Information Literacy Programs as a Way to Minimize Library Anxiety: A Study of Users of Engineering College Libraries in Vijayapura City, Karnataka State

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Abstract :

This study explores the application of the "Seven Faces of Information Literacy" model as a strategy to minimize library anxiety among engineering college students in Vijayapura City. The study was driven by the objective to understand how each dimension of the model-Information Technology, Information Sources, Information Process, Information Control, Knowledge Construction, Knowledge Extension, and Wisdom - impacts students library experiences. The survey method of research was used to assess student's levels of library anxiety and how tailored information literacy programs influenced their comfort and effectiveness in using library resources.Findings indicate that SC/ST students faced more challenges

with Knowledge extension (x=1.65) compared to GM and OBC students, while rural students struggled more with Information Processing(x=2.67) than urban students. Female students scored lower in Information Technology experience but excelled in Information Process Experience. The findings suggest that information literacy programs customized to address the specific needs of students, particularly based on gender, domicile, category, and prior attendance in information literacy sessions, significantly reduce library anxiety.

Keywords : Library Anxiety; Information Literacy Program; Engineering College Libraries; Karnataka; Vijayapura;

Introduction :

Library anxiety is a common feeling of unease or confusion that many students experience when trying to use the library. Whether it's being unsure where to start, feeling lost among the shelves, or not knowing how to use the library's resources, these worries can make it difficult to fully engage with information. Library anxiety can discourage students from seeking the help they need, preventing them from developing effective research skills (Bostick, 1992). Understanding and improving information literacy is key to reducing library anxiety. Christine Bruce's (1997) "7 Faces of Information Literacy" model provides a clear pathway for students and researchers to navigate information with confidence, making libraries more approachable and less intimidating. By learning how to find, evaluate, and use information effectively, the library can become a powerful tool for learning rather than a source of stress.As Ranganathan (1931), a pioneer in library science, once said, "A library is not just a place filled with books; it's a gateway to knowledge." Through developing information literacy, we can unlock the true potential of libraries, turning them into spaces where research thrives and knowledge is discovered.

Literature Review :

Several studies have been conducted in recent years to explore library anxiety and information literacy, with notable works being reviewed. The related literature for the review was gathered from various sources, including LISA, LISTA, J-Gate, Web of Science, ERIC, Emerald Insight, and Google Scholar, covering the period from 1986 to 2023.Library anxiety is a well-documented phenomenon that significantly impacts student's academic performance, particularly in fields requiring extensive research, such as engineering. **Afzal and Hariri (2020)** highlighted the strong correlation between library anxiety and lower academic outcomes in engineering students, emphasizing the need for targeted interventions, **Bostick (1992),** through the development of the Library Anxiety Scale, provided a crucial tool for measuring this anxiety, laying the groundwork for numerous subsequent studies.

Information literacy programs have been widely recognised as effective in reducing library anxiety**. Campbell (2020)** conducted a meta-analysis that confirmed the positive impact of well-designed information literacy programs on reducing anxiety, especially when these programs are integrated into the academic curriculum. Similarly, **Chen and Jones (2019)** found that engineering students who participated in such programs reported significantly lower anxiety levels and increased confidence in using library resources.

Gardijan (2023) developed the Croatian-Library Anxiety Scale (CRO-LAS) to assess library anxiety among University of Zadar students. The findings showed that students experienced the highest anxiety regarding IT equipment and resources, with lower anxiety related to staff and library comfort. CRO-LAS proved to be a reliable tool for future studies and library orientation programs.



Cooke and Hill (2022) explored the effectiveness of personalised information literacy instruction, demonstrating that tailored support can substantially alleviate anxiety and improve research outcomes for engineering students. This is supported by **Gross and Latham (2017),** who conducted a longitudinal study showing that continuous support is essential for maintaining low anxiety levels over time.

Korobili, Malliari, and Zapounidou (2011) found that the vast number of available sources often overwhelms engineering students, highlighting the need for targeted training in information-seeking behaviour. **Kwon (2008)** further emphasized the relationship between critical thinking and library anxiety, nothing that students confident in their critical thinking skills tend to experience lower anxiety levels.

Cultural and contextual factors also play a significant role in library anxiety. **Ren and Dai (2021)** studied Chinese engineering students, finding that cultural factors and language barriers contributed to higher levels of anxiety. This suggests that information literacy programs need to be culturally sensitive and contextually appropriate.

Curriculum integration of information literacy is another effective strategy. **Owens and Valenti (2022)** demonstrated that when information literacy is integrated into the engineering curriculum, students report lower anxiety levels and higher research success rates. **Van Scoyoc (2003)**also found that early library instruction for first year engineering students helps reduce anxiety in later stages of their academic careers.

From the literature review it is found that academic performance, curriculum integration, information literacy programs, and orientation sessions have been effective in reducing library anxiety. However, there is a noticeable gap in addressing the diverse needs of students, particularly in adapting interventions for specific cultural contexts. No studies have thoroughly

explored how tailored interventions can meet the unique challenges faced by students from various backgrounds. This study is essential to investigate these nuances, ensuring that interventions are not only effective but also comprehensive and inclusive. Hence the study has been undertaken with the objective - to assess the level of library anxiety among engineering students in Vijayapura City and evaluate the effectiveness of information literacy programs using the "Seven Faces of Information Literacy" model. It also seeks to identify specific student needs based on variables such as gender, category, domicile, and participation in library orientation sessions.

Materials and Methods :

The study was conducted with 101 students from two engineering colleges of Vijayapura City: BLDEA's V. P. Dr. P. G.Halakatti College of Engineering and Technology, Vijayapura and SECAB Institute of Engineering and Technology, Vijayapura. Vijayapura City is a district head quarter of Vijayapura District in the northern part of Karnataka State. It has Karnataka's one and only state women's university, making it a unique center for women's higher education in the state, and one Deemed-to-be university. There are two engineering colleges which are NAAC accredited and provide quality services. For the purpose of the study the survey method of research was used. A structured close ended questionnaire was developed on the "Seven Faces of Information Literacy" model, covering following aspects:

1. **Information Technology Experience**- Students confidence in using library technology and digital tools.
2. **Information Sources Experience**– Ability to locate and evaluate information from various sources.
3. **Information Process Experience**– Competence in processing and synthesizing information.
4. **Information Control Experience**– Skills in managing and organizing information



5. **Knowledge Construction Experience**– Capability to construct new knowledge from gathered information.
6. **Knowledge Extension Experience** – Application of constructed knowledge in different contexts.
7. **WisdomExperience** – Ability to reflect on and apply knowledge wisely.

The questionnaires were collected by personal visits with users. Random sampling method was employed. The collected data were analysed using SPSS v 20. To calculate the overallmean values, data were grouped and transformed by selecting the "Transform" option in SPSS, followed by "Compute." This process allowed for the grouping of relevant variables, enabling the calculation of mean scores for each aspect of information literacy measured in the study.The collected data were presented in tabular form.

Results:

Table 1: Gender wise distribution

Gender	Frequency	Percentage
Male	48	47.5
Female	53	52.5
Total	101	100

It can be interpreted from table 1 that 52.5% (N=53) of respondents are female users and remaining 47.5% (N=48) of respondents are male users. It shows that majority of respondents are female.

Table 2: College wise distribution

College	Frequency	Percentage
BLDE	54	53.5
SECAB	47	46.5
Total	101	100

From table 2 it can be observed that 53.5% (N=54) of the respondents are from BLDE Engineering College and remaining 46.5% (N=47) of respondents are from SECAB College of Engineering and Technology. The nearly equal representation from both colleges indicates that information literacy programs should be adaptable to the specific contexts of different institutions.

Table 3: Domicile wise distribution

Domicile	Frequency	Percentage
Rural	29	28.7
Urban	72	71.3
Total	101	100

Table 3 shows the domicile-wise distribution of participants, with a majority (71.3%, N=73) coming from urban areas, and the remaining 28.7% (N=29) from rural backgrounds. This distribution highlights the importance of considering the different experiences and challenges faced by rural and urban students in the context of library usage.

Table 4 : Branch wise distribution

Branch	Frequency	Percentage
Civil	24	23.8
Electrical & Electronics	21	20.8
Electrical & Communication	10	9.9
Architecture	2	2.0
Mechanical	16	15.8
AIML	10	9.9
Computer Science	8	7.9
Computer Network	6	5.9
Digital Electronics	4	4.0
Total	101	100



Table 4 shows that majority of users are from Civil engineering branch, comprising 23.8% (N=24) of the total. Followed by,Electrical and Electronics with 20.8% (N=21), Mechanical with 15.8% (N=16), Electrical and Communication with 9.9% (N=10),AIML with 9.9% (N=10) Computer Science with 7.9% (N=8), Computer Networks with 5.9% (N=6), Digital Electronics with 4% (N=4) and Architecture with 2% (N=2).

Table 5: Categorical Distribution

	Category		
	GM (x)	**OBC (x)**	**SC/ST (x)**
The Information Technology Experience	1.4413	1.6587	1.6398
The Information Sources Experience	1.9840	1.9361	2.0115
The Information Process Experience	2.6743	2.5463	2.6743
The Information Control Experience	2.1686	2.4201	2.1686
The Knowledge Construction Experience	2.3793	2.2978	2.6111
The Knowledge Extension Experience	2.3870	2.1790	2.8214
The Wisdom Experience	1.9000	1.8375	1.9000

The table 5 shows different levels of library anxiety among GM, OBC, and SC/ST students. For Information Technology Experience, OBC students have the highest anxiety (x=1.6587), while GM students have the lowest (x=1.4413), suggesting OBC students may have less familiarity with digital tools. In Information Sources Experience, anxiety is slightly higher for SC/ST students (x=2.0115) compared to GM students (x=1.9840), possibly due to fewer opportunities to learn information-seeking skills. Information Process Experience anxiety is equal for GM and SC/ST students (x=2.6743), indicating challenges in understanding and using information. OBC students report the most anxiety in Information Control Experience (x=2.4201), showing possible difficulties in organizing information. Anxiety is also higher for SC/ST students in Knowledge Construction (x=2.6111) and Knowledge Extension (x=2.8214),

suggesting less experience with critical thinking and applying knowledge. The Wisdom Experience shows equally highest anxiety among GM and SC/ST students with x=1.9000

Table 6: Domicile

	Domicile	
	Rural (x)	**Urban (x)**
The Information Technology Experience	1.6398	1.5139
The Information Sources Experience	1.9172	2.1361
The Information Process Experience	2.6743	2.5463
The Information Control Experience	2.1686	2.2099
The Knowledge Construction Experience	2.3793	2.2978
The Knowledge Extension Experience	2.3870	2.1790
The Wisdom Experience	1.9000	1.8375

The Table 6 shows domicile-wise differences in library anxiety among students from rural and urban backgrounds. For Information Technology Experience, rural students report higher anxiety (x=1.6398) compared to urban students (x=1.5139), likely due to limited exposure to digital tools and library technology in rural areas. In Information Sources Experience, urban students show higher anxiety (x=2.1361) than rural students (x=1.9172), possibly because they expect a wider range of resources and find it overwhelming to navigate. Rural students exhibit more anxiety in Information Process Experience (x=2.6743) than their urban counterparts (x=2.5463), indicating challenges in processing and synthesizing information due to less training in research skills. Anxiety in Information Control Experience is fairly similar but slightly higher for urban students (x=2.2099 vs. x=2.1686), reflecting academic pressure. The increased anxiety among rural students in certain areas like knowledge construction experience, Knowledge extension Experience and Wisdom experience may be due to fewer resources and support systems available for mastering information literacy skills.



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Table 7: Gender wise distribution

	Gender	
	Male (x)	**Female (x)**
The Information Technology Experience	1.5287	1.5788
The Information Sources Experience	2.1983	1.9047
The Inform ation Process Experience	2.4579	2.7519
The Information Control Experience	2.1762	2.2274
The Knowledge Construction Experience	2.2031	2.4806
The Knowledge Extension Experience	2.0881	2.4419
The Wisdom Experience	1.8638	1.8442

The Table 7 shows analysis of different levels of library anxiety between male and female students. In Information Technology Experience, female students show slightly higher anxiety (x=1.5788) compared to males (x=1.5287), possibly due to less encouragement or exposure to technology. For Information Sources Experience, males report higher anxiety (x=2.1983) than females (x=1.9047), which could be due to less familiarity with effective information-seeking strategies. Female students exhibit more anxiety in Information Process Experience (x=2.7591) compared to males (2.4579), indicating struggles with synthesizing information. In Information Control Experience, female students again show higher anxiety (x=2.2274 vs. x=2.1762), suggesting a lack of confidence in organizing information. Higher anxiety is also observed in females for Knowledge Construction (x=2.4806) and Knowledge Extension (x=2.4419) due to fewer critical thinking or practical application opportunities. It is observed that when it comes to wisdom experience male students experience slightly higher anxiety then female students.

The elevated anxiety levels in females may result from societal factors or limited experiential learning, while males' anxiety in information seeking may stem from inadequate training.

Table 8: Library Orientation session

	Library Orientation session	
	Yes (x)	No (x)
The Information Technology Experience	1.5333	1.5802
The Information Sources Experience	1.9815	2.2389
The Information Process Experience	2.6786	2.4105
The Information Control Experience	2.2120	2.1728
The Knowledge Construction Experience	2.4068	2.1667
The Knowledge Extension Experience	2.3282	2.0772
The Wisdom Experience	1.8369	1.8889

The analysis of library orientation program attendance shows differences in anxiety levels. For Information Technology Experience, students who did not attend orientation have higher anxiety (x=1.5802) compared to those who did (x=1.5333), likely because the orientation helps familiarize them with technology. In Information Sources Experience, non-attendees show higher anxiety (x=2.2389) than attendees (x=1.9811), as orientation likely teaches effective search strategies. Anxiety in Information Process Experience is slightly higher for non-attendees (x=2.4105 vs. x=2.3650), indicating struggles with processing information without guidance. In Information Control Experience, anxiety levels are similar, but slightly higher for attendees (x=2.2126 vs. x=2.1728), suggesting both groups face challenges in managing information. For Knowledge Construction, non-attendees show more anxiety (x=2.3679 vs. x=2.1667), indicating orientation aids critical thinking. Higher anxiety in attendees for Knowledge Extension (x=2.3286) suggests practical skills may not be adequately addressed. Overall, orientation programs help reduce anxiety by familiarizing students with resources and skills.

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www.jld.net.in
ISSN : 2395 - 518 X

Discussion:

This study bridges the gap between Christine Bruce's "Seven Faces of Information Literacy" model and library anxiety, a connection that has not been extensively explored in prior research. While previous studies have examined aspects of information literacy and library anxiety independently, none have systematically linked the two frameworks, particularly in the context of engineering students.

Lloyd (2010) emphasized the contextual nature of information literacy, asserting that students' ability to navigate information landscapes reduces stress and builds confidence. While her research focused on workplace environments, this study broadens the perspective by addressing academic contexts, particularly engineering students who face specialized challenges. Lloyd's approach complements the findings of this study, but as Jiao and Onwuegbuzie (2000) argued, anxiety often stems from students' inability to interact effectively with library environments. This research extends their argument by showing that targeted interventions in all seven faces of information literacy can mitigate these challenges.

Gross and Latham (2007) identified that higher information literacy correlates with lower anxiety levels. However, they did not consider how specific facets of literacy, such as Information Control or Knowledge Extension, directly influence anxiety. This study fills that gap, demonstrating that variables like gender, category, domicile, and attendance at orientation sessions play a critical role in shaping these experiences. Bruce (2008) introduced the concept of diverse literacy experiences but did not explicitly link them to emotional outcomes like anxiety. This study addresses that limitation by integrating the affective dimension into her theoretical framework.

While Martinez and Garcia (2022) emphasized library layout and staff approachability as critical in reducing anxiety, this study debates that technical and cognitive competencies are equally, if not more, important for engineering

students. Sharma and Patel (2023) discussed the role of emerging technologies but did not examine how foundational information literacy skills might amplify the benefits of such innovations.

This study pioneers an integrative approach to understanding library anxiety, demonstrating how Bruce's model can provide a comprehensive strategy for addressing the unique needs of engineering students. It challenges earlier research to adopt a more nuanced and multifaceted lens, paving the way for future inquiries.

Conclusion:

The "Seven Faces of Information Literacy" model provides a comprehensive framework for understanding and addressing the multifaceted nature of library anxiety. This study demonstrates that information literacy programs tailored to the specific needs of students, bases on their gender, domicile, and academic discipline, can significantly reduce anxiety. This study underscores the practical value of tailored information literacy programs for society, libraries, and users by demonstrating how structured training can ease library anxiety. Libraries can implement targeted orientation and skill-building sessions to help users, especially those from under-represented groups, become proficient with digital tools, research processes, and information management. Such initiatives foster confidence and enhance users ability to engage effectively with library resources, ultimately promoting equitable access to information across diverse communities.

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