies to manage information, the mean scores reveal distinct patterns. Undergraduate students scored .50, graduates .56, and doctoral students .55. These moderate scores suggest a moderate ability across all groups to employ diverse technologies for information management. While the scores indicate reasonable competence, there is room for improvement in this skill. This aligns with the outcome and objective (2.5.5), emphasizing the importance of enhancing proficiency in utilizing a range of technologies to select and organize information.
- Item 646: For this item, the mean scores are .50 (undergraduate), .42 (graduate), and .53 (doctoral). This shows that all groups have a moderate ability to use background information sources effectively to gain an initial understanding of a topic.
- The outcome and objective *(1.1.4.5): Use background information sources effectively to gain an initial understanding of the topic.*

Examining item 646, focusing on the effective use of background information sources to gain an initial understanding of a topic, the mean scores provide valuable insights. Undergraduate students scored .50, graduates .42, and doctoral students .53. These scores indicate that all groups possess a moderate ability to use background information sources effectively to gain an initial understanding of a given topic. This finding aligns with the corresponding outcome and objective (1.1.4.5), emphasizing the importance of utilizing background information sources to establish an initial comprehension of a subject.

5.1.3. Items of Strong Performance
- Item 215: The mean scores of .67 for undergraduates and graduates and .87 for doctoral students suggest that this group has performed well in the skill of conferring with instructors and participating in discussions to identify research topics or information needs. Doctoral students particularly excel in this area.
- The outcome and objective *(1.1.1): Involve conferring with instructors and participating in class discussions, peer workgroups, and electronic discussions to identify a research topic or other information need.*

In examining item 215, which assesses the ability to confer with instructors and actively participate in discussions for identifying research topics or information needs, the mean scores provide valuable insights. The data reveals commendable performance across all student levels, with undergraduates and graduates attaining a mean score of .67 and doctoral students excelling with a mean score of .87. This proficiency underscores the effectiveness of students in engaging with instructors and peers through various mediums, including class discussions and electronic forums. Notably, doctoral students exhibit a heightened aptitude in this skill, showcasing a robust ability to confer and discuss complex topics, further enriching their research engagement.
- Item 633: With mean scores of .81 (undergraduate), .84 (graduate), and .81 (doctoral), it is clear that all groups have a strong understanding of how the desired end product determines their need for information.

- The outcome and objective *(1.1.4.4): Demonstrate an understanding of how the desired end product (i.e., the required depth of investigation and analysis) will determine the need for information.*

Considering item 633, which evaluates the understanding of how the desired end product influences the need for information, mean scores further illuminate the performance across academic levels. Undergraduate students achieved a mean score of .81, graduates .84, and doctoral students .81. The consistency in these high scores indicates that all groups exhibit a robust understanding of how the desired end product, such as the required depth of investigation and analysis, influences their information needs. This proficiency aligns with the outcome and objective (1.1.4.4), showcasing a shared strength among undergraduates, graduates, and doctoral students in grasping the critical relationship between the research goal and information requirements.

6. Summary

This study explored the information literacy skills of English department students in Moroccan higher education institutions, with a focus on the skill set of developing a research strategy. Utilizing the SAILS assessment, we evaluated the performance of undergraduate, graduate, and doctoral students across various dimensions of this skill set. The results revealed nuanced differences in performance, indicating strengths and weaknesses among the student groups.

The first aspect examined was the ability to confer with instructors and participate in discussions to identify research topics or information needs. Doctoral students outperformed their counterparts, showcasing a higher proficiency in this area. However, the subsequent items, such as identifying an initial question, narrowing topics effectively, and deciding when a research topic has multiple facets, demonstrated moderate performance across all groups.

Regarding the use of technologies for managing information, there was room for improvement, especially among graduate students. The study also highlighted the need to enhance skills related to deciding when to abandon a topic based on initial search results.

Despite these variations, all student groups demonstrated a strong understanding of how the desired end product determines their need for information. The findings suggest that while students generally possess a moderate foundation in information literacy, targeted interventions can enhance specific aspects of their research strategy skills.

7. Conclusion

In conclusion, this study sheds light on the information literacy landscape within Moroccan English departments. The analysis of developing a research strategy skill set, as assessed by the SAILS instrument, provides valuable insights into the strengths and weaknesses of students across different academic levels. The variations observed underscore the importance of tailored strategies for improving information literacy skills at each educational stage. Addressing specific areas of weakness, such as effective use of technologies and deciding when to abandon a topic, can contribute to a more comprehensive and refined skill set among students. Furthermore, these findings have implications for curriculum development and instructional approaches, emphasizing the need for integrated information literacy programs. By recognizing and addressing the diverse needs of students, educators can foster a learning environment that nurtures advanced information literacy skills, preparing students for success in academia and beyond.

8. Study Limitations and Future Research

The size of the sample in this study is limited to 225 English department students from different Moroccan universities. This number may not entirely represent the population of students in all Moroccan English departments. The convenience sampling for data collection in this study may introduce biases and limit the generalizability of the findings to other contexts. Additionally, the study's cross-sectional data approach may limit the ability to establish causal relationships between variables and can only provide a snapshot of the information literacy levels at a specific point in time.

Future research on information literacy skills among students holds several researchable possibilities. One way involves tracking these skills over time through longitudinal studies, offering insights into how they develop. Comparing skill levels across different academic disciplines could reveal fascinating variations and the factors influencing skill acquisition. Intervention studies aimed at improving information literacy skills could provide practical strategies for educational enhancement. Exploring how cultural backgrounds shape information literacy development could deepen our understanding, as could investigating faculty perspectives on information literacy instruction and the impact of emerging technologies on skill development. Additionally, delving into the relationship between information literacy skills and students' preparedness for the workforce could offer valuable insights for educational practices. By exploring these areas, researchers can enrich our understanding of information literacy and its broader implications for education and beyond.

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