

User Engagement, Resource Optimization, and Library Access and Their Relationship to the Academic Achievement of Students in MUNPARLAS

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ABSTRACT:

Academic libraries are recognized as essential components of higher education institutions, supporting student learning, research engagement, and overall academic development, and this study examined the relationships among user engagement, resource optimization, and library access, and their relationship with students' academic achievement in selected MUNPARLAS (Muntinlupa, Parañaque, and Las Piñas) schools during the second semester of Academic Year 2025–2026, anchored in Constructivist Learning Theory. A quantitative descriptive-correlational research design was employed, and data were collected from 404 systematically selected student library users using a validated researcher-developed questionnaire, with the instrument measuring user engagement (library usage, types of resources accessed, and satisfaction with services), resource optimization (information literacy skills, research activities, collaborative learning, and self-directed learning), and library access (physical access to facilities, digital access to online resources, availability and adequacy of print and digital resources, and quality of the physical learning environment), alongside students' self-reported academic achievement, while descriptive statistics and Spearman's rho correlation were used to analyze the data. Findings revealed that students demonstrated generally high levels of user engagement, resource optimization, and library access, with variations observed across dimensions of user engagement and library access, and Spearman's rho analysis showed that among the examined variables, only physical access to library facilities had a statistically significant relationship with academic achievement, with no significant relationships found between academic achievement and user engagement and resource optimization. The study concludes that physical accessibility of library facilities plays a more direct role in students' academic achievement within the context examined, however, the absence of significant relationships among other dimensions suggests that academic achievement may be influenced by broader instructional, institutional, and individual factors beyond the measured library-related variables, and these findings provide evidence-based insights for educational leaders and library administrators in planning strategic improvements that support student learning and institutional effectiveness, and these findings provide evidence-based insights for educational leaders and library administrators in planning strategic improvements that support student learning and institutional effectiveness.

Keywords: User Engagement, Resource Optimization, Library Access, Academic Achievement, Academic Libraries, Higher Education, Polytechnic University of the Philippines, Doctor in Education Management

INTRODUCTION

Academic libraries have undergone significant transformation in the 21st century, reshaping their roles in teaching, learning, and research within higher education institutions. Once regarded primarily as repositories of printed resources, academic libraries have evolved into dynamic learning ecosystems that support digital scholarship, collaborative learning, and user-centered services. Academic libraries are undergoing reorganization, focusing on strategic planning, cultural change, and technological advancements to better align with the dynamic demands of higher education and research (Boff & Cardwell, 2020). As a result, libraries are no longer peripheral support units but are increasingly recognized as strategic partners in achieving institutional academic goals and improving student academic achievement.

In the Philippine higher education setting, academic libraries operate in a rapidly changing educational landscape characterized by digital transformation, outcomes-based education, and increasing accountability in institutional performance, guided by national policies such as Republic Act No. 7722 and Republic Act No. 9246, which set standards for higher education and librarianship practice, which established minimum requirements for higher education institution libraries to harmonize and standardize library services across programs and institutions. Philippine academic libraries have responded by investing in electronic databases, e-books, digital repositories, and virtual reference services. However, reports and local studies indicate that the mere availability of resources does not automatically translate to effective utilization or improved academic achievement.

Within this context, three interrelated library-related factors have gained increasing attention in the literature: user engagement, resource optimization, and library access. User engagement refers to the extent to which students actively interact with library services, as measured by the frequency of use, the diversity of resources accessed, and satisfaction with services. Resource optimization focuses on students' ability to use available library resources effectively and efficiently through information literacy, research activities, collaborative learning, and self-directed learning. Library access, encompassing both physical and digital dimensions, plays a critical role in ensuring equitable learning opportunities by reducing structural and technological barriers to information use.

In the MUNPARLAS area, comprising Muntinlupa, Parañaque, and Las Piñas, academic libraries exhibit differences in facilities, technological capacity, staffing patterns, and resource allocation. Despite geographical proximity, institutions vary considerably in their level of digital platform adoption, service delivery models, and support mechanisms for student learning. These variations influence students' information-seeking behaviors and learning experiences.

While existing Philippine studies affirm the value of library use and access, limited research has examined how user engagement, resource optimization, and library access collectively predict academic achievement. Therefore, this study investigates the relationships among these variables and their collective relationship on students' academic achievement in selected MUNPARLAS schools. The findings aim to support academic leaders, library administrators, and policymakers in strengthening library services as integral components of institutional effectiveness and student success.

Statement of the Problem

In this study, the researcher determined the relationships among user engagement, resource optimization, and library access on the academic achievement of students in MUNPARLAS (Muntinlupa, Parañaque, Las Piñas).

Specifically, the study sought to address the following questions:

1. How does user engagement contribute to academic achievement in terms of:
 - 1.1. Library usage;
 - 1.2. Types of library resources accessed; and
 - 1.3. Satisfaction with library services?
2. How does resource optimization support academic achievement in relation to:
 - 2.1. Information literacy skills;
 - 2.2. Research activities;
 - 2.3. Collaborative learning; and
 - 2.4. Self-directed learning?
3. How is library access evaluated by respondents in terms of:
 - 3.1. Physical access to library facilities;
 - 3.2. Digital access to online library resources;
 - 3.3. Availability and adequacy of library resources; and
 - 3.4. Quality of the physical learning environment?
4. What is the reported academic achievement of the students?
5. Is there a significant relationship between user engagement and academic achievement?
6. Is there a significant relationship between resource optimization and academic achievement?
7. Is there a significant relationship between library access and academic achievement?

Scope and Delimitations

The study investigated the relationships among user engagement, resource optimization, and library access, and their relationship with students' academic achievement in MUNPARLAS schools. It focused on library usage, types of library resources accessed, and satisfaction with library services contributing to academic achievement, along with resource optimization, information literacy skills, research activities, collaborative learning, and self-directed learning, physical access to library facilities, digital access to online resources, availability and adequacy of library resources, and quality of the physical learning environment. Academic achievement

was measured through students' self-reported academic achievement and analyzes its relationship with library-related factors using descriptive and inferential statistical methods.

Review of Related Literature

User Engagement in Libraries

User engagement in academic libraries refers to students' active use of library resources, spaces, programs, and services to support their learning, research, and personal development. It goes beyond mere library visits or resource usage, encompassing behavioral, cognitive, and affective dimensions that reflect how students invest effort, attention, and interest in academic activities within the library environment (Johnston, 2018; Weitzl & Einwiller, 2018). Studies show that regular library use supports learning and academic engagement (Jones et al., 2023; Smith, 2020; Williams, 2021), with libraries serving as study spaces and learning hubs. Digital resources, self-directed learning, and curriculum changes further strengthen engagement (Brown & Clarke, 2022; Taylor, 2021; Hernandez, 2023). However, contrasting findings suggest that while library use may not always directly affect GPA, it can improve skills, confidence, and perceptions of academic success (Scoulas & De Groote, 2022). Overall, libraries remain central to academic engagement.

Students primarily use discipline-specific materials, textbooks, journals, and digital databases (Alamodin et al., 2019; Ani et al., 2020). ICT integration and library instruction improve access and engagement, while barriers include limited awareness, poor connectivity, and insufficient training. Satisfaction with library services is generally high, supported by effective staff support, facilities, and resources (Fagyan et al., 2023; Abraham & Sabu, 2022; Younus & Hamid, 2021).

Resource Optimization in Libraries

Resource optimization is the efficient, strategic use of physical, digital, and human resources to maximize learning and academic outcomes. Interactive spaces, ICT integration, and user-centered design improve engagement and resource use (Wright et al., 2022; Regalado & Smale, 2021; White & White, 2021).

Information literacy develops research skills, critical thinking, and digital competencies through library engagement with library resources, e-learning platforms, mobile devices, and online information sources. (De Jesus et al., 2024; Pinto et al., 2020). Research activities improve analytical skills, academic writing, and scholarly output through guided use of library resources (Pancheshnikov, 2014; El-Khayat, 2016). Collaborative learning and self-directed learning promote teamwork, motivation, autonomy, and engagement (Ashikuzzaman, 2024; Scager et al., 2016; Loes, 2022; Youngren, 2021). Despite the growing integration of digital tools and learner-centered approaches, gaps remain in the evaluation of long-term outcomes and equitable access.

Library Access in Libraries

Library access refers to the ease of reaching and using physical and digital library resources and services (IFLA, 2015). Studies show that physical facilities, adequate resources, and supportive environments improve academic performance and satisfaction (De Polonia et al., 2021; Jean, 2021).

Digital access highlights the importance of ICT integration, online catalogs, databases, and digital libraries in supporting teaching and research (Thangiah et al., 2024). However, unequal access, limited infrastructure, and staff readiness persist. Library environment studies emphasize that well-designed spaces, flexible layouts, and inclusive design improve usability and learning (Tuble & Panhilason, 2024; Flores et al., 2021).

Reported Academic Achievement of Students

Studies show that library engagement positively influences academic achievement, learning habits, and persistence (Khumalo & Utete, 2023; Mayer et al., 2020). Libraries function as academic hubs that support both physical and social learning environments. However, while library use supports persistence and engagement, its direct impact on GPA is limited.

Theoretical Framework

This study is anchored in **Constructivist Learning Theory**, as advanced by Jean Piaget and Lev Vygotsky. The theory explains learning as an active, learner-centered process in which knowledge is constructed through meaningful interaction with information, tools, and social environments (Piaget, 1972; Vygotsky, 1978).

Constructivist theory emphasizes autonomy, competence, relatedness, and intrinsic motivation, which facilitate effective learning. Academic libraries function as essential constructivist spaces that support independent exploration, research engagement, and collaborative knowledge construction (Fosnot, 2013).

In this study, user engagement, resource optimization, and library access serve as key mechanisms for realizing constructivist learning processes. These factors influence students' learning behaviors, academic skills, and educational experiences, ultimately contributing to academic achievement.

Conceptual Framework

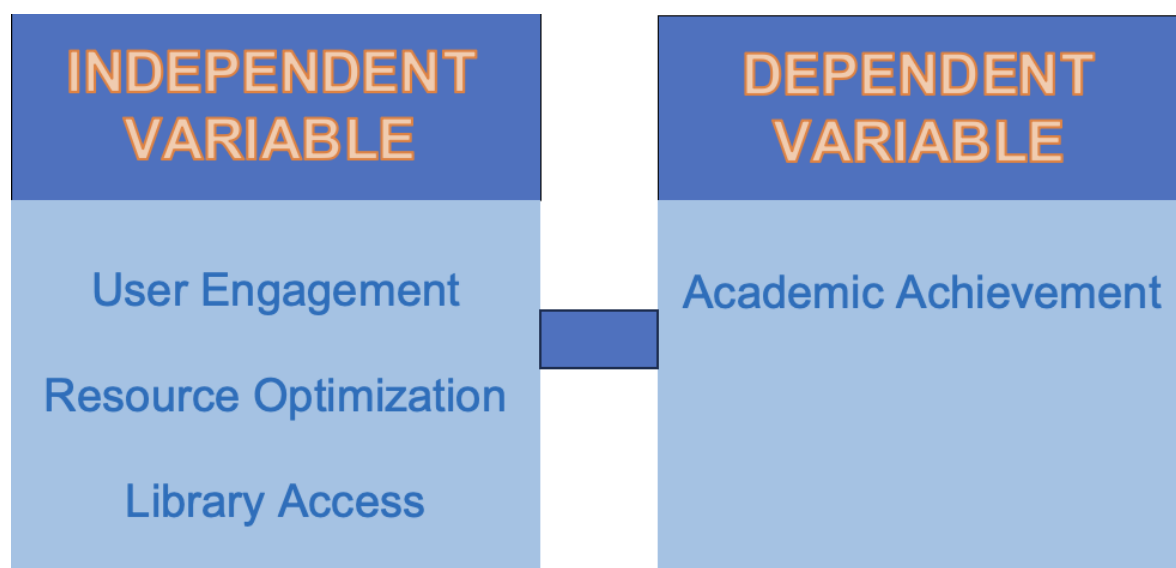


Figure 1: Paradigm of the Study

The conceptual framework of this study presents the relationships among user engagement, resource optimization, library access, and academic achievement.

User engagement refers to the extent of students' interaction with library, including frequency of use, the variety of resources consulted, and satisfaction with services. Resource optimization focuses on information literacy skills, research activities, collaborative and self-directed learning. Library access encompasses both the physical and digital accessibility, the adequacy of print and digital collections, and the quality of the physical learning environment.

These variables are interrelated and collectively related to students' academic achievement.

METHODOLOGY

This descriptive quantitative research study used a validated instrument and applied descriptive and inferential statistical methods, including frequencies, percentages, weighted mean, and Spearman's rho, to analyze the data. Academic achievement was operationalized as self-reported ordinal levels rather than exact numerical grades for ethical reasons.

Research Design

The study employed a descriptive quantitative research design, a validated research instrument, and a descriptive-correlational approach.

Research Steps

Four experts in library and information science evaluated the questionnaire for content validity. A pilot test involving 30 students was conducted, and reliability was measured using Cronbach's alpha, with a minimum acceptable value of 0.70.

Ethical clearance and approval from the Academic Heads and Library Heads were secured prior to data collection. Questionnaires were administered through Google Forms, with printed copies provided when necessary.

Data Collection and Sample Selection

The study consisted of 404 students from Schools A, B, and C of the MUNPARLAS schools who actively used the library. Respondents were obtained through systematic (Kth) sampling by selecting every 5th student from an ordered list of library users.

Data Analysis Methods

Descriptive statistics such as frequency counts, percentages, and weighted means were used. Spearman's rho was used to determine the relationships among the variables and their association with academic achievement.

Research Hypotheses and Validation

This study aimed to test the hypothesis that user engagement, resource optimization, and library access are significantly related to students' academic achievement in MUNPARLAS schools. The results showed that most relationships between user engagement, resource

optimization, and academic achievement were positive but very weak and not statistically significant, as indicated by p-values greater than 0.05. Similarly, most dimensions of library access showed no significant relationship with academic achievement. However, physical access to library facilities showed a statistically significant positive relationship with academic achievement ($p = 0.004$).

Study Limitations and Ethical Considerations

The study followed ethical procedures by obtaining informed consent from all participants, ensuring anonymity and confidentiality, and allowing participants to withdraw at any time. It also ensured that participants' views were reported fairly and respectfully in the analysis and final report.

RESULTS AND DISCUSSION

SOP 1. How does user engagement contribute to academic achievement in terms of library usage, types of library resources accessed, and satisfaction with library services?

Students demonstrated high level of engagement with library use (Grand Mean = 3.37, Always). The highest rating is using the library as a quiet and focused study space ($M = 3.61$), while the lowest is access to computer and internet services ($M = 3.10$). Students show an "Often" level of resource access (Grand Mean = 3.20). The highest is selecting resources based on task needs ($M = 3.30$), while the lowest is reliance on academic journals and databases ($M = 3.13$). Students are "Always" satisfied with library services (Grand Mean = 3.36). The highest ratings are confidence in asking staff and efficient borrowing process ($M = 3.40$), while the lowest is satisfaction with social media and communication channels ($M = 3.30$).

SOP 2. How does resource optimization support academic achievement in relation to information literacy skills, research activities, collaborative learning, and self-directed learning?

Information literacy skills are rated as "Always" (Grand Mean = 3.35). The highest is applying citation methods ($M = 3.57$), while the lowest is using the library catalog ($M = 3.15$). Research activities are also rated "Always" (Grand Mean = 3.31). The highest is analyzing and organizing information ($M = 3.41$), while the lowest is seeking help from library staff ($M = 3.25$). Collaborative learning shows high engagement (Grand Mean = 3.43), with the highest in working with classmates and suitability of the library environment ($M = 3.50$), while the lowest is participation in study sessions ($M = 3.36$). Self-directed learning is also rated "Always" (Grand Mean = 3.34), with the highest in self-study without guidance ($M = 3.44$), and the lowest in the use of digital tools ($M = 3.26$).

SOP 3. How is library access evaluated by respondents in terms of physical access to library facilities, digital access to online library resources, availability and adequacy of library resources, and quality of the physical learning environment?

Physical access to library facilities is rated high (Grand Mean = 3.46). The highest is for convenient library hours ($M = 3.57$), while the lowest is for the use of computers and internet services ($M = 3.23$). Digital access to online library resources is rated "Often" (Grand Mean = 3.16). The highest is access to resources not available in print ($M = 3.29$), while the lowest are

off-campus database access and preference for library online resources ($M = 3.10$). Availability and adequacy of resources are rated high (Grand Mean = 3.32). The highest is satisfaction with print and online resources ($M = 3.36$), while the lowest is accessibility of online resources ($M = 3.29$). The physical learning environment is rated high (Grand Mean = 3.51). The highest are comfort and library layout ($M = 3.54$), while the lowest is ease of locating areas ($M = 3.47$).

SOP 4. What is the reported academic achievement of the students?

Most respondents rated their academic achievement as “Very Good” (42.33%) and “Good” (41.09%). Academic achievement was measured using self-reported ordinal categories instead of exact grades due to ethical and practical considerations.

SOP 5. Is there a significant relationship between user engagement and academic achievement?

The relationship between user engagement and academic achievement is positive but very weak across all dimensions, and the p-values are above 0.05, indicating that the relationships are statistically insignificant. This means that students’ engagement with the library is not strongly associated with their academic achievement, although it may still contribute indirectly when combined with other learning strategies.

SOP 6. Is there a significant relationship between resource optimization and academic achievement?

The relationship between resource optimization and academic achievement is positive but very weak across all sub-dimensions, and none of the p-values are below 0.05, indicating that these variables are not statistically significant in relation to students’ academic achievement. This finding implies that even when students use library resources effectively, conduct research, collaborate, or learn independently, these activities are not strongly associated with higher academic achievement in this study. The results suggest that resource optimization alone has a limited relationship with academic achievement and may require integration with other strategies to be more effective.

SOP 7. Is there a significant relationship between library access and academic achievement?

The relationship between respondents’ library access and academic achievement is positive but very weak, and most dimensions are not statistically significant ($p > 0.05$), indicating that access to library resources does not necessarily guarantee higher academic achievement. Notably, physical access to library facilities shows a statistically significant positive relationship (coefficient = 0.14, $p = 0.004$), suggesting that students with easier access tend to report higher academic achievement, while other dimensions remain not significant.

SUMMARY

The study revealed that students demonstrated high levels of user engagement, resource optimization, and library access. Most respondents rated their academic achievement as very good or good. Among all variables examined, only physical access to library facilities showed a statistically significant relationship with academic achievement. User engagement and resource optimization showed positive but statistically insignificant relationships.

CONCLUSIONS

Students demonstrated high levels of library engagement and exhibited strong resource optimization with library services. They also exhibited strong skills in information literacy, research, collaborative learning, and self-directed learning.

Students reported high satisfaction with physical access to library facilities, including convenient hours, study spaces, and a supportive environment, although online access and resource availability were rated slightly lower.

The relationship between user engagement and academic achievement, as well as resource optimization and academic achievement, is positive but very weak and not statistically significant,. However, physical access to library facilities shows a positive and statistically significant relationship with academic achievement, highlighting its influence.

RECOMMENDATIONS

The library should continue to develop student engagement by creating specialized, interactive learning spaces that encourage active exploration of resources and promote participation, while academic resource guides should be regularly updated to help students navigate print and digital materials effectively. It should also ensure that resources are easily accessible through convenient operating hours, well-organized study spaces, improved digital platforms, and updated online collections.

Librarians should provide orientation programs, information literacy skills, and collaborative learning opportunities. The library should also support self-directed learning through guidance on independent study strategies, digital tools, and research skills.

Continuous monitoring and evaluation of library access, resource utilization, and user engagement should be conducted to identify gaps and improve services. Future research may explore other factors affecting academic achievement, such as motivation, study habits, teaching quality, and support services, and may also extend to other institutions for comparison.

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AI DECLARATION STATEMENT

AI-supported tools helped with grammar and structure in creating this article. No AI tools were used to collect, analyze, or interpret data; all authors are credited for their academic contributions.

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