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Rethinking and Repositioning: The Evolving Trajectory of Library and Information Science

Elijah John F. Dar Juan
Associate Editor, PhJLIS

Information and communication technologies (ICTs) are inescapable in today's Information Society. Smart appliances, cloud computing, open data, and artificial intelligence proliferate, and access to such modern technologies is as easy as shopping for goods. In this age where data, information, and knowledge are premium commodities, standards, norms, and practices about information processes are challenged, information issues and concerns abound, and information institutions as social structures are shaken. The study and teaching of LIS have been standing at a pivotal crossroads since online technologies allowed access to information. We are compelled to reflect on the role of libraries and librarians, the philosophy, identity, and values of LIS, and the future direction of LIS theory and praxis.

Do LIS scholars (including students, teachers, and researchers) concentrate on librarianship practice, to include developing collections and enhancing library services? Or is it prudent and essential to venture into

those fields that nurture the foundational functions of libraries, i.e., collecting, organizing, and providing information? How does library and information science (LIS) keep up with these changes? Will libraries as information institutions prevail amidst technological and social developments? What does it mean to be a library and information professional in this age, where information is ever-present and highly accessible?

Tracing its roots, LIS sprung up from the tradition of library science in response to the emergence of new techniques for producing and distributing information and the documentation movement, which aims to account for all types of information resources for future retrieval (Sweeney & Estabrook, 2018). Educators and scholars have resolved to use the term "library and information science" to refer to the field of study incorporating information science concepts such as bibliometrics and information retrieval into library science (Sweeney & Estabrook, 2018).

When LIS was library science, there was a clear career path for its graduates: librarianship. However, with the integration of information science in academic institutions in the 1960s (Hjorland, 2018), the move of

LIS towards information in different contexts was put at the forefront, thereby relegating the library to the sidelines. It was evident because of the trend in the change of name from library schools and library science schools to iSchools, i.e., schools of information science or information studies (Cronin, 1995; Rubin & Rubin, 2020). These changes underscore the shift of focus, breaking the boundaries of information within the four corners of the library and recognizing the value of studying information and its interdisciplinarity and persistence in all aspects of daily life. Therefore, the challenge for LIS scholars is centered on how we will treat librarianship and information. Given the role of libraries and information within schools, communities, and societies, do we need to give more attention to information than libraries, or vice versa?

Richard Rubin (2016, 2020), in several editions of his recognized textbook in LIS, has brought forth the discussion of the “library paradigm” and the “information paradigm” as a key issue of LIS education. The “library paradigm” gives high regard to libraries as significant institutions of information, learning, and culture, and amidst change, the purpose of libraries has to and must endure (Apostle & Raymond, 1997). Meanwhile, some, like Van House and Sutton (2000), argue that the library paradigm is outdated and that changing course and moving toward studying information is vital. The “information paradigm” was necessary to be adopted due to the changing ways of keeping and accessing information, and the dynamics of the academic environment. Since demand is increasing for careers related to ICTs, information, and communication, academic domains like computer science, business, and engineering have gained prominence. Today’s information landscape is not driven by libraries; instead, libraries are trying to keep up and stay relevant with the availability of online information and the speed at which it can be accessed. Adding to the burden are today’s challenges in the information landscape: the developments in algorithmic information systems, the impact of technologies on scholarly communication, and the trend towards digital transformation in the government and corporate contexts. The question remains: will LIS adopt the library paradigm endure in the coming years?

Our response may be motivated by our desire to improve our craft continuously. According to the Code of Ethics, Filipino librarians should embrace the motto “CANI: Constant And Never-ending Improvement of the quality and standards of professional services” (Item 2.6). Librarians have been in pursuit of offering excellent library services since the inception of the ALA, the commencement of the Library Economy program at

Columbia College, and the publication of Ranganathan’s Five Laws. Our response may also come from a place of struggle or deadlock; we are pushed into a corner where we do not have any choice but to cope, adapt, and evolve.

The tug-of-war between paradigms leads us to a crossroads where we have to decide where we would like to direct ourselves. LIS scholars and professionals (including librarians) seem compelled to reflect on who we are and our role in the larger scheme of things. To cope with the changes means equipping ourselves with not just the technical competencies. More than that, contemporary LIS professionals need to have their ethical and moral compasses pointed towards the values of truth, justice, and equity, something undermined yet very critical today. We should also extend care and concern towards culture and heritage, knowing that we are managing outputs of the human intellectual and creative ability. Such documents that shape the identity of a community or a nation serve as pieces of evidence that should be passed on from one generation to another. Drawing from our roots in libraries functioning for the welfare of everyone, i.e., “the greater good” (Gorman, 2015), or “a public good” (Rubin, 2016), LIS professionals should integrate the underlying principle of working for promoting human rights, sustainable development, and positive change in projects and programs that we organize.

As institutions cultivating future generations, LIS education plays a crucial role in this movement. Existing LIS programs must keep up to include more inclusive, responsive, and future-proof approaches in teaching and training. It may involve incorporating methods that apply in several different contexts. Students must also be well-versed in contexts and systems, capable of analyzing and identifying components so they may understand the synergy between elements and determine the best solution or course of action. Students should also be trained to think critically and act appropriately, given that circumstances might be different after getting their degree when they venture into their respective careers.

LIS professionals should also be open to change and willing to collaborate with other scholars and practitioners, acknowledging that LIS does not hold a monopoly over the information studies domain. In LIS research, we should also prioritize the inclusion of marginalized perspectives and be aware of critical theory and decolonization in our approach to LIS phenomena. Concurrent with reforms in LIS education, the role of libraries as institutions and librarians is also equally important. Throughout modern history, libraries have been resilient by being responsive in addressing the

needs of communities, and such resilience is constantly being tested. Academic libraries were organized to support the instruction and research goals of the university, while mercantile and commercial libraries in business and industry, knowing that access to information and knowledge stimulates intellectual improvement in the workforce (Gates, 1978) and increases productivity and profit (Rubin & Rubin, 2020). Libraries are, by nature, progressive since they have been open to integrating new systems and technologies in library processes as early adopters (Rubin & Rubin, 2020). Gorman's (1995) third of the Five New Laws of Librarianship also reminds us to "use technology intelligently to enhance service." As tools that may be used in many ways and for various purposes, enhancing information services and "saving the time of the reader" (Ranganathan, 1931) should be the primary goal of integrating technologies.

Today's libraries should be assertive, proactive, and decisive in taking new and influential roles that impact the information environment of the communities they serve. In times when disinformation campaigns are rampant, libraries can be agents to facilitate digital, media, and information literacy skills and engage people in digital citizenship. By offering the use of facilities and devices, libraries can also bridge the digital divide to give access to those who do not have the means. With information-centered projects, programs, and advocacies, libraries can seize the opportunity to respond to needs and renew the image of the library as the information clearinghouse of the community, being an integral part of the community for its advancement.

Aside from localized initiatives, our efforts in charting the direction of LIS should transcend geographic boundaries across nations and regions. Discussions, informative exchanges, and cooperative activities in international associations could further nurture LIS and allow it to coalesce and form into a definite body of knowledge. Collaborative and socially inclusive initiatives such as promoting open access, conducting inter-institutional research projects, and organizing joint LIS degree programs can drive LIS towards innovative progress and recognition in the academe and industry.

Ultimately, the future of LIS is not a fixed destination but an ongoing process of collective reimagination, critical inquiry, and collaborative efforts. As LIS educators, scholars, and professionals, we must be good stewards of the profession and body of knowledge entrusted to us (Gorman, 2015). The information paradigm will soon inevitably saturate LIS education and practice; thus, measures to adapt should be in place: future-proofing LIS education, strengthening the

identity and role of libraries, and local and international collaboration among stakeholders. All this while still adhering to our cherished values of equity of information access, democracy, justice, and intellectual freedom (Gorman, 2015; Rubin, 2016). It demands creativity, tenacity, and a commitment from all of us in the LIS community. To keep up with these changes and allow our libraries and librarianship structures to survive, LIS professionals and scholars should not merely adapt to change but actively shape it. Like a living organism, it is necessary for LIS to adapt and evolve to survive successfully and not suffer extinction. Through our efforts, LIS will endure; it will remain relevant and indispensable in the years to come.

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Employment Issues of Philippine Academic Librarians in the Private Higher Education Sector

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Abstract

Presents the current conditions of librarians employed in private higher education institutions (HEI) and their views on the ideal practice of every private HEI. Five cycles of employment were investigated: recruitment and selection, compensation and benefits, career development, performance management, and training and staff development. Respondent librarians from private higher education institutions (HEI) were selected regardless of their rank, current employment status, gender preferences, and years of service. Results show that librarians in institutions supporting their well-being promoted high employee retention and increased job morale. Factors contributing to high employee retention include comprehensive salaries and benefits, regular salary increases, and transparent promotions. Factors related to job satisfaction and career development include honesty regarding work descriptions, job responsibilities and workload, service recognition, support for career and professional growth, and post-retirement assistance. A thorough review of the recruitment and selection techniques should be implemented, establishing clear duties and responsibilities of librarians through librarian and human resource department coordination. A living wage should be used as the baseline wage for librarians, and the employer's support for professional growth, standardization of the performance evaluation scheme, and analysis of performance evaluation should be considered.

Keywords: Employment factors, Higher education institutions, Academic libraries, Librarian's compensation, Librarian's benefits.

INTRODUCTION

Private higher education institutions (HEI) are owned and managed by private individuals or corporations. Some could be for profit, such as those owned by private capitalists, or non-profits, like those owned by religious orders or non-government organizations.

The passage and subsequent implementation of Republic Act No. 9246, also known as The Philippine Librarianship Act of 2003 (2004), regulated the practice of librarianship. The law provided the licensure of librarians, which resulted in a growing demand for licensed professional librarians. The need for licensed librarians has become more critical, especially as various

sectors realize the importance of library and information management. In 2014, DOLE reported that librarians are on the list of most in-demand jobs in the Philippines. In 2018, the National Library of the Philippines (NLP), in its final report on the research entitled Status of Philippine Public Libraries & Librarianship, highlighted the need for hiring professional librarians. NLP reported that many employees in provincial and municipal libraries are not licensed librarians yet are tasked to manage these public libraries. With more than 60,000 private schools that provide basic education to learners, including Philippine schools overseas (PSOs) SY 2021-2022 (Department of Education, 2022), there is a great opportunity for librarian jobs. However, common labor issues concerning private institution librarians have

arisen, such as job security and wage, benefits and financial stability, and faculty status and tenure (Silva et al., 2017).

Libraries in the private sector must meet the demands of the Professional Regulation Commission (PRC) concerning hiring licensed librarians. Lourdes David of the Professional Regulatory Board for Librarians (PRBFL) noted that some of the 9,000 licensed librarians no longer practice due to retirement or work abroad (LibRadio, 2020). Many of them prefer working in higher education institutions, special libraries, and/or private institutions. As of the Academic Year 2020-2021, there are 1,735 registered private higher education institutions in the Philippines (Commission on Higher Education, 2022). This number continues to grow due to the increasing number of enrollees in tertiary education, according to the World Data Bank website (World Bank, n.d). The number of private higher educational institutions (HEIs) greatly outnumbers that of public HEIs. In a 2016 report by the Commission of Higher Education (CHED), private HEIs are 88% of the total HEIs in the country.

Nagendra (2014) proposed an employment cycle to fully understand human resource management. She listed the following processes: onboarding, orientation, career planning, career development, and termination or retirement. In these different processes, issues and concerns could be identified. Some employment concerns are related to social factors, such as relationships with colleagues, career advancement, and promotion privileges (Applegate, 1993; Butkus et al., 2018). While private and public sectors require licensed librarians for their libraries, the management style and work environment are very different. There are huge discrepancies between private and public librarians, ranging from the type of clientele to the type of collection that would be managed. These factors include standardized salary rates, long-term benefits (Franks, 2012; Fulmer & Li, 2022), scalability of employment status (Capitin, 2014), work experience qualifications (Agboola, 2001), job description mismatch (Warrach & Ameen, 2011; Kim & Choi, 2018), and licensure renewals. These factors derail the overall experience and morale of librarians in these sectors. With varied factors and issues related to the employment of private school librarians in the country, this study endeavored to identify the practices and perceptions of librarians on their current and ideal employment cycle to propose recommendations for them.

Statement of the Problem

This research aims to identify the employment issues and concerns of private HEI librarians and propose ways to

address them. Specifically, this study aims to answer the following:

1. What are the current practices of private HEIs for librarians in terms of recruitment, selection, training and staff development, compensation and benefits, performance management, and career development?
2. How have these employment practices affected the librarians in terms of their professional and personal careers as librarians?
3. How would the ideal employment practices be developed for librarians of private HEIs?

Significance of the Study

This study hopes to present the sentiments of Filipino librarians regarding their employment as well as their desire for better working conditions to develop a fuller understanding of the present employment situation of Filipino librarians in private higher education institutions. First, it attempted to find the persistent employment concerns of private academic librarians and their plight. Second, it seeks to demonstrate how employment concerns affect their professional morale. The study will emphasize the feelings of librarians about their present condition and how they see themselves in the future. Third, this research aims to demonstrate the hindrances to the librarian's professional development and desired career path while employed in private higher education institutions. Finally, this research will identify possible strategies to improve the situation of Filipino librarians in private higher education institutions.

Related Literature

In many countries worldwide, there have been extensive studies regarding employment concerns librarians face. These studies tackle and reveal topics such as problems in the marketability of the professional, job security, management and its treatment, and wages. These factors affect the general welfare and employment of librarians. Hiring professional librarians helps an institution run its libraries. Thus, librarians serve as a great asset in supporting the information needs of the library's intended patrons. This supports the idea that librarians should be hired and, more importantly, retained in these institutions. As Omeluzor (2018) stated, employee turnover is problematic for libraries because it may cause a brain drain to the organization, thus affecting the continuity of its programs. In Nigeria, a study found the factors influencing librarians' turnover intention; positive organizational practices such as training, promotion, payment of salaries, and rewards were revealed to be beneficial to reducing librarian turnover. Obille and Golfo-Barcelona (2022) presented a case study on using a multimodal model for online education

to capacitate library paraprofessionals in the Philippines. They concluded that self-paced learning proved to be ineffective for the study participants. The NLP (2018) provided training for paraprofessionals in libraries to enable them to keep the libraries open.

Keisling and Laning (2016) further argued that the first 18 to 24 months of a newly hired employee is crucial for exploring the potential of an individual. These crucial months were very important to getting to know the employee rather than limiting the process to the recruitment process. Employment concerns of workers in the academic library being studied revealed that employees expected employers to pay attention to their first 18 months so that employees could explore their strengths and exploit their positive traits for the benefit of the organization.

Concerning the selection criteria for librarians, Warrach and Ameen (2011) concluded that the curriculum taught at the University of Pakistan must be continually changing to increase employability. Their study showed that graduates must possess market-oriented skills, good communication skills, knowledge of storage and retrieval of information, presentation skills, and proficiency in English. This insight is supported by Ufuoma and Omekwu (2022) when they mentioned in their study that “recruitment of librarians is paramount to learning, reading, and research in the university” (p. 31). It means there is a constant need, and even motivation, for librarians to improve themselves and learn complementary skills to be more desirable to possible employers.

Another common problem is job security. As Bertola (1990) stated, poor job security was the most common factor in poor employment in European economies. This is a huge factor since permanent status would mean that employees would enjoy benefits as mandated by Philippine laws and regulations. Ortego (2016), in her study of the 49 libraries in the First and Second Legislative Districts of Leyte, found that none of the libraries have fully complied with the standards specified in the Standards for Philippine Libraries, such as the lack of qualified personnel to manage these libraries. Parida (1999) reported that librarians prefer having academic status rather than faculty status and that librarians prefer to have “their ranking system rather than to be equated with teachers” (p. 268). It meant that one effective strategy was to define and retain the roles of librarians in their institution. Further, regarding the faculty status of librarians, having faculty status does not equate to having higher status or better employment stature. Faculty status might also contribute to low morale among librarians (Kendrick, 2017).

Most studies compared the salary trends of academic librarians with faculty. Salary and wage are mostly economy-dependent, and obviously, countries with larger GDPs will have better headroom for allotment of the budget in the library and information sciences. In the U.S., librarians can negotiate salaries (Farrell & Geraci, 2017). There are not many studies of librarian salaries in the Philippines setting. However, consensus shows that the salaries of the average Philippine librarian may typically range from Salary Grades 11 (licensed librarian)

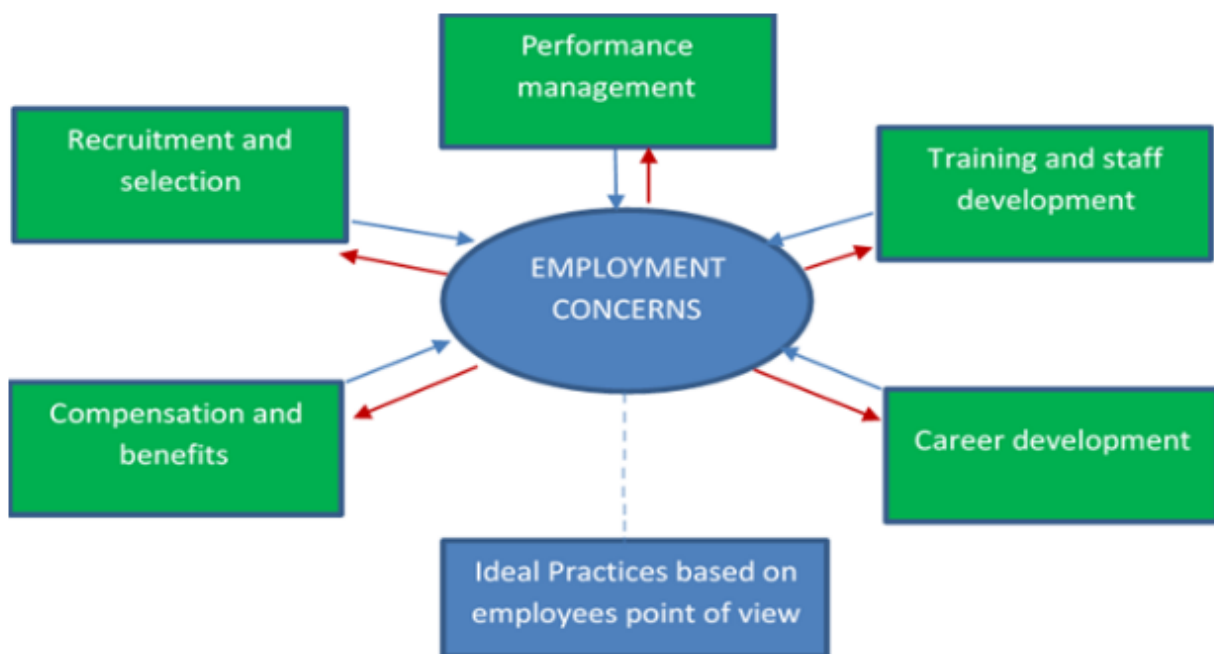


Figure 1 *Conceptual Framework on Employment Concern*

to 21 (head librarian), with the highest being 24 for the University Librarian. However, these figures are only for public/government librarians.

Conceptual Framework

This study investigated the employment concerns of private higher education institution librarians in the Philippines. This revolved around the employment cycle outlined by Nagendra (2014), namely Onboarding, Orientation, Career Planning, Career Development, and Termination or Retirement. Onboarding (recruitment and selection) refers to the first stage, where employees are oriented about and become members of the organization. Orientation is when employees are integrated into the culture and practices, familiarized with co-employees and management, and determined their organizational roles. Career planning (performance management) includes agreeing with the employee to craft career goals jointly. Career development is when the employee matures within the organization. Termination is the final stage when the employee leaves the organization by resignation, firing, or retirement. In this research, the current HEI practices on recruitment and selection, training and staff development, compensation and benefits, performance management, and career development are argued to directly affect the employee's employment concerns, represented by a blue arrow. On the other hand, a red arrow represents the variable influence of respondents' feedback. Using key informant interviews, ideal practices are drawn to help determine the employment concerns, represented as a variable connected with broken lines.

METHODOLOGY

The study employed a qualitative approach. A qualitative approach uncovers trends through gathering opinions and thoughts (DeFranzo, n.d.). The main instrument was a structured interview method designed to elicit from participant librarians their employment issues and concerns, as well as ways to deal with them. The respondents of the study are librarians working in a private academic library. These chosen institutions specified that they hire graduates of degree holders in Library and Information Science with a license according to the Professional Regulation Commission's (PRC) standards. Additionally, the respondents had at least 2 years of work experience in the private sector.

The researcher conducted the interviews through various modes such as online discussions, phone, and other forms of communication. Initially, 50 respondents were chosen and contacted via e-mail or social media, with several follow-ups via cellular phone messaging. After performing the preliminary interview, the researcher

scheduled interviews with librarians in the various regions of the Philippines to be surveyed. All regions yielded respondents except for the Bangsamoro Autonomous Region of Muslim Mindanao (BARMM). A period of 3 months per region was given to collect the data fully in a well-represented manner. For representativeness and to ensure the diversity of responses for each region and in big and small institutions, a minimum quota of at least three private HEI librarians per region was established, with the highest number of participants (14) coming from the National Capital Region (NCR). The total number of respondents yielded 59 respondents, with nine from NCR added due to the large number of academic institutions from this region.

Questions were developed based on Nagendra's (2014) five employment cycles. Each employment cycle stage contains problems and issues that were later reflected in the questionnaire. Questions were related to the method of recruitment and selection employed by their institution during pre-employment, the sufficiency of their current salary to their needs, provisions for training and development support from their employers, their career progression in their institution, and their benefits. Data from interviews were recorded and immediately transcribed to increase validity and reliability. These were done for the accuracy and trustworthiness of data transcription. Participants were also asked to check on the validity of the transcription as part of member checking. To maintain privacy and confidentiality, participants were given code names used in their responses, which are discussed in the next section.

RESULTS AND DISCUSSION

As mentioned in the conceptual framework, the research focused on the employment cycle, namely: (1) recruitment and selection, (2) training and staff development, (3) compensation and benefits, (4) performance management, and (5) career development. The questions were grouped according to stages in the employment cycle.

Recruitment and Selection

It has always been assumed that larger institutions had better recruitment and selection of staff, given their prestige and reputation. It was also generally accepted that big or well-known institutions have meticulously selected qualified applicants, given their tedious process, thus imparting a certain sense to the few who have selected that they are the best, and possibly the brightest, in the field. However, most of the applicants were referred to a job opening at an institution intended as a replacement for a soon-to-be job vacancy. Rose DP of

Region III expressed, “I was recommended by someone who was already employed by the company.” Arem of Region IV also stated, “I was referred to by a family member. Because the librarian is resigning, and they are looking for an immediate replacement.” Au of Region II stated that:

“The previous librarian was about to retire, so she recommended me [to the college]. I was not yet a librarian then, but she persuaded me to study LIS and take the board. It [was] very hard to look for librarians back in our time since only a few people [were] taking this [library science] course. The previous librarian cannot just leave the library on its own; she needs someone who is well trained to pass her legacy.”

These findings are interestingly contrasted with the norm, in which job postings or advertisements through social media are the usual practice nowadays due to their wider reach; this practice falls on the walk-in spectrum. As Anastasiou (2014) mentioned, social recruiting through social media platforms, such as Twitter and Facebook, is often used as an informal recruitment mode for potential candidates. Job postings or advertisements should include several important components to attract potential applicants.

Due to these concerns, the respondents think of an ideal recruitment and selection process to have clarity or transparency on salary, benefits, job description, and duties and responsibilities; consensus, such as bargaining between the company and applicants; selection based on meritocracy; systematic or follow specific protocols; specialized or librarians will be consulted to design the job description, and; proven to be effective by other institutions. Liz of NCR said:

“I think the ideal recruitment & selection process are as follows: 1. Identify the hiring needs (Prepare the Job Description, Salary Matching); 2. Select platforms for Job Posting; 3. Screening & Shortlisting; 4. Interview; 5. Evaluation; 6. Job Offer; 7. Contract Signing.”

On the other hand, some respondents see the practice of referral to be favorable on their part since they do not need to undergo the rigorous process of application like in the case of Rich, Jan, Valdez, and Leth of NCR, Mel from Region 10, and Kakashi from Region IV-A.

Compensation and Benefits

Unlike in the public sector, where a standard salary scaling method is practiced nationwide, compensation

and benefits in private institutions largely depend on tuition fees. In fact, the Commission on Higher Education, as per its Memorandum Order No. 3, Series of 2012, reiterates that seventy percent (70%) of tuition fees should be used for salaries, wages, allowances, and benefits of academic and non-academic personnel.

The common notion that big institutions can afford to pay very well is a given stereotype since they earn enough to cover academic and non-academic personnel’s salaries and benefits. This happens to be true based on the response of the subjects since many well-known institutions provide better compensation and benefits. However, about the individual’s satisfaction versus their salary, it is evident that there is no correlation between salary and satisfaction and well-being. This was supported by the study of Stevenson and Wolfers (2013), which said that “The relationship between well-being and income is roughly a linear log and does not diminish as incomes rise” (p. 598). Moreover, “If there is a satiation point, we are yet to reach it.” (p. 602). Potpot of Region IV-B, when asked if the salary is enough, said, “No. I am currently the breadwinner of the family. Sometimes, I need to get a loan in SSS just to make it sufficient.” Sabelle of Region VII, with 32 years of service, simply answered, “Insufficient.”

Furthermore, on the benefits, all participants had benefits. However, a few exclaimed that the only benefits they received were the government-mandated ones. On the other hand, big institutions provided benefits besides those mandated by the government, like health cards and rice subsidies. Gaelie of Region 3 stated,

“Yes, the institution has its hospital [and the] doctor’s fee is free for all university employees. Plus, they also give discounts. They also provide health cards which could cover hospital expenses of close relatives when and if they avail the services of the University hospital.”

Gord of Region IX happily shared, “We have educational benefits [for] employees with kids. Even singles can also avail of the benefits. There are annual salary increases, hospitalization and medical assistance, rice subsidy, 13th month, and bonus. I will retire here at our school.” Some of these benefits are due to the welfare and high employee valuation of their institutions, and others are fruits of their union’s collective bargaining agreement. This poses problems for smaller institutions due to the small number of employees. Moreover, small institutions do not have unions; therefore, employees cannot show solidarity and collective voice to express their demands.

Small institutions usually have one librarian plus a few other employees. With such few workers within the

institution, the employees will have difficulty demanding or establishing a collective bargaining agreement. Perhaps the most applicable notion for this issue is the living wage. Sinha and Sinha (2015) argued that a living wage makes workers live with dignity and contribute as active members of society. The living wage deals with the basic quality of life and the provision of basic needs with a minimum level of consumption regardless of the source of income (Carr et al., 2016). Since the living wage is pegged to the economic situation in a particular geographic location, the employee can live with dignity by receiving enough salary to sustain their needs. This might be the basis for setting universal basic income for entry-level librarians. Thus, librarians will no longer need to demand or negotiate for their welfare. Neneth of Region IX said, "I hope our salary is Manila-rate." Gaelie of Region III proposed that the "starting salary of 20,000 is the ideal since the librarian's job nowadays is not just limited to library work only."

Training and Staff Development

In terms of training and development, the size of the respondents' institution is a significant factor, with the observation that big institutions provide proper tools and equipment. In contrast, smaller institutions rely heavily on librarians' resourcefulness in finding a way to augment an institution's deficiency. Kris of Region II expressed:

"I have to be resourceful. If I don't do that, my library will be left behind. Tools are very expensive, and I don't want to catalog manually. It is very hard to catalog manually, plus this is time-consuming. I feel that the institution does not prioritize the library. They have money to build a gymnasium, buying unnecessary machines and expenses for travels in a foreign country, but for a library system, no, they don't really prioritize it."

Bert of Region VI lamented that:

"Lagi na lang sinasabi na walang budget. Ang problema po dito ay maraming librarians ang umaalis kasi noon pa hinihingi na 'yan (cataloging tools) pero hindi binibigay. Pati collections dito, pinabayaan na. hindi na nadedevelop. Lagi kami nanghingi ng evaluation copy sa mga book vendors tapos hindi naman bumibili. Nakakahiya diba? Siyempre, kami yung naka-front sa kanila. [They always say 'we have no budget. The problem here is many librarians resign because long ago, they were requesting it (cataloging tools), but it was never granted. Even the collections here were abandoned. It was no

longer developed. We always ask for an evaluation copy from book vendors, but we never buy anything. Shameful, isn't it? Of course, we are the ones seeing them]."

Problems like these are the usual reasons for librarians to leave the company. This could be prevented if the library is included in the institutions' development priority. The respondents were also asked about discrimination. In terms of opportunities to attend professional events, most of the respondents do not feel discriminated against. However, four (4) respondents feel that their institutions prefer a particular sector within the institution over the other. One of them, Candy of NCR, stated, "Teachers were usually allowed to attend professional conferences with full financial support. We, librarians, are usually denied, or if given a chance, they give us only 50% of financial subsidy."

In the case of respondent Fatimah, it seemed that having professional development assistance encouraged employees to grow further and gave them a reason to stay in the organization due to happy pronouncements of getting incentives and earning more once she finished her studies. On the other hand, some employers do not give any assistance at all to those librarians who wish to continue their studies. Most of the time, these institutions were very small, with enrolment populations of less than one thousand students. This was primarily due to the financial constraints of the institution.

Career Development

Gyansah and Guantai (2018) defined career as "the involvement of the various functions and roles one engages in throughout life, and these include education, training, paid and unpaid work, family, volunteer work, leisure activities, and more" (p. 40). A career is supposed to be a lifelong endeavor. Mathis and Jackson (2011) proposed that different views exist to explain lifelong career processes. First is the Protean View, which focuses on eagerness to drive careers according to the desired lifestyle. Second is the Career Without Barriers, when the person has various possible career routes. Third is the Portfolio Career, which is when a person builds his career by earning different skills and interests and is self-managed. Last is the Authentic Career, where people achieve a high level of personal insight and follow a true-to-self career.

Though most views discuss how individuals manage their careers, it does not reject the fact that institutions have a critical role in career development. Organizations that invest in their employee's career development can benefit from a highly skilled workforce. According to the

respondents, employee promotion varied from employer to employer. Barnes (2021) stated that each institution employed different approaches to career promotion, namely:

- Dry promotion, where an employee is given bigger responsibilities without additional compensation,
- Vertical promotion, when employees upgrade their rank while having a bigger salary,
- Horizontal promotion, where employees receive an increase in salary without increasing their responsibilities, and
- Open/closed promotion: When opened, job postings for a higher position were announced to every eligible employee, even to outsiders. Close promotion is when a job opportunity is unannounced, and the administration selects who to promote.

All librarians in small HEIs only receive a dry promotion since there is a lack of higher positions for librarians. As for bigger HEIs, a regular horizontal promotion is mandatory due to the availability of salary scaling methods and open/closed promotions if there are vacancies for higher positions. Vertical promotion usually applies to chief or director-level positions and is only available to big institutions. Respondents collectively agree that promotions should be available should they earn merits such as outstanding performance, years of service, or earning graduate units.

Giving post-retirement assistance to retired librarians motivated current employees to strive harder and look forward to their retirement in the institution. Big institutions provide retirement packages for their retirees, while many small institutions only give what the government mandates. However, three small institutions give retirement packages and post-retirement benefits, such as contractual or consultancy positions. As to what their idea of a promising career development program is, many focused their concern on professional development, some on educational achievements, some on retirement packages, and lastly, promotion. While there is no right or wrong in terms of what path an individual would want to take for their career development, there is no doubt that the organization plays a crucial role in keeping their employees on track to their desired career path.

Performance Management

McDonnell, Gunnigle, and Murphy (2018) defined performance management as a process that enables employees to perform their roles to the best of their abilities to achieve or exceed established targets and

standards directly linked with the organization's objectives. The main goal of performance management is setting targets and evaluating employees' performance to measure productivity. Participants interviewed from institutions confirmed the use of specific performance evaluations. However, how these performance evaluations make an impact on the organization varies. Many respondents stated that though they have regular performance evaluations, only a few use a standard method. Only five out of 59 respondents say that their employers use the standard method regularly and evaluate it thoroughly. Trish of Region IV-A mentioned

“Our institution conducts regular performance evaluations; however, it seems that every year, they use different forms. The success indicators used two years ago were not the same as what was used last year. I am wondering if they are taking performance evaluation seriously. If they do, how will they know if we become more productive this year than the following year?”

Evaluating employee performance is crucial to determine which employee is performing and which is underperforming. If evaluation matters in an employee's promotion, an efficient and effective performance evaluation will give accurate details about the strengths and skills of a certain employee. However, this is not the case for institutions that take performance evaluation for granted. For instance, if the employer promotes Employee A, other employees will question the basis of the administration in promoting Employee A. This will create jealousy among employees. From then on, employees will start to put their eyes on each other, waiting for a chance for others to commit a mistake. This is because there is no actual evaluation happening, and there is no way to tell if they are working hard or not and if an employee deserves a promotion. Jane of Region XIII lamented

“It seems that evaluation has no impact on employee promotion. I really don't know their basis for promoting my co-worker. She's just new to this institution, but it seems that they are favoring her over me. I was first here and have proven [to] the administration about [sic.] my loyalty for 6 years versus her 2 years, and yet there she is, promoted as a graduate school librarian. The only thing she got is her 18 units in graduate studies.”

Other respondents revealed that their respective institutions systematically evaluate staff through standard performance tools. These respondents preferred to stay until retirement in their current employer. Liz of

NCR said, “As of now, I don’t have any plans to transfer or work abroad because I’m satisfied with my current status even though the situation is getting worse.” BL of NCR stated

“I may stay put here; my life needs are met so far. The location is good, the salary is enough, and the schedule is acceptable. I would consider leaving if the working environment becomes toxic and co-workers start burdening you with responsibilities that they should be doing.”

Most of them are working in reputable universities with comprehensive salaries and benefits. The respondents also highlighted transparency in all financial aspects. These employees also experience regular promotions based on merit and tenure; both are recognized for promotion. Lastly, their current employer provides financial and non-monetary support for their lifelong learning activities and professional and career development.

CONCLUSION

The study revealed three main methods in selecting and hiring librarians: walk-in, referral, and by invitation. HEIs in the provinces prefer referrals, especially on a personal level. A mismatch between job postings and the actual workload of newly hired librarians usually occurs. Some duties are not supposed to be assigned to the librarian, like cashiering or administrative work, due to either a lack of staff or actual library work.

Intentionally supporting the librarian’s career is an essential factor in professional growth. Private HEIs must be willing to support their librarians in seminars, training, and even further studies. Investing in workforce training and career development benefits both librarians and the institution. Promotion and a clear salary scaling method are factors in improving employee morale and productivity.

There is no satiation point between well-being and income. However, there is a need for a comprehensive salary and benefits congruent with their needs to prevent employee dissatisfaction.

Employment concerns of librarians vary, and there is no such thing as a perfect employer or a perfect employee. What matters is putting effort into being a good employer by providing good employment experience, benefits, and salary, supporting employees in their professional growth and desired career path, providing monetary and non-monetary assistance, and creating a

working environment that gives them a sense of belongingness.

Effective, efficient, and honest performance management and measures are also necessary to identify who needs help for career improvement and who is given service recognition for exemplary service to the institution.

RECOMMENDATIONS

The research reveals several issues about the employment concerns of private higher education institution librarians. Based on the concerns exhibited in this research, the researcher gives the following recommendations:

1. Institutions should review their current job recruitment and selection processes and techniques, such as posting clear and concise job advertisements. They should also establish close coordination between librarians and human resource personnel to define the duties and responsibilities of librarians in the institution through a clear job description that may be used for job postings.
2. Smaller HEIs should create a succession plan to preserve the continuity of operation of the library.
3. Support for librarians in their professional growth must be institutionalized by creating a policy standard for academic librarians, including providing a continuing professional development support plan.
4. Policymakers should consider the living wage and not the minimum wage as the baseline of the basic salary of librarians to meet the economic needs of librarians so that they may live with dignity.
5. The PRBFL of the PRC or the Philippine Librarians Association, Inc. (PLAI), as its accredited professional organization, should create and adopt a standard performance evaluation scheme for librarians across all academic institutions.

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Evaluating Curriculum Quality: An Audit of Library and Information Science Specialization Courses to the Competency-Based Standard for Filipino Librarians

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Abstract

The Library and Information Science (LIS) program is vital in educating and training library professionals in the Philippines. To further illustrate the embodiment of professionalism among librarians, the Professional Regulation Commission (PRC) promulgates the adoption of the National Competency-Based Standards for Filipino Librarians (NCBSFL). The Standards are used as a reference by all LIS schools in crafting and implementing curricula on librarianship. The Philippine Normal University (PNU) is one of the institutions offering a Bachelor in Library and Information Science (BLIS) program, which already follows an outcomes-based design. A curriculum audit was done to assess the alignment of the revised BLIS curriculum of PNU vis-à-vis the NCBSFL using its language. Basic and differentiated auditing, including a heat map, was utilized to identify gap/s. The audit covers only the LIS Specialization Subjects (Core and IT Courses), Elective Courses, Reading Courses, and Library Practice Courses. Content and linguistic analyses were used to facilitate the study, and a CQA form was used to document the mapping. Findings revealed that the BLIS curriculum is fully aligned with personal and professional competencies when analyzed using the language of the standard. Several gaps not addressed in the standard and partial alignments were identified.

Keywords: LIS curriculum, Curriculum audit, National Competency-Based Standards for Filipino Librarians

INTRODUCTION

Libraries are knowledge fountains that illuminate and enrich a wide range of fields, including academic, economic, cultural, social, and political ones (Ganaie, 2014). As society becomes more information-centric, library and information science (LIS) schools play an important role in training future librarians to meet changing information needs. Modern library services necessitate innovation because patrons expect personalized and convenient access to information and services. As a result, LIS schools must regularly update their curricula to reflect technological advancements and professional standards.

The changing academic landscape necessitates effective

curriculum organization, dissemination, delivery, and management, particularly in LIS programs. According to Ebel et al. (2019), higher education institutions address complex societal changes by preparing students to be innovative and skilled, resulting in a competent workforce. Students must also articulate specific learning outcomes using their knowledge, skills, and attitudes (Killen, 2000).

LIS institutions in the Philippines are pivotal in cultivating future librarians in response to the increasing demand for information-oriented professionals, both domestically and internationally. LIS schools must establish themselves as leading institutions for training library managers. Graduates must acquire the competencies necessary to execute their responsibilities

effectively and efficiently (Ganaie, 2014). National and local library organizations establish standards that assist institutions in evaluating and enhancing their LIS curricula. Bryan and Clegg (2019) contend that ongoing curriculum and competency evaluation can enhance student outcomes for future achievement. Raju (2020) suggested that the conventional LIS curriculum, encompassing essential knowledge and skills like cataloging and classification, needs to be restructured to integrate emerging digital technologies.

The Philippine Normal University (PNU) has been at the forefront of teacher education since the 1950s, with its Bachelor of Library and Information Science (BLIS) program producing exceptional librarians. The BLIS outcomes-based curriculum teaches students how to manage print, non-print, electronic, and digital resources while incorporating technology into library operations. It also trains students to use bibliographic and online resources for teaching, research, and other purposes. To ensure its relevance, a curriculum audit has been proposed to assess the alignment of the BLIS Specialization Courses with the standard for librarians and identify gaps through a systematic quality audit. The Professional Regulatory Board Resolution No. 03, Series of 2015 was issued to prescribe, adopt, and promulgate the National Competency-Based Standards for Filipino Librarians (NCBSFL; Professional Regulatory Board for Librarians, 2015). The NCBSFL is used as a reference to the professional practice of librarianship in the Philippines. Choi (2020) believes that a competency-based approach was adopted to ensure students achieve the relevant skills needed in the work environment of the library sector. By conducting audits that evaluate conformity with industry benchmarks, institutions can better prepare students for success in the LIS field.

Curriculum assessment is essential for aligning learning outcomes with curriculum objectives, experiences, and methodologies (Plaza et al., 2007). Curriculum mapping elucidates curriculum objectives, instructional strategies, and the competencies and proficiencies addressed by the outcomes (Cuevas et al., 2010; Gluga et al., 2013; Harden, 2002). Furthermore, Cuevas et al. (2010) assert that mapping the program curriculum constitutes a complex dynamic system, wherein components are strategically arranged to promote the intended learning outcomes. Uchiyama and Radin (2009) emphasize curriculum mapping as a mechanism for enhancing alignment, articulation, and stakeholder education.

As part of curriculum mapping, curriculum audits document the purpose and processes of the program and

produce the documentation required for continuous improvement. Arafeh (2016) emphasizes the significance of discipline-based standards in curriculum development and implementation to ensure that course content, activities, and assessments promote student success through systematic review and development.

This curriculum audit is based on theories of curriculum development, educational assessment, and quality assurance. Gupta and Earnest (2008) characterize curriculum audits as systematic methodologies for the design, implementation, monitoring, and evaluation of educational elements, including inputs, processes, and outputs. Curriculum audits evaluate the alignment of educational programs with intended processes by collecting and analyzing data, thereby ensuring the quality of inputs, outputs, and outcomes. It also considers the alignment of the curriculum with standards and objectives, the logical connection between its various components, and the suitability of instructional practices for learners' needs (Center on Standards and Assessment Implementation, 2018). Furthermore, it develops shared responsibility and collective accountability of curricular decisions (Philippine National Research Center for Teacher Quality, 2019). Curriculum audits are critical tools for assessing the efficacy, relevance, and consistency of educational programs against established standards and objectives. They play an important role in LIS education as these tools ensure that programs can adequately and efficiently prepare students for professional practice. (2021) emphasize that curriculum audits are intended to align skills, competencies, and stakeholder expectations at the local level, addressing both faculty and student needs. Regular audits help institutions stay current and adaptable to the changing demands of the LIS profession.

Despite their importance, curriculum audits in LIS education pose challenges. Practitioners have criticized library schools' inability to respond quickly to technological and environmental changes, resulting in a shortage of personnel with the necessary knowledge, skills, and attitudes (Mahmood 2012). Addressing these gaps through regular audits and curriculum enhancements is critical to the future of LIS education in the Philippines and elsewhere.

METHODOLOGY

The study was anchored towards the curriculum quality audit (CQA) process of mapping the syllabuses to the indicators using tools and forms, and gaps and under- and over-representations were identified. The CQA involves basic audit, differentiated audit matrices, and

heat mapping as tools. It also uses the CQA Form to document the alignments. The basic audit methodology was used to indicate whether the NCBSFL curriculum while differentiated audit illustrated where and how the NCBSFL was able to address the curriculum. Furthermore, heat mapping was employed to illustrate a spectrum of values, and it is crucial to create a suitable color map to emphasize one or both ends of the spectrum (Gehlenborg & Wong, 2012). This can easily and objectively identify the courses that can be revised (i.e., the components that can be retained, changed, added, or removed), including topics/outcomes of courses that should contain (i.e., the competencies that cover specific courses).

The study employed content analysis, a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Stemler, 2000). Language analysis was applied to analyze the lexical patterns of the NCBSFL (Both Personal and Professional) when compared to the Outcomes-Based Education BLIS curriculum of PNU. The CQA form was used to facilitate mapping the LIS Specialization courses (Core, ICT, Reading Courses, Elective Courses) and Library Practice Courses, where it was populated with reference to the indicators and placement in the course syllabi. Data gathered as reflected in the CQA forms were carefully analyzed using the audit matrices (basic and differentiated), including the heat map, to better examine the alignment and under- and over-representation of the BLIS specialization courses in the NCBSFL. A total of 32 LIS courses underwent curriculum audit and in the process, the syllabi were analyzed and data were tabulated.

RESULTS AND DISCUSSION

Curriculum audits are important tools for assessing the curriculum's alignment, coherence, and relevance across levels. The audit methodology includes the basic audit, differentiated audit, and heat map. The basic audit identifies whether or not the standards are addressed in the curriculum, ensuring baseline compliance. The differentiated audit examines the specific alignment of standards, focusing on where and how competencies are integrated into courses. The heat map visually represents the curriculum, highlighting the depth and breadth of coverage for each standard and revealing areas of overemphasis or gaps.

Basic Audit of the BLIS Curriculum

The basic audit facilitated the mapping of the LIS courses (Core Courses, Reading Courses, Elective Courses, and Library Practice Courses) to the personal

and professional competencies of the Standards for Filipino Librarians which serve as indicators. This was done through the data gathered in the CQA forms per course and plotted in a structured worksheet reflecting both the LIS courses and the indicators. The process determines which courses contribute to each competency and emphasizes areas of over-representation (where multiple courses redundantly address competencies) or underrepresentation (where competencies are insufficiently covered). Every course will be aligned with one or more relevant competencies. The results will provide practical insights to enhance the curriculum, ensuring thorough competency coverage while reducing overlapping and over-representation.

Basic Audit of NCBSFL Personal Competencies to the BLIS Curriculum

The basic audit of Personal Competencies in the BLIS curriculum presents the alignment through careful review and analysis of the courses. This illustrates where the Personal Competencies are aligned with the BLIS curriculum and vice-versa. Results indicate the under and over-representations of indicators vis-à-vis the LIS courses. The Personal Competencies audit in the BLIS curriculum also assesses the efficacy of the curriculum in fostering personal competencies as specified in the NCBSFL. These data evaluate the connections between the curriculum and the competencies outlined in the NCBSFL to pinpoint strengths and areas for enhancement within the curriculum.

Table 1 shows that every LIS course (Core Courses, Reading Courses, Elective Courses, and Library Practice Courses) addressed and contributed to each of the NCBSFL's Personal Competencies. The courses comprising the BLIS curriculum received 159 indicators with an average score of 4.18 following the Standards' Personal Competencies. In light of this result, it can be determined that the courses deliver a curriculum that is aligned and capable of producing quality graduates in terms of their expected personal competencies. According to the data, 29 LIS courses (90.62%) examined covered a minimum of eight out of the 17 indicators specified in the NCBSFL related to Personal Competencies while three LIS courses covered all nine indicators in the Personal Competencies, namely:

1. Information Resources and Services II,
2. Library Promotion and Marketing Techniques, and
3. Web Technologies in Libraries and Information Centers.

The syllabi of the courses include a comprehensive list

of personal competencies that are emphasized and integrated into the instructional delivery. These courses aim to enhance and foster the personal competencies of pre-service librarians.

In addition, seven LIS courses were identified as having very few indicators (only one or two) addressed under the Personal Competencies. These courses are the following:

Table 1 *Basic Audit of Specialization Courses vis-à-vis Personal Competencies Standards*

Course Title	Number of Personal Competencies Addressed
Foundations of Library and Information Science	2
Collection Management of Information Resources	3
Information Resources and Services I	6
Information Resources and Services II	9
Indexing and Abstracting	3
Organization of Information Resources I	4
Organization of Information Resources II	2
Special Materials	5
Management of Libraries and Information Centers	6
Library Promotion and Marketing Techniques	9
Development of Library Services Programs	5
Introduction to Archives and Records Management	5
Archival Methods and Services	4
Introduction to Knowledge Management	7
Research Methods in LIS I	2
Research Methods in LIS II	2
Information Processing and Handling in Libraries and Information Centers	2
Web Technologies in Libraries and Information Centers	9
Information and Media Literacy	8
Basic Database Design for Libraries and Information Centers	5
Digital and Hybrid Libraries Services and Resources	6
Reading and Library Literature in the Humanities and Social Sciences	1
Reading and Library Literature in the Pure and Applied Sciences	1
Library Materials for Children and Young Adults	3
Information Ownership, Access, and Control	8
Information Resources and Services for Diverse Learners	8
Government Documents and Information Sources	5
Academic and School Libraries	5
Public and Special Libraries	5
Filipiniana Sources and Services	5
Library Practice I (In-Campus)	7
Library Practice II (Off-Campus)	7
TOTAL	159

1. Foundations of Library and Information Science
2. Organization of Information Resources II
3. Research Methods in LIS I
4. Research Methods in LIS II
5. Information Processing and Handling in Libraries and Information Centers
6. Reading and Library Literature in the Humanities and Social Sciences
7. Reading and Library Literature in the Pure and Applied Sciences.

These courses are a significant concern, and further review and realignment are needed to align the courses with the Personal Competencies of the Standards.

The consistent attainment of the indicators in communication and customer service, as shown in Table 2, demonstrates that the BLIS curriculum is designed to foster the growth of these specific competencies. Additionally, this demonstrates the availability of numerous courses pertinent to these competencies and aids BLIS students in developing their skills in effectively communicating information, actively listening, and participating in professional discussions. Furthermore, there are additional critical areas that necessitate equal concentration and consideration. It is crucial to prioritize the development of Ethics and Values, Interpersonal Competencies, and Cultural Competencies to adequately prepare graduates for effectively navigating the complexities of the LIS profession.

Basic Audit of NCBSFL Professional Competencies to the BLIS Curriculum

The basic audit of Professional Competencies in the BLIS curriculum presents the curriculum's efficacy in developing the competencies as stated in the NCBSFL. The data displays the extent to which the curriculum matches the competencies described in the NCBSFL to identify areas for refinement and weaknesses within the curriculum.

The basic audit reveals that all LIS courses meet NCBSFL Professional Competencies. The BLIS curriculum addressed 163 Professional Competencies of the Standards at an average of 4.28 per course. The curriculum, particularly each course's syllabus, included librarianship competencies to help graduates prepare for professional practice.

The result shows that 11 LIS courses (33.33%) addressed six to 14 indicators under Professional Competencies. Analyzing the courses, when compared

to the standard, suggests that these courses offer a well-rounded education encompassing a wide range of essential skills and knowledge areas. This comprehensive coverage ensures that students are equipped with a diverse skill set and are prepared to meet the multifaceted demands of the profession. It is worth noting that all of the LIS courses exhibit conformity with professional standards and contribute to the advancement of essential competencies in the field of librarianship. This alignment signifies that the curriculum is specifically tailored to fulfill the predetermined standards and requirements established by professional organizations and accrediting bodies.

The audit also revealed that seven LIS courses targeted only one to two indicators. According to this, there is a possibility of enhancing the BLIS curriculum concerning Professional Competencies. Although these courses may provide valuable content and instruction in specific aspects of librarianship, their narrow emphasis on a limited set of indicators may lead to a less comprehensive educational experience for students.

As shown in Table 4, the data reveals that the BLIS curriculum addresses the management of information sources, specifically on selection and acquisition (10 courses), understanding of circulation services and retrieval of information (8), basic computer operations such as software (7), and project management (14) which were covered by the courses when compared to the professional competencies. By addressing these key areas in the BLIS curriculum, students acquire a solid grounding in information management, technology, and project management, all of which are necessary skills for success in the field of LIS. The curriculum effectively prepares graduates to meet the diverse and ever-changing needs of library users and adapt to basic software applications and programs.

It can be noted that potential enhancements to the BLIS curriculum can be done by focusing on the actual application and operation of computer hardware and peripherals, computer programs, and online communication tools such as social media platforms and others. There is a need for a more hands-on approach to teaching computer hardware and peripherals within the BLIS curriculum. While the curriculum may cover theoretical concepts related to computer hardware, there may be limited opportunities for students to gain practical experience in operating and troubleshooting hardware components. The prioritization of practical, hands-on training in computer hardware, peripherals, software applications, and online communication tools should be the primary focus for potential improvements to the BLIS curriculum. By offering students chances to acquire technical knowledge and proficiency in utilizing

Table 2 *Basic Audit of NCBSFL Personal Competency Standards vis-a-viz the Specialization Courses*

NCBSFL Personal Competencies	Number of Courses that Address the Competencies
1. Communication	
1.1. Communicates effectively using a variety of methods.	21
1.2. Communicates effectively to a variety of audiences and individuals of diverse backgrounds and culture.	8
1.3. Selects and applies the most appropriate and effective means of communication to meet situational needs.	10
2. Customer Service	
2.1. Manages the library environment to enhance user experience.	8
2.2. Develops and evaluates standards and practices for the delivery of quality customer service.	11
2.3. Applies customer service skills to improve/upgrade the level of user satisfaction.	8
2.4. Applies effective techniques to address issues/concerns arising from his/her professional dealings with the user.	14
3. Leadership	
3.1. Aligns efforts with the vision and direction of the organization.	7
3.2. Demonstrate an aptitude for leadership.	12
3.3. Anticipates and adapts to charges, developments, and challenges.	9
4. Lifelong Learning and Personal Growth	
4.1. Manages the continuous development of professional skills and knowledge.	10
4.2. Pursues a commitment to personal growth and lifelong learning.	11
5. Ethics and Values	
5.1. Understands and acts in accordance with the basic values and ethics of library services.	5
6. Interpersonal Competencies	
6.1. Develops and maintains effective relationships with others to achieve common goals.	8
6.2. Builds team-building skills and attitude amongst members of his/her team/staff.	5
6.3. Applies effective strategies to manage organizational politics, conflicts, and other internal problems.	5
7. Cultural Competencies	
7.1. Widens and strengthens his/her involvement in activities geared towards promoting cultural heritage and services.	7
TOTAL	159

Table 3 *Basic Audit of LIS Courses vis-à-vis Professional Competencies Standards*

Course Title	Number of Professional Competencies Addressed
Foundations of Library and Information Science	3
Collection Management of Information Resources	5
Information Resources and Services I	6
Information Resources and Services II	6
Indexing and Abstracting	3
Organization of Information Resources I	2
Organization of Information Resources II	2
Special Materials	4
Management of Libraries and Information Centers	5
Library Promotion and Marketing Techniques	5
Development of Library Services Programs	7
Introduction to Archives and Records Management	3
Archival Methods and Services	5
Introduction to Knowledge Management	4
Research Methods in LIS 1	1
Research Methods in LIS 2	1
Information Processing and Handling in Libraries and Information Centers	7
Web Technologies in Libraries and Information Centers	6
Information and Media Literacy	6
Basic Database Design for Libraries and Information Centers	4
Digital and Hybrid Libraries Services and Resources	9
Reading and Library Literature in the Humanities and Social Sciences	2
Reading and Library Literature in the Pure and Applied Sciences	2
Library Materials for Children and Young Adults	2
Information Ownership, Access, and Control	8
Information Resources and Services for Diverse Learners	3
Government Documents and Information Sources	4
Academic and School Libraries	14
Public and Special Libraries	14
Filipiniana Sources and Services	14
Library Practice I (In-Campus)	3
Library Practice II (Off-Campus)	3
TOTAL	163

technology to assist library operations and services, the curriculum can more effectively equip graduates for the complexities and possibilities of modern librarianship.

Differentiated Audit of the BLIS Curriculum

A differentiated audit illustrates where and how the NCBSFL is addressed in the curriculum. It helps LIS faculty improve and/or identify gaps within the course syllabi sections (Descriptions, Outcomes, Content, and Assessment). The data reveals the full and partial alignment of the lexical patterns of the syllabus with the NCBSFL.

Differentiated Audit of Personal Competencies to the BLIS Curriculum

The differentiated audit of NCBSFL Personal Competencies in the BLIS curriculum comprehensively analyzes where and how the competencies are reflected across specific courses. This audit highlights the curriculum's strengths, identifies gaps, and outlines areas for improvement.

Regarding Personal Competencies, 19 LIS courses (59.37%) under the BLIS curriculum reflect the competencies in their syllabus. This indicates a good fit between course content and developing important personal skills. This alignment suggests that a high percentage of LIS courses in the BLIS Curriculum are intended to address and improve students' personal skills, attributes, and attitudes, all of which are necessary for success in the field of LIS.

Based on the result, it can be noted that 13 LIS courses (40.62%) need to be reviewed for proper alignment with the NCBSFL Personal Competencies. This suggests a need for curriculum evaluation and adjustment to ensure consistency and relevance to professional standards. This discrepancy indicates potential areas where course description, outcomes, content, or assessment methods may not fully align with the expected competencies outlined in the NCBSFL. Addressing the areas that have been identified for review, an opportunity arises to develop and enhance the curriculum. Through reevaluating course objectives, content, and assessment strategies, instructors can guarantee the successful integration of personal competencies into the curriculum, ensuring that students receive a comprehensive education that aligns with professional standards.

Analyzing the Personal Competencies indicators, as shown in Table 6, the audit reveals that 12 out of 17 indicators (70.58%) were aligned in the Description,

Outcomes, Content, and Assessment syllabus sections. In comparison, five indicators (29.41%) stated that the assessment was not fully aligned with the indicators and did not contribute to the competencies' attainment. Despite the overall alignment in the Description, Outcomes, and Content components, the analysis reveals areas where the assessment methods may not fully align with the Personal Competencies indicators. This discrepancy suggests a possible disconnect between intended learning outcomes and the methods used to assess student achievement of these outcomes. Assessment methods not closely related to the competencies may fail to accurately assess students' mastery of the desired skills and attributes. This may compromise the curriculum's effectiveness in preparing students for the realities of professional practice and limit their ability to demonstrate proficiency in key areas.

Differentiated Audit of Professional Competencies to the BLIS Curriculum

The differentiated audit of Professional Competencies in the BLIS curriculum offers a comprehensive analysis of the integration of professional competencies across various courses. This analysis identifies well-aligned areas, gaps in competency coverage, and opportunities for specific enhancements to enhance curriculum effectiveness.

Based on the LIS courses in the BLIS curriculum in Table 7, 25 courses (78%) align with the Professional Competencies specified in the NCBSFL. This result demonstrates connections between and advancement of professional skills, which is important and influential in the outcome of the curriculum upon the student's completion of the BLIS program.

It should also be emphasized that seven LIS courses (21%) exhibit a limitation regarding Professional Competency alignment, which requires careful consideration to close the gap between the Standards and the curriculum. Priority should be given to courses that need to be reviewed, particularly in the sections of the syllabus under Learning Outcomes, Contents, and Assessments, which explicitly demonstrate alignment with the standard. These results reveal a need to further review how the syllabi were written using the language of the standard to show full alignment.

Professional Competency part of the Standards. However, 16 LIS courses (50%) require review and refinement in how the competencies are written or expressed in the syllabi. It implies that inconsistencies or gaps in the current curriculum must be addressed so that students receive comprehensive training that meets

Table 4 *Basic Audit of Professional Competency Standards vis-a-viz the LIS Courses*

NCBSFL Professional Competencies	Number of Courses that Address the Competencies
A. Managing Information Sources	
A.1.1. Manages the process by which library resources are selected and acquired.	10
A.2.1. Understands the general structure, relationships, and relative importance of library catalogue systems and software (Classification Systems, e.g., LC, Dewey...).	7
A.3.1. Understands the acquisition and collection development processes and policies for the library.	5
A.4.1. Uses common social networking and online collaboration tools (e.g., blogs, podcasts, RSS feedreaders, instant messaging tools, photo-sharing tools, collaboration tools, web conferencing programs).	2
A.5.1. Understands preservation and conservation issues, including requirements for archival preservation and proper handling of materials.	5
B. Managing Information Services	
B.1.1. Explains and performs the basic operations of the circulation function.	4
B.2.1. Explains and performs intra- and interlibrary loan procedures, document delivery, resource sharing, reserves, and other information retrieval options.	8
B.3.1. Understands the essential characteristics of reference service in order to assist, advise, and instruct users in the use of primary resources.	7
B.4.1. Develops and implements training programs to educate the library users on the use of the library and its resources.	7
B.5.1. Develops, designs, implements, and assesses the library's information literacy program.	6
B.6.1. Designs and provides the library services attuned to the needs and interests of the community as well as the library's overall goals and objectives.	5
B.7.1. Designs and implements library services to meet the needs and interests of children in the community.	5
C. Managing Information Tools and Technologies	
C.1.1. Performs basic functions of e-mail applications.	2
C.1.2. Performs basic calendar and task management operations/applications.	1
C.2.1. Understands and uses basic computer hardware and peripherals.	1
C.3.1. Understands and uses the Internet and the World Wide Web.	3
C.3.2. Performs basic information searches.	4
C.3.3. Understands common security protocols related to internet use.	4
C.4.1. Understands and performs basic operating system functions.	7
C.5.1. Understands and performs basic functions and tasks of common software programs.	7
C.5.2. Performs basic word processing operations.	4
C.5.3. Performs basic printing operations for common operations.	1
C.6.1. Understands and uses common social networking and online collaboration tools	3
C.7.1. Assesses, selects, and applies current and emerging information tools and creates information access and delivery solutions.	6
D. Managing Information Organization	
D.1.1. Envisions strategic directions of the library in support of the programs of the institutions to which it is attached.	6
D.2.1. Establishes effective financial management processes and services, using sound business and financial judgment.	5
D.3.1. Employs sound project management principles and procedures in the planning and implementation of projects, programs, and researches.	14
D.4.1. Builds effective and harmonious work relationships toward the professional and personal growth of the people working within the organization.	7
D.5.1. Assesses and communicates the value of the library, and builds support to promote its information resources and services, through various media and/or multilevel marketing.	4
D.6.1. Forges linkages/partnerships, within and outside the organization, to optimize use of library resources, promote library cooperation initiatives, and to ensure conformity with regulatory standards, laws, and other policies affecting libraries.	6
D.7.1. Formulate plans and policies for optimum use of facilities and equipment.	7
TOTAL	163

Table 5 *Differentiated Audit of LIS Courses vis-à-vis Personal Competency Standards*

Course Title	Location of the Indicators (Description, Outcomes, Content, and Assessment) within the courses
Foundations of Library and Information Science	DCA
Collection Management of Information Resources	DCA
Information Resources and Services I	DOCA
Information Resources and Services II	DOCA
Indexing and Abstracting	DOCA
Organization of Information Resources I	DOCA
Organization of Information Resources II	DOCA
Special Materials	DOCA
Management of Libraries and Information Centers	DOCA
Library Promotion and Marketing Techniques	DOCA
Development of Library Services Programs	DOCA
Introduction to Archives and Records Management	DOCA
Archival Methods and Services	DOC
Introduction to Knowledge Management	DOCA
Research Methods in LIS I	DOCA
Research Methods in LIS II	DO
Information Processing and Handling in Libraries and Information Centers	DO
Web Technologies in Libraries and Information Centers	DOCA
Information and Media Literacy	DOCA
Basic Database Design for Libraries and Information Centers	DOCA
Digital and Hybrid Libraries Services and Resources	DOC
Reading and Library Literature in the Humanities and Social Sciences	D
Reading and Library Literature in the Pure and Applied Sciences	DOC
Library Materials for Children and Young Adults	DOC
Information Ownership, Access, and Control	DOC
Information Resources and Services for Diverse Learners	DOC
Government Documents and Information Sources	DOA
Academic and School Libraries	DOC
Public and Special Libraries	DOCA
Filipiniana Sources and Services	DOCA
Library Practice I (In-Campus)	DOCA
Library Practice II (Off-Campus)	DOCA

Legend: Description (D), Outcomes (O), Content (C), and Assessment (A)

Table 6 *Differentiated Audit of Personal Competency Standard and Location of Indicators*

NCBSFL Personal Competencies	Location of the Indicators (Description, Outcomes, Content and Assessment) within the Competency
1. Communication	
1.1. Communicates effectively using a variety of methods.	DOCA
1.2. Communicates effectively to a variety of audiences and individuals of diverse backgrounds and culture.	DOCA
1.3. Selects and applies the most appropriate and effective means of communication to meet situational needs.	DOCA
2. Customer Service	
2.1. Manages the library environment to enhance user experience.	DOC
2.2. Develops and evaluates standards and practices for the delivery of quality customer service.	DOCA
2.3. Applies customer service skills to improve/upgrade the level of user satisfaction.	DOC
2.4. Applies effective techniques to address issues/concerns arising from his/her professional dealings with the user.	DOCA
3. Leadership	
3.1. Aligns efforts with the vision and direction of the organization.	DOCA
3.2. Demonstrate an aptitude for leadership.	DOCA
3.3. Anticipates and adapts to charges, developments, and challenges.	DOC
4. Lifelong Learning and Personal Growth	
4.1. Manages the continuous development of professional skills and knowledge.	DOCA
4.2. Pursues a commitment to personal growth and lifelong learning.	DOC
5. Ethics and Values	
5.1. Understands and acts in accordance with the basic values and ethics of library services.	DOCA
6. Interpersonal Competencies	
6.1. Develops and maintains effective relationships with others to achieve common goals.	DOC
6.2. Builds team-building skills and attitude amongst members of his/her team/staff.	DOCA
6.3. Applies effective strategies to manage organizational politics, conflicts, and other internal problems.	DOCA
7. Cultural Competencies	
7.1. Widens and strengthens his/her involvement in activities geared towards promoting cultural heritage and services.	DOCA

Legend: Description (D), Outcomes (O), Content (C), and Assessment (A)

professional expectations. This will further ensure that the LIS courses will cover the Professional Competencies specified by the Standards.

Heat Mapping of BLIS Curriculum to the Standard

Heat mapping highlights areas of strong alignment, gaps where standards are underrepresented, and redundancies where they may be over-emphasized through visual representation. The data will provide a clear and

comprehensive overview and will assess the balance and alignment of the BLIS program with the Standards and the extent of alignment within the spectrum.

Heat Mapping Personal Competencies

The heat mapping of NCBSFL Personal Competencies illustrates the extent and distribution of these competencies throughout the BLIS curriculum. This visual analysis identifies areas of robust alignment,

Table 7 *Differentiated Audit of LIS Courses vis-à-vis Professional Competency Standards*

Course Title	Location of the Indicators (Description, Outcomes, Content, and Assessment) within the courses
Foundations of Library and Information Science	DOCA
Collection Management of Information Resources	DOCA
Information Resources and Services I	DOCA
Information Resources and Services II	DOCA
Indexing and Abstracting	DOCA
Organization of Information Resources I	DOCA
Organization of Information Resources II	DOCA
Special Materials	DOCA
Management of Libraries and Information Centers	DOCA
Library Promotion and Marketing Techniques	DOCA
Development of Library Services Programs	DOCA
Introduction to Archives and Records Management	DOCA
Archival Methods and Services	DOCA
Introduction to Knowledge Management	DC
Research Methods in LIS I	D
Research Methods in LIS II	DCA
Information Processing and Handling in Libraries and Information Centers	DOCA
Web Technologies in Libraries and Information Centers	DOCA
Information and Media Literacy	DOCA
Basic Database Design for Libraries and Information Centers	DOCA
Digital and Hybrid Libraries Services and Resources	DOCA
Reading and Library Literature in the Humanities and Social Sciences	DOCA
Reading and Library Literature in the Pure and Applied Sciences	DOC
Library Materials for Children and Young Adults	DOCA
Information Ownership, Access, and Control	DOCA
Information Resources and Services for Diverse Learners	DOCA
Government Documents and Information Sources	DOC
Academic and School Libraries	DOCA
Public and Special Libraries	DOCA
Filipiniana Sources and Services	DOCA
Library Practice I (In-Campus)	DOC
Library Practice II (Off-Campus)	DOC

Legend: Description (D), Outcomes (O), Content (C), and Assessment (A)

deficiencies where competencies are insufficiently represented, and redundancies where they are excessively emphasized, offering critical insights for curriculum improvement and equitable competency integration.

The heat map revealed that the current OBE BLIS curriculum addresses all indicators of Personal Competencies. This means that the curriculum adequately addressed the development of such competencies. The BLIS curriculum is intended to encourage the development of personal characteristics, skills, and attitudes necessary for success in the field of LIS. By covering all indicators of personal competencies, the curriculum ensures that students have the opportunity to develop important qualities such as communication skills, critical thinking abilities, adaptability, and ethical awareness.

Heat Mapping of Professional Competencies

The mapping of NCBSFL Professional Competencies shows how effectively the OBE BLIS curriculum meets the essential professional standards needed in the field. This analysis points out the strengths in alignment, shows where coverage is lacking, and offers practical suggestions to improve the curriculum, ensuring that graduates have the necessary skills and knowledge for their future careers.

For the Professional Competencies, the heat map reveals that most of the language used by the curriculum was reflected in the competencies. However, some terms indicated were also not reflected or covered by the curriculum in either full or partial alignment with the syllabus. This means there were gaps between the curriculum and the Standards, which can be the focus of the review. Findings reveal the following gaps:

1. Managing Information Sources: the specification of “online collaboration tools (i.e., blogs, podcasts, RSS feedreaders, instant messaging tools, photo-sharing tools, collaboration tools, web conferencing programs.”
2. Managing Information Services: the term “implements” was not seen or indicated in the curriculum. Although the training program was covered, the implementation part was not explicitly indicated in the syllabi;
3. Managing Information Tools and Technologies: the term “perform basic calendar” operations was not reflected in the syllabus, and
4. Managing Information Organization: the term “forges” is not stated in the syllabus or the curriculum.

All the gaps identified under the Professional

Competencies should be the focal point of discussion between faculty to better assign what course/s needs to cover the term/s indicated in the results. This will strengthen the curriculum and provide an opportunity to align with the language the NCBSFL is currently using.

CONCLUSIONS AND RECOMMENDATIONS

The BLIS program at PNU is extensive and in conformity with the NCBSFL. The curriculum is designed to develop a wide range of skills, encompassing personal attributes such as communication and ethical behavior and professional competencies like information management and research. The BLIS program equips graduates with the necessary skills and knowledge to fulfill the variety of responsibilities of librarians in the Philippines. This approach guarantees that students acquire theoretical knowledge and cultivate the practical skills necessary to navigate the ever-changing field of LIS. The curriculum provides future librarians with the necessary tools for professional and personal success, in line with national standards and the changing requirements of the field.

The BLIS curriculum at PNU acknowledges the significance of personal competencies in influencing the overall professional growth of students. Personal competencies encompass a variety of qualities, attitudes, and abilities necessary for achieving success in the field of LIS. The competencies encompassed in this list comprise communication skills, critical thinking, problem-solving capabilities, adaptability, ethical awareness, and interpersonal skills. By addressing these aspects, the curriculum can cultivate well-rounded individuals who can effectively engage with colleagues, patrons, and stakeholders.

Furthermore, the BLIS curriculum at PNU places emphasis on developing professional competencies that are in line with the NSCBFL. These competencies include the necessary knowledge, skills, and attitudes for effective practice as a librarian or information professional in the Philippines. The NSCBFL identifies various professional competencies, such as information organization and management, reference and information services, collection development, library technology, research methods, and library administration. The curriculum at PNU is strategically designed to ensure that students acquire these competencies through a well-balanced blend of theoretical instruction, practical experience, and experiential learning opportunities.

Although there is a general alignment, gaps in certain

Table 8 *Differentiated Audit of Professional Competency Standard and Location of Indicators*

Professional Competencies	Location of the Indicators (Description, Outcomes, Content and Assessment) within the Competency
A. Managing Information Sources	
A.1.1. Manages the process by which library resources are selected and acquired.	DOCA
A.2.1. Understands the general structure, relationships, and relative importance of library catalogue systems and software (Classification Systems, e.g., LC, Dewey...).	DOCA
A.3.1. Understands the acquisition and collection development processes and policies for the library.	DC
A.4.1. Uses common social networking and online collaboration tools (e.g., blogs, podcasts, RSS feedreaders, instant messaging tools, photo-sharing tools, collaboration tools, web conferencing programs).	DCA
A.5.1. Understands preservation and conservation issues, including requirements for archival preservation and proper handling of materials.	DOCA
B. Managing Information Services	
B.1.1. Explains and performs the basic operations of the circulation function.	DOC
B.2.1. Explains and performs intra- and interlibrary loan procedures, document delivery, resource sharing, reserves, and other information retrieval options.	DOC
B.3.1. Understands the essential characteristics of reference service in order to assist, advise, and instruct users in the use of primary resources.	DOC
B.4.1. Develops and implements training programs to educate the library users on the use of the library and its resources.	DOCA
B.5.1. Develops, designs, implements, and assesses the library's information literacy program.	DOCA
B.6.1. Designs and provides the library services attuned to the needs and interests of the community as well as the library's overall goals and objectives.	DOCA
B.7.1. Designs and implements library services to meet the needs and interests of children in the community.	DOCA
C. Managing Information Tools and Technologies	
C.1.1. Performs basic functions of e-mail applications.	DOC
C.1.2. Performs basic calendar and task management operations/applications.	DO
C.2.1. Understands and uses basic computer hardware and peripherals.	DCA
C.3.1. Understands and uses the Internet and the World Wide Web.	DOCA
C.3.2. Performs basic information searches.	DOC
C.3.3. Understands common security protocols related to internet use.	DC
C.4.1. Understands and performs basic operating system functions.	DOCA
C.5.1. Understands and performs basic functions and tasks of common software programs.	DOCA
C.5.2. Performs basic word processing operations.	DOCA
C.5.3. Performs basic printing operations for common operations.	C
C.6.1. Understands and uses common social networking and online collaboration tools.	DOCA
C.7.1. Assesses, selects, and applies current and emerging information tools and creates information access and delivery solutions.	DOCA

Professional Competencies	Location of the Indicators (Description, Outcomes, Content and Assessment) within the Competency
D. Managing Information Organization	
D.1.1. Envisions strategic directions of the library in support of the programs of the institutions to which it is attached.	DOCA
D.2.1. Establishes effective financial management processes and services, using sound business and financial judgment.	DOCA
D.3.1. Employs sound project management principles and procedures in the planning and implementation of projects, programs, and researches.	DOCA
D.4.1. Builds effective and harmonious work relationships toward the professional and personal growth of the people working within the organization.	DOC
D.5.1. Assesses and communicates the value of the library, and builds support to promote its information resources and services, through various media and/or multilevel marketing.	DOCA
D.6.1. Forges linkages/partnerships, within and outside the organization, to optimize use of library resources, promote library cooperation initiatives, and to ensure conformity with regulatory standards, laws, and other policies affecting libraries.	DOC
D.7.1. Formulate plans and policies for optimum use of facilities and equipment.	OCA

Legend: Description (D), Outcomes (O), Content (C), and Assessment (A)

Table 9. Heat Map of NCBSFL Personal Competencies

1	2	3	4	5	6	7
Communication	Customer Service	Leadership	Lifelong Learning and Personal Growth	Ethics and Values	Interpersonal Competencies	Cultural Competencies
1.1	2.1	3.1	4.1	5.1	6.1	7.1
1.2	2.2	3.2	4.2		6.2	
1.3	2.3	3.3			6.3	
	2.4					

Legend: Full Alignment Partial Alignment No Alignment

Table 10. Heat Map of NCBSFL Professional Competencies

A	B	C	D
Managing Information Sources	Managing Information Services	Managing Information Tools and Technologies	Managing Information Organization
A.1.1	B.1.1	C.1.1	D.1.1
A.2.1	B.2.1	C.2.1	D.2.1
A.3.1	B.3.1	C.3.1	D.3.1
A.4.1	B.4.1	C.4.1	D.4.1
A.5.1	B.5.1	C.5.1	D.5.1
	B.6.1	C.6.1	D.6.1
	B.7.1	C.7.1	D.7.1
		C.8.1	
		C.9.1	
		C.10.1	
		C.11.1	
		C.12.1	

Legend: Full Alignment Partial Alignment No Alignment

aspects of the LIS courses are identified. These gaps can manifest as differences in the extent to which content is covered, instructional methods, assessment strategies, or learning outcomes. Gaps in LIS courses can be caused by various factors, including outdated curriculum, faculty lack of expertise, insufficient resources, and changes in industry trends and standards. It is critical to identify these gaps so that the curriculum remains relevant and effective in preparing students for the demands of the profession. It is critical to address the issues in LIS courses to increase their effectiveness and relevance. This may include revising the curriculum, expanding faculty skills, allocating resources, or collaborating with industry partners to incorporate the most recent and effective methods and emerging trends into the curriculum. Possible approaches to addressing gaps include revising course materials, incorporating emerging technologies, expanding hands-on learning experiences, and assisting students in developing specific skills.

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Road to Completion: An LIS Graduate Student's Reflections on Research Writing

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Abstract

The article is a self-reflection of the author on his thesis journey. The author wrote about his lived experiences within the context of his enrolment in UP SLIS as an MLIS student who chose the Thesis track option. The purpose of this article was to document his positionality and show how it shaped his perspective on his research topic. The author notes four points of positionality that influenced his perspectives. First, the author noted that he is bound by the structures of UP School of Library and Information Science in the research classes and its programs' Thesis writing requirement. Second, the author acknowledged that he had experienced a unique approach in his research methods class that may not be the same as what other classes have done. Third, the author has experience with having a "thesis buddy." The thesis buddy was a classmate going through the same rigors, and they helped each other in their respective theses. In addition, the author also hoped to shed light on what LIS graduate students go through in writing their theses. The author highlighted two challenges: isolation and time and energy management. The author found that the Master's thesis was designed as an individual endeavor that led to a feeling of isolation among LIS graduate students. The author also found that while time management is indeed one of the main challenges in thesis writing, energy management had more weight in limiting the progress of writing research.

Keywords: research methods, LIS graduate students, thesis writing

INTRODUCTION

Research is a staple exercise in higher education. Most undergraduate and graduate degree programs have a thesis as a final requirement (Commission on Higher Education, 2012). Master's degree programs expect graduate student applicants to have advanced research skills and a general direction to a research topic they will have to pursue to finish the program. Unlike undergraduate programs, whose main objective is to train the student for the profession, graduate programs shift the focus from mastering skills and knowledge of the trade to teaching the student to contribute to the knowledge of the profession, implying a difference in objectives, engagement, and practice in doing research. Graduate students are encouraged to take courses,

electives, and cognates related to their research interests. By the end of the graduate program, the student conducts a final research requirement in the form of a master's thesis or special problem.

Graduate programs in Library and Information Science (LIS) are the same. One of the salient features of CHED CMO 24, s2015 (Commission on Higher Education, 2015) prescribes LIS undergraduate and graduate curricula to include research as a final requirement in relation to the expected competency of LIS graduates in conducting a significant research project that will benefit the library and the organization.

The article presents my reflections on my experiences and challenges as an LIS graduate student in writing and completing my thesis. The article primarily aims to

present my context and positionality towards my thesis writing in-depth. This is important as I am an LIS graduate student where my thesis is on determining the research culture of LIS graduates. I am investigating my fellow LIS graduate students who are going through or have gone through the same thing—conducting a thesis. This article hopes to shed light on what we, LIS graduates, go through in finishing our respective master's theses/capstone projects as a final requirement in our respective LIS graduate programs. While I present my personal experience and perspective, the concerns and experiences herein may be observed and experienced by other LIS graduate students. LIS faculty who handle the thesis writing classes may use the information presented in this article as points for discussion in improving the research classes and the fulfillment rate of graduate theses in their LIS programs.

SELF-REFLECTION

Self-reflection refers to an after-the-fact contemplation on meaningful events and one's reactions towards them with the intention of better dealing with future encounters. It is also defined as "having an ongoing conversation with your whole self about what you are experiencing as you are experiencing it" (Nagata, 2004, p. 140-141). While not at the forefront of disciplines, many self-reflective studies exist. Xu (2018) explored cross-cultural adaptation as self-formation through a self-reflective approach. She analyzed her personal experiences when navigating her overseas study trajectory as an international Ph.D. student. Her study provided empirical support to the notion of self-formation. On the other hand, Saban (2000) wrote his reflections on his experiences conducting his dissertation research to provide an example of using self-reflection and writing processes as two important means of personal and professional growth. In my case, the self-reflection was used to document my positionality.

Positionality is understood as position and positioning of the researcher in both the academic and social fields which pervade their production of knowledge (Marguin et.al., 2021). Positionality is the author's stance, perspective, and context in his/her research. It reflects on the author's background as against the subjects of his/her research. It acknowledges that no research is entirely objective or neutral. If positionality is the acknowledgment of the author's context or "position" in the research process, self-reflection is the acknowledgment of the author of his/her positionality while acknowledging the perspective/positionality of the respondent. If positionality shows where the author is coming from in assigning meaning to the data they

gather, self-reflection shows the sensitivity and sincerity of the author. It communicates to the audience how the author saw the process and findings of their research while acknowledging that their perspective may not be the same as other perspectives. Self-reflection and positionality are essential aspects of qualitative studies.

RESEARCH WRITING EXPERIENCE

Literature on research writing and research classes abound and most discussed time as a challenge in research writing. Baylen and Buenrostro-Cabbab (2023) described the typical background of LIS graduate students. One of their reflections is that most students work full-time while pursuing their master's degrees. This naturally leads to difficulties in time management. Lindsay (2015) found that difficulty in balancing studies around family and work commitments was one of the hindering factors in thesis writing. Austria and Cabonero (2020) found that the top challenge encountered by academic librarians in research writing was time and stress management, and financial problem (both 83.30%). Another study by Shahsavar and Kourepaz (2020) also found that their participants found time to be a challenge in completing their theses. They also stated that it undermined the quality of their writing. Apolinario, (2014) surveyed Filipino librarians on their research involvement and found that among their challenges include: no time to regularly read research articles and perceived lack of expertise in conducting research among others. D' Couto and Rosenhan (2015) found that time management was such a challenge that it became a strong influence in how students approached research activities and efficiency was a primary requirement for research resources. Valentine's (1993) had similar findings, her study found that undergraduate library students reported using methods perceived to be as quick as possible and that the reason for this is due to lack of time due to pressing schedules or to the last-minute nature of their efforts.

I concur with the findings of previous researches cited earlier. Juggling research writing with other important responsibilities is a top challenge. In my case, I am working full-time as a librarian and involved with church ministry. I also place family responsibilities as my top priority. In addition, I changed jobs from a school librarian to an academic librarian when the thesis was being completed. I had to adjust to new work while conducting data gathering for my thesis, and managing other circumstances in my family. I agree that time management was a huge part of my thesis's progress. While there are numerous other challenges in thesis writing, time management is a top hindering factor. The next section shed light on the circumstances of my research journey.

THE CONTEXT

Personal Context

At the time of writing, I was a part-time graduate student enrolled in the Master of Library and Information Science (MLIS) at the UP School of Library and Information Studies (UPSLIS). I was admitted in the MLIS program in 2021 under a remote learning set-up. At that time, I was a school librarian for a Christian private K-12 school in Pasig City. One of my duties included being heavily involved in the senior high school research classes. I was part of the topic defense and final defense panels, where I evaluated research instruments, and mentored students in conducting senior high school-level research. I chose to take the Thesis option for the MLIS program early on because of my personal interest and experience in qualitative theoretical research. This was rooted in my good experience in doing my undergraduate thesis. I also developed a personal interest in meta-research and research culture which stemmed from my experience mentoring senior high school students in their introductory research classes as a senior high school librarian. I observed distinct behaviors and the interplay of different factors in students doing research. This led to the question of what would happen if, instead of senior high school students, who are first-time researchers, I studied about LIS research graduate students—who should already have plenty of research experience. This became my research topic for my Master's thesis: Research culture of LIS graduates and its implications on research pedagogies.

Before the Master's thesis, I had little experience writing research which included writing my undergraduate thesis and a related paper that was accepted at a conference. To improve on my experience, I enlisted in the following courses: Seminar in Education in Librarianship, the Seminar on Information Literacy, the Seminar on Philippine Librarianship, and Educational Sociology as part of my graduate program. These courses all had individual research as a final requirement for which I studied senior high school students' research behavior and research outputs from my school library work.

Structural Context

The UPSLIS was formerly known as the Institute of Library Science (ILS) and the Institute of Library and Information Science (ILIS). It has been recognized in the Philippines as the premier higher education institution providing education and training for future and existing library and information professionals (UP SLIS, n.d.).

The MLIS is a 36-unit graduate-level program that includes a 36-unit program thesis option or a 37-unit program special problem option (Baylen & Buenrostro-Cabbab, 2023). During the application process for the program, prospective students are already asked about the final research they plan to conduct for the degree. I proposed to build upon my undergraduate thesis on Christian librarianship and look in-depth into its practice and implications. While the proposed topic was sufficient to be accepted in the program, I did not push through with it because I was not able to find a clear direction to refine what I would like to study about Christian librarians. Upon our acceptance in the graduate program, we were advised on the tracks that most suit our intended final research. We were also advised to take LIS electives and cognates that will be useful in our final research. The thesis option and the special problem options are differentiated in terms of the following: the special problem course is taken in one semester, whereas the thesis course is taken within two semesters where the first instance is the thesis proposal and the second instance is the thesis defense. The special problem option requires 21 units of electives while the thesis option requires 18 units of electives. This curricular difference adds to the importance of choosing the intended final requirement later on.

It is important to note that the final research/capstone project presented in the application process is not set in stone. Students are free to explore other topics based on their interests and contexts during their time in the degree program. However, it is ideal to already have a well-defined choice at the start of the program so that the courses taken by the students are suited to equip them to develop their final research. Most graduate courses at UP integrate research in the form of academic papers as a final requirement. Ideally, the papers passed in the different courses build up to the final research. As for my case, I proposed to study about Christian librarians and their practices in my application. I was not able to find a clear and decisive direction on what I would like to study about the presence of Christian faith in LIS practice. This became apparent when I had to write research papers for the courses I was enrolled in. But during my enrollment in Seminar on Philippine librarianship, we were asked to conduct research as a final requirement. I was also taking the Seminar on Information Literacy and Seminar on Education in Librarianship which also required us to conduct research. I decided to conduct research that could satisfy the three courses I was taking. I came up with a study about my research support program at work it has an education, information literacy, and Philippine librarianship elements. I passed a paper on the

evaluation of the research support program for the Seminar on Philippine librarianship. I passed a paper on the outcome of the research support program through analyzing my students' research outputs for the Seminar on Education in Librarianship. And I passed a paper on the information literacy practices of my students for the Seminar on Information Literacy. The three-pronged study developed my interest in research practices that led to my thesis topic.

After finishing the core subjects, LIS electives, and cognates, the program culminates with the final research courses. Students first take the Research Methods course, where foundational concepts, frameworks, models, and research methods on LIS research are discussed. At this point, students must officially choose between two options based on their interests and perceived capabilities in conducting either the Thesis or the Special problem. The students are formally required to prepare their proposals for their final research. Upon passing the Research Methods course, the students may enroll in either the Thesis course or the Special Problem course, depending on the nature of their final requirement. The Special Problem track is intended for applied research, while the Thesis track is for more theoretical problems.

The Thesis is taken for two semesters. The first instance is 3 units and is dedicated for the conceptualization, presentation, and approval of the research proposal. Ideally, within the semester, the student prepares a topic proposal that consists of the background of the study, review of related literature, and methodology. The students are assigned a pre-adviser based primarily on the faculty member's expertise and availability. The pre-adviser and student then coordinate to refine the research proposal. At the end of the semester, the topic proposal is presented in front of a panel that evaluates the value and feasibility of the proposed research. Once the panel approves of the topic, the student may proceed to the second instance of the thesis. There are instances when the presented proposal is not approved by the panel for which the student is given another chance to revise their proposal and present this to a panel once more.

In the second instance of the Thesis, the student formally conducts data collection, data analysis, writing the findings, and draw conclusions. The student writes the complete manuscript that generally consists of the background of the study, review of related literature, methodology, results and discussion, and conclusion. The adviser reviews the manuscript for revisions and recommendations. Once the adviser deems the manuscript sufficient, the adviser endorses it to the

reader, another faculty member. The reader also reviews the manuscript for revisions and recommendations. Once the adviser and the reader approve the manuscript, the adviser endorses the student to the faculty handling the Thesis course, usually the Dean of UPSLIS. The Dean then schedules the final defense for the research. The student presents and defends his/her research findings to a panel that decides if the research meets the program's requirements. Once approved, the student finalizes the manuscript, addressing revisions and recommendations of the panel, and prepares it for binding and ultimately to the completion of the Thesis course and the program.

I only discussed the parameters of thesis writing as this was the option I have taken. I have discussed the special problem option only in general terms which is a limitation of this article.

THE JOURNEY (SO FAR)

Conception of the thesis topic

While my thesis journey officially began in the Research Methods course which I have taken during the second semester of academic year 2022-2023, the starting point happened earlier. I primarily enrolled in research-oriented LIS electives and cognates. The courses all required doing research as a final course requirement. While bound by the content of each course's curriculum, all instructors encouraged us to conduct research that would eventually be used for our final theses. The conception of my thesis topic was a variation of the studies I conducted for the Seminar in Education in Librarianship, the Seminar on Information Literacy, the Seminar on Philippine Librarianship, and Educational Sociology. These "smaller" studies helped conceptualize my thesis topic, and most of the literature read for them was also used in my master's thesis.

My thesis topic was on the prevailing research culture among LIS graduate students. I wanted to probe into the perceptions and lived experiences of LIS graduate students in doing research. When I took the abovementioned courses, I was working as a school librarian for a private K12 Christian school in Pasig City. One of my roles was to support the senior high school research classes. I worked with the research class teacher as a research adviser, as a guest lecturer in information literacy and literature review, as an evaluator of research instruments, and as a panelist in the topic defense and final presentation. In years of fulfilling this role, I observed trends in the behavior and outputs of the senior high school students in their

research. When the abovementioned courses required individual research as part of their respective requirements, I formally studied these observations in the classes. In doing so, I wondered what would happen if I studied a different population for my thesis–LIS graduate students.

THE RESEARCH CLASSES

The Research Methods course aimed to re-introduce the frameworks, models, and research methods in library and information science. The course was held online. Our class met only a few times in the semester. The instructor held lectures for each thesis chapter and then gave two-week reading/writing breaks. He required us to pass the corresponding chapter before the next session. He allotted time during sessions to critique the student submissions. He encouraged us to touch base with other LIS faculty members who will eventually be our advisers. He also encouraged the class to message him for advice during the reading breaks. The final requirement of the course was a full thesis proposal. I recalled the instructor mentioning that this approach differs from previous course iterations. I do not know how the course was handled before. Personally, I was satisfied with how the course was handled. We were given free rein in doing their respective thesis proposals. Our instructor gave ample support and was available for correspondence during the semester.

How the Research Methods course was handled greatly affected the first part of the Thesis course. Apparently, the final output of the first half of the Thesis course was the thesis proposal, which was already done in our Research Methods course. With the proposal mostly done, I had a smooth and light semester. The lighter load was greatly appreciated considering my other responsibilities. However, the downside is that I did not think much about my thesis for the one-semester period. I had to re-read and re-familiarize myself with the literature and my proposed draft when the proposal defense came near. Thankfully, the topic was approved without issue.

I proceeded to the final half of the thesis. My study sought LIS graduate students with experience doing their final theses regardless of progress. I had just finished collecting data and was in the process of analyzing the data.

THE CHALLENGES

Throughout the Research Methods class, I thought that the research class structures were designed for individual

research. This makes sense as the master's thesis was done individually. Each student has different contexts and research topics. Students have no business with their classmates' research. This led to a feeling of isolation among the students, further aggravated by the online modality adopted at that time. This is one of the challenges that I wanted to highlight. Even as students are doing individual research, some do not want to be alone in facing the rigors of research. There is comfort in the presence of other people going through the same thing.

I took note of this in my experience with a “thesis buddy.” One of my classmates initiated contact with me and suggested being thesis buddies. My thesis buddy shared that she does not have much experience in doing research and asked for my help. Being thesis buddies meant that even with different research problems, we would go through the process together. We asked each other questions, became accountable to each other's progress, encouraged each other, critiqued each other's submissions, and conducted mock defenses. The mutual help was constructive and eventually helped approve both our proposals. It also gave us a sense of camaraderie, having someone going through the same rigors and pressures. Our setup addressed the feeling of isolation from the course setup. The setup carried on to the succeeding thesis courses. I realized that even as an individual endeavor, thesis writing still has a social aspect.

Another challenge I want to highlight is juggling full-time work, volunteering in church ministry, and other responsibilities while finishing my thesis. A lot of things needed my urgent attention at the time. I observed that this was a common issue in my thesis respondents as well as the literature (Austria & Cabonero, 2020; Baylen & Buenrostro-Cabbab, 2023; D' Couto & Rosenhan, 2015; Dunne, 2016; Valentine, 1993). This challenge is something that most students have to live with. Not everyone is privileged to be a full-time student who can focus most of their time, energy, and resources on their studies. Most students have full-time work and other responsibilities.

While I also found limits in my available time, I observed that energy is the more limiting factor. There were many days when I went home early after work and had plenty of time but found no more energy left to do some critical thinking. I realized that there is a “mental stamina” that is spent during the day at work. Even if I tried to tough it out, there were many times when my head already felt heavy, and I could not think coherently. This means that the challenge of time management is

not just a factor of how much time or when to allot the time to do one's thesis but also to consider one's mental state at the given time. One must ask, "Do I have the mental capacity to do my thesis at this certain time? How taxing is the work for today, and how will it affect my capacity to do my thesis after?" I had to schedule the tasks I planned for the day more carefully. I had to be careful not to be physically or mentally fatigued when I scheduled to do my thesis after work. I noticed that I worked best when thesis work was one of the first things I did in the morning, having a fresh mind. This is a luxury, as there are a lot of days as employees that we do not get to choose the tasks we need to accomplish for the day. I was only able to do this reliably on my days off. On work days, I had to find time to rest before doing my thesis or doing less. I had to learn to acknowledge that my progress does not necessarily need to be the same every day.

DISCUSSION

In exploring the research culture of LIS graduate students, I was shaped by my perceived unique experience in my research journey. First, I acknowledge that the structures of UP SLIS have shaped my thesis journey. The classes and the surrounding processes of conducting my thesis may be different in other LIS schools. I also acknowledge that I only experienced the Thesis option of our program and, thus, have no experience in the Special Problem option.

Second, the Research Methods class I experienced was different from previous batches. I expected the class to be mostly the same as my undergraduate research methods class. My undergraduate research methods class had lectures and activities every week about the different parts of the research process. We also learned about different research paradigms and research methods so we know what options we have for our respective research topics. From what I know this was how the graduate Research Methods class was handled as well. But our class instructor tried a new approach in our batch. He tried to streamline the course to meet the requirements of the Thesis class. He required the class to draft a thesis proposal already, which is also the requirement for the first half of the Thesis class. I found merit in this new approach as it streamlined the thesis writing process.

The instructor discussed a specific part of the thesis, and then we immediately wrote it for our intended thesis topics. Instead of recalling what was discussed the previous semester (Research Methods class), we had the opportunity to apply what we learned in our thesis proposals immediately. I acknowledge that this is different from other batches within UP SLIS.

Third, having experienced having a thesis buddy, I place great value on the social aspect of thesis writing. I realized that it is a big part of the research journey. Research is not just an academic exercise but it is also a social endeavor. Human relationships involved in conducting research is part of the research experience.

This seems evident in collaborative research as well as discussions about the stakeholders of a research project. Even if a researcher is the sole author of a study, there are often other people who contributed to the completion of the study. These include the co-researchers, advisers, panelists, mentors, respondents, and other stakeholders directly involved with the research topic. However, there are other people who may not be directly involved with the research but are still a great help in doing the research process. People involved in support and accountability include family and friends. These are the people who are often put on the acknowledgment page of the thesis manuscript. This led to the inclusion of asking my respondents about the people involved in their respective research.

Fourth, I took note of difficulties in time and energy management. I firmly believe that many researchers experience this. Several articles have included time as a difficulty in research writing (Apolinario et al., 2014; Lindsay, 2015; Shahsavari & Kourepaz, 2020). Most LIS graduate students have full-time jobs at the least. Thesis writing is a time-consuming process. However, I observed that energy has more weight as a challenge. There are many days when I had plenty of time after going home from work but could not write effectively because of physical and/or mental fatigue after what transpired during the day. While this has been discussed alongside time management (Lindsay, 2015; Shahsavari & Kourepaz, 2020), I observed less inclusion of this challenge in the literature I reviewed. This may be due to the mindset of "just powering through it" or that it's something that everybody has to live with. However, I think there is much to explore in discussing energy management as a significant challenge in thesis writing.

CONCLUSION

I acknowledge that these reflections have shaped my perspectives in exploring the research culture among my fellow LIS graduate students. I took note that it is evident in the questions I posed during the interviews with my respondents. I carefully asked my respondents from LIS schools other than UP how their research classes and theses were conducted. I asked about who were involved (directly and indirectly) in the respondents' respective research. This shows how a researcher should reflect upon his/her positionality and how it could possibly affect

his/her research. Researchers should continuously reflect on their context and acknowledge that their experience, perspectives, and expectations might differ from what their respondents will answer. Acknowledging one's positionality shows due respect and sincerity to not misrepresent their respondents, especially in qualitative research. It keeps the researcher grounded, making his/her biases and tendencies to make hasty generalizations in check. Lastly, it communicates to the readers what biases may be in play that one, even with effort, could not fully diminish. Thus, acknowledging one's positionality also shows due respect to the readers of the researcher's work.

On the other hand, I highlighted two challenges I experienced in writing my thesis. First, thesis writing and other research activities have a social aspect. Some students who are doing their thesis as sole authors do not want to be alone. Being with people going through the same rigors of research develops a sense of camaraderie that can translate to mutual help. Students do not just know that their classmates are going through the same thing; they can actively build each other up. It is important for the research courses to provide opportunities for the class to interact with each other and go through their journeys together, such as critiquing each other's work and brainstorming. Second, time management is more than the management of one's schedule but of energy as well. As with any other human activity, writing a thesis requires energy. Thinking critically requires energy and a state of mind. Students must be self-aware of how they are and how they will be in the time they will set within a day to do their thesis.

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Iberian Dreams, Philippine Colonial Realities: Revisiting the Spanish Literary Heritage of the 19th century Archipelago

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Abstract

The colonization of the Philippines was a complex and lengthy process that led to the emergence of Spanish-language non-fiction and fiction literature in the archipelago. Filipino intellectuals, emerging from the Spanish-imposed education system, became a force against colonialism by producing Spanish fiction and non-fiction. Despite the shift to English during American colonization, Spanish-language literature continued to evolve, reflecting Filipino resilience. The Catholic Church significantly shaped Filipino society through the Spanish education system. This article focuses on themes of identity, colonialism, and aspirations for freedom found in Spanish-language works published in the Philippines or Spain, and the Filipino intellectuals who contributed to this narrative. Theoretical frameworks by Benedict Anderson and Partha Chatterjee provide insights into how Filipino authors used Spanish to articulate a collective identity, fostering a unique national consciousness even within the colonial power's language. The University of California, Berkeley's location on the Pacific Rim has prompted the library to collect these works for scholars and students. The author provides insights into the subject matter of Spanish-language print books from the Philippines and demonstrates how digital humanities tools like Meta AI, ChatGPT, and Voyant can be utilized to offer additional insights from the Spanish-language narratives written by Filipino intellectuals in the 19th century, deepening our understanding of colonial-era literature.

Keywords: Spanish Colonialism, Digital Humanities, Filipino Literature, Transculturation, Collection Development, Post-Colonial Studies

INTRODUCTION

The colonization of the Philippines can be better understood by examining the Spanish language literature that emerged during Spanish colonial rule (1565-1898) and persisted through American occupation. This article explores the Philippine-Spanish imprints of the 19th and early 20th century held at the University of California (UC) Berkeley Library's collections, focusing on key authors and works. UC Berkeley's strategic location in the Pacific Rim, coupled with the history of early Filipino immigration to California, makes these collections a vital source for investigating Spanish colonialism in the Philippines. The Spanish language literature of the Philippines

results from a 333-year-long incomplete Spanish colonial enterprise in the Philippines. Thus, the rise of Philippine literature in Spanish can be understood because of the transplantation of "Iberian literary culture" in the archipelago. The transplantation of Iberian culture in the archipelago was incomplete at its best because the Spanish never acquired the status of lingua franca in the Philippines (Mawson, 2016). While the clergy and educated intellectuals were trained in the Spanish education system the Spanish language was not imposed among the locals as this was a form of control. However, Filipino intellectuals used Spanish to express their ideals and ideas in the language of the colonizers. They masked their dissent in their rhetoric, and this also enabled them to reach a wider audience. As such, while

the Spanish language imprints of the Philippines testify to the processes of colonization, these are also a testament to anti-colonial movements in the archipelago. The purchase of Hubert Howe Bancroft's collection in 1905 became part of UC Berkeley Library system with the name the Bancroft Library (Becker, 1973). This collection significantly enriched UC Berkeley's holdings of materials published in the colonial Mexico. Since Mexico's history is tied to the Philippines through Manila Galleon trade, many Spanish language publications from the Philippines ended up in the Bancroft Library's collections. In addition to the Bancroft Library, UC Berkeley began to participate in the PL 480 program that resulted in the further enhancement of the library's Area and International Studies collections (Williamson, 1967).

Despite its colonial nature, the Spanish-imposed education system in the 19th century inadvertently became a platform for transculturation. This system, designed to instill Spanish culture and values, facilitated the rise of Filipino anti-colonial intellectuals like Graciano López Jaena, José Rizal, and Mariano Ponce, who emerged as a force to be reckoned with in the face of colonialism. Their intellectual prowess demonstrated in the works of several Filipino intellectuals, such as José Rizal's *El Filibusterismo* and *Noli Me Tangere*, led to the emergence of Spanish anti-colonial non-fiction literature in the Philippines. The ideas they expressed were the product of the Iberian education system in the Philippines. Thus, the Iberian dreams were constructed in the tropics using the amalgamated Filipino-Spanish hybrid system of literary tropes. Some of the narratives these authors wrote primarily reflected upon the anti-colonial struggle, which could be examined through decolonization theory. As noted by Escondo (2014) and Anderson (2005) despite using the colonial masters' language, the Filipino authors created space for anti-colonial narratives using the literary tropes of those who colonized them.

Even with the shift in the linguistic landscape from Spanish to English during US colonization, Spanish-language fiction and nonfiction literature continued to evolve. Filipino intellectuals' resilience and determination shaped the corpus now recognized as Philippine literature in Spanish, a testament to their unwavering spirit. In this context, the colonizers' languages and language policies presented opportunities for "progress" amidst transformative dynamics. Filipino society in and around Manila underwent fundamental changes, mainly influenced by the Catholic Church and its clergy (Lim, 1989). They were the primary implementers of the Spanish-imposed education system, printing Catholic-related works in Spanish, Tagalog

(Filipino), and local languages. This inquiry examines Spanish language fiction and non-fiction works published in the Philippines or Spain by Filipino authors from anti-colonial perspectives. Besides, using available digital humanities and artificial intelligence tools, the main research goal of this study is to determine the anti-colonial themes present in the Spanish-language literary collections from the Philippines. By focusing on the anti-colonial themes embedded within these texts, the author aims to uncover the ways Filipino intellectuals employed literature to challenge colonial power and promote a sense of national identity and resilience. This analysis will provide deeper insights into the historical and cultural significance of these works, contributing to our understanding of the Filipino struggle for independence. As such, the literature surveyed is from the 19th and early 20th century literary fiction works held at UC Berkeley. The author acknowledges the complexity of Filipino identity and the naming of the archipelago, given its colonial origins and attribution to Philip II, the Spanish Emperor.

Key Bibliographic References

Researching on publishing in the Philippines reveals a complex bibliographic landscape. This study relied on several key sources such as *Tablas cronológica y alfabética de imprentas e impresores de Filipinas* (1593-1898) (Retana, 1908) [Chronological and Alphabetical Tables of Printing Presses and Printers in the Philippines (1593-1898)], *Bibliography of the Philippine Islands* (Robertson, 1908), and *Philippine Retrospective National Bibliography: 1523-1699* (Bernardo & Versoza, 1974) among others. Retana's *Tablas cronológica* is a comprehensive bibliographic reference work and catalogs the printing presses and printers in the Philippines during the Spanish colonial period. It provides a chronological and alphabetical listing of printing presses and their corresponding printers. James Alexander Robertson's *Bibliography of the Philippine Islands* (Robertson, 1908) includes additional information about the holdings of the private libraries in the Philippines and the source materials that Wenceslao Emilio Retana y Gamboa authored. Besides these resources for the literature review, the author relied on two other sources. One is Bernardo's (1974) retrospective bibliography provides historical information about publishing related to the Philippines in Spain and the Philippines. The other is the University of the Philippines Press's *Union Catalog of Philippine Materials* (Ferrer, 1970) which is an indispensable source for additional information on 19th and early 20th century Philippine materials.

To analyze some anti-colonial tropes, I used Benedict

Anderson's (2016) *Imagined Communities*, Partha Chatterjee's (2015) chapter titled *Whose Imagined Community?* and Albert Memmi's (1967) translated work *The Colonizer and the Colonized*. Lastly, discussing colonialism in the Philippines would be incomplete without consulting Vicente L. Rafael's (1993) *Contracting Colonialism: Translation and Christian Conversion in Tagalog Society Under Early Spanish Rule*. These works provide a theoretical framework for understanding how "native" Filipino authors adopted Spanish to respond to their colonizers in the language they understood or took for granted. By "native" Filipino authors, the author means those intellectuals who were not of Spanish origin but rather those who were born in the Philippines in Filipino families. While many works discuss the anti-colonial struggle in the Philippines, for this work, I focused on analyzing selected texts authored by José Rizal and others. The focus of this introductory work is to provide cursory information about the Spanish language literature of the Philippines and not to provide an in-depth analysis of the agency of the Philippine intellectuals and their relationship with Spanish colonial authorities.

Scope and Limitations

This study has several limitations. Firstly, its scope is restricted to Spanish literature, omitting works published in indigenous Philippine languages. Moreover, the research relies solely on print editions, disregarding manuscripts. Many works were published in multiple languages, including Filipino and Spanish. Furthermore, the study does not differentiate between authors based on ethnic origin, including those of Spanish descent born and raised in the Philippines who wrote in Spanish as their native language. Also, the author focused on the items held in the general library collections and excluded the items from the Bancroft Library. Given these limitations, the implications of this study highlight the need for a more comprehensive approach that includes works in Indigenous Philippine languages, manuscripts, and a differentiation between authors' ethnic origins, as well as a broader inclusion of library collections, to fully understand the complexities of Philippine literary history and its anti-colonial themes.

While the historiography of early Catholic-dominated education in various parts of the Philippines is outside the scope of this article, it is essential to note that the decree of Queen Isabella II first established modern secular education in the Philippines as indicated in the document *Expediente general de la Instrucción Pública en las islas Filipinas: Plan de Enseñanza primaria de*

indígenas [General Record of Public Instruction in the Philippine Islands: Plan for Primary Education of Indigenous People] (Isabel, 2014). The spread of secular education in the Philippines led to the eventual creation of Filipino public intellectuals who contested the Spanish colonial administration (De Dios, 2008). In the late 19th century, many members of the Filipino elite traveled to Spain and other parts of Europe for specialized education, bringing back ideas of European Enlightenment and freedom to the Philippines (Tran, 2022).

Initially, these revolutionaries tried to pursue Madrid to carry out political reforms in the Philippines through the *Illustrado* Movement (Teodoro, 1999). The influx of these revolutionary ideas and gradual social transformation in the Philippines culminated in the revolution of 1898 that the *Katipunan* organized (Quibuyen, 1997). The extensive history of the revolution of 1898 has been documented in a two-volume set that was published by Centro Editorial de Alberto Martin, Barcelona in Barcelona in 1899 under the title, *La insurrección de Filipinas en 1896 y 1897*, by Emilio Reverter Delmas (1899), who then termed the revolution as an insurrection.

Manuel Sastrón, a Spanish official in the Philippines, in his introduction to the book, reflects upon Spain's "civilizing mission" (Sastrón, 1899, p. 7) in the Philippines. As Eastman (2021) postulates, the "civilizing mission" led in the 19th century by liberal ideology was a function and continuation of centuries of civilizing practices that used the church as a tool to "civilize" the indigenous people of the lands that the Spaniards conquered and colonized. While the Spanish Imperial authorities partially succeeded in suppressing the 1896-97 revolution in the Philippines, we can understand the late 19th century Filipino writing as the narrative harboring the seed of early Filipino desire to gain autonomy and freedom from Spain.

METHODOLOGY

For data collection, I used purposive sampling using *Choreo Insights* - a tool developed by the Online Computer Library Center (OCLC) to provide real-time information about the holdings in academic libraries to avoid potential duplication and collaborate to build sustainable collections moving forward, as many academic libraries face budgetary and space constraints. The *Choreo Insights* tool allows for comparing two academic libraries' collections to see the overlap or gap in collections. For this analysis, since the author wanted to establish the collections of the UC Berkeley library, the author deliberately chose the University of

California-San Francisco (UCSF) as a library against which the analysis was run.

UCSF primarily collects items related to medicine and biological sciences; thus, the study showed no overlap in collections. For the format, the author only opted for printed books because these unlike the manuscripts formed the part of the general collections that was easily accessible to me. I used Spanish for the languages of the publications, and Philippines (ph) for place of publication to run the analysis. I purposefully used years of publication as a criterion due to the assumption that the number of books in the UC Berkeley Library's collection published in Spanish in the Philippines could

be relatively small. The author limited the publication date to the period between 1565 and 2024. The Philippines gained independence from the USA in 1946. However, the Spanish colonial period began in 1565 and ended in 1898. I chose 2024 as the date as many Spanish language books by the Filipino authors were reprinted in the independent Philippines.

The analysis returned 255 individual titles on all subjects published in the Philippines. I then filtered these results by LC Call number ranges to limit them to LC Call numbers reserved for literature (PL and PQ) which resulted in 39 individual titles. I then narrowed the years of publication from 1500 to 1898, further

Table 1 *Items related to Filipino literature*

Title	Author	Publication Details	Edition	LC Subclass
<i>El último adiós de Rizal: estudio crítico-expositivo.</i> [Rizal's Last Farewell: A Critical-Expository Study.]	Veyra, Jaime C. de1873-(Jaime Carlos),	Bureau of Printing, 1946		PQ - FRENCH LITERATURE, ITALIAN LITERATURE, SPANISH LITERATURE, PORTUGUESE LITERATURE
Poems of Dr. José Rizal: <i>Poemas del Dr. José Rizal</i> , with Notes in English.	Rizal, Jose, 1861-1896.	Pikespeak Enterprises, 1956	2nd ed	PQ - FRENCH LITERATURE, ITALIAN LITERATURE, SPANISH LITERATURE, PORTUGUESE LITERATURE
Anguish, fulness, nirvana;	Veloso, Alfred S.,	Asvel Pub. Co.,1960	[1st ed.	PQ - FRENCH LITERATURE, ITALIAN LITERATURE, SPANISH LITERATURE, PORTUGUESE LITERATURE
<i>Bajo los cocoteros</i> = Beneath coconut palms.	Recto, Claro M.,1890-1960.	[Asvel Pub. Co.],1963		PQ - FRENCH LITERATURE, ITALIAN LITERATURE, SPANISH LITERATURE, PORTUGUESE LITERATURE
<i>Ave en jaula lírica: Bird in the Lyric Cage. Poemas hispano-filipinas traducidas al inglés.</i> [Bird in the Lyric Cage: Hispano-Filipino Poems Translated into English.]	Espino, Federico Licsi.	<i>Ediciones Fil-Hispanas</i> ,1970	[Ed. bilingu]e].	PQ - FRENCH LITERATURE, ITALIAN LITERATURE, SPANISH LITERATURE, PORTUGUESE LITERATURE
<i>Balagtasan: La poesía de Jesús Balmori y Manuel Bernabe y otras cosas más.</i> [Balagtasan: The Poetry of Jesús Balmori and Manuel Bernabe, and Other Things.]		Historical Conservation Society : 1992		PQ - FRENCH LITERATURE, ITALIAN LITERATURE, SPANISH LITERATURE, PORTUGUESE LITERATURE
<i>Cuento</i> = Kwento [A story]		De La Salle University Press, 1997		PL - LANGUAGES AND LITERATURES OF EASTERN ASIA, AFRICA, OCEANIA

reducing the number to 30 titles. The dataset can be found in this link: <https://tinyurl.com/84k5y8x5>

I utilized a virtual Spanish source, *Literatura Filipina en español* [Philippine literature in Spanish], maintained by Biblioteca Virtual Miguel de Cervantes [Virtual Library of Miguel de Cervantes], to identify publications by authors of Philippine origin published in Spain during the colonial period. It collates 126 fiction items by Filipino authors. In addition to the virtual source, I consulted *La Literatura Filipina en Castellano* [The Philippine Literature in Castellian] by Luis Marinas Otero (1974). This helped me identify key authors from the Philippines who wrote in Spanish and had their works published in Spain.

One immediate problem with the data is that some titles are indexed as French or Italian literature as seen in Table 1. There seems to be a cataloging oversight, as six items were erroneously indexed as French and Italian literature. Another important thing to note is that all these publications are from the late 20th century. Of these six items, only two were published during the Spanish colonial period, and the rest were published during the US occupation of the Philippines. Of 255 titles, 29 were related to languages and literature. For analytical purposes I attributed subject tags like literature, lexicography, and grammar that would convey the substance of the materials grouped in language and literature subclasses.

Seven items are classified as Filipino fiction literature in Spanish and published in the Philippines in the UC Berkeley library's collections. All seven were published after World War II. However, limiting the analysis to the Spanish-language books that were published ends up excluding works by Filipino authors who wrote in Spanish and whose works were published in Spain. I relied on two resources from Instituto Cervantes to establish what authors from the Philippines wrote in Spanish and published in Spain. One was the website on Philippine literature in Spanish; the other was a chapter entitled "*La Edad de Oro de la Literatura Fil-Hispana*" from *La Literatura Filipina en L. Castellano* [The Philippine Literature in Spanish] by Luis Mariñas Otero (1974). Based on these two resources, I collated a list of prominent Filipino fiction writers who wrote in Spanish, whose books were published in Spain, and whose works are available in the UC Berkeley Library's collections.

DISCUSSION

For the purpose of this work, I selected several authors from the list to provide a brief highlight on their works. The authors selected are as follows: Pedro Paterno

(1857-1911), José Rizal (1861-1896), Fernando María Guerrero (Fernando Ma. Guerrero (1873-1929), Isabelo de los Reyes (1864-1938), and Graciano Lopez Jaena (1856-1896).

Pedro Paterno (1857-1911)

Many Filipino fiction authors wrote in Spanish during the late 19th and early 20th centuries, reflecting the influence of Spanish colonial rule. Pedro Paterno (1857-1911) is considered one of the first Filipino writers and poets. His book of poems, *Sampaguitas y otras poesías varias*, [Sampaguitas and other various poems] is regarded as the first book of poetry published in Spain. Paterno authored *Ninay* in 1885, which was recognized as the first Filipino novel. UC Berkeley Library has a first edition of Paterno's novel, *Los Itas* (Paterno, 1890). Paterno served as the second term Prime Minister of the Philippines from May 7, 1899 to November 13, 1899. His first term was from 2 January 1898 until his succession by Apolinario Mabini (Early, 1975, p. 50), and his legacy and later collaboration with the American occupiers often invoke a controversial image of a traitor by some (Reyes, 2006). In her article, Reyes defines his legacy as follows, "Paterno's irresolution under conditions of political crisis made him either a subject of ridicule or an easy target of blame for nationalist historians. He was vilified as a self-gratifying elite who had betrayed his people's cause. Short of portraying him as an enemy from within, renowned historian Renato Constantino referred to Paterno as the 'broker of the betrayal of the Revolution' and as an opportunist and collaborator" (p. 89) However in abstract, she states, "Rather, it focuses on Pedro Paterno as a scholar, as the author of a considerable number of works of history, and it seeks to place him in his intellectual context, an ilustrado who compromised with both colonialism and nationalism, with loyalties split between Spain and the Philippines (Reyes, 2006, p. 87).

There are several works authored by Pedro Paterno at UC Berkeley Library. It is important to note that except for *El Pacto de Biyak-na-bato*, all other titles were published in Spain. Table 2 shows the breakdown of publishing houses where these items were published. Many of the earlier Filipino intellectuals were either educated in Spain or were the product of the Spanish-imposed education system; thus, their works were published in 19th-century Spain.

Spanish publishers that appear frequently were *Impr. de los sucesores de Cuesta*, and *Imprenta Moderna* in Madrid. Paterno's legacy is disputed due to his collaboration with the Spanish against the American occupiers and his stance as the Spanish-appointed negotiator who led to

Table 2 *Publications of Pedro Paterno and their publication details*

Title	Place of Publication	Publisher	Year of Publication
<i>La antigua civilización tagalog (apuntes) / por Pedro Alejandro Molo Agustín Paterno y de Vera Ignacio, maguinoo Paterno ...</i>	Madrid	Tipog. de M.G. Hernández	1887
<i>Los itas / por Pedro Alejandro Paterno.</i>	Madrid	Impr. de los sucesores de Cuesta	1890
<i>El barangay con la Relación de Fr. Juan de Plasencia, escrita en 1589 de cómo se gobernaban los tagalos en la antigüedad y una carta de D. Miguel Villalba Hervás</i>	Madrid	Impr. de los sucesores de Cuesta	1892
<i>El cristianismo en la antigua civilización tagalog / contestación al m. r. p. fr. R. Martínez Vigil</i>	Madrid	Imprenta moderna	1892
<i>La familia tagalog en la historia universal / P.A. Paterno; con un apendice contestación al R. Martínez Vigil</i>	Madrid	Impr. de los sucesores de Cuesta	1892
<i>El régimen municipal en las Islas Filipinas: Real decreto de 19 de mayo de 1893 / con notas y concordancias por don Pedro Alejandro Paterno.</i>	Madrid	Estab. tipog. de los sucesores de Cuesta	1893
<i>El pacto de Biyak-na-bato / por Pedro A. Paterno.</i>	Manila	Imprenta "La Republica"	1910
<i>Los itas / por Pedro Alejandro Paterno.</i>	Manila	Tip. linotype del Colegio de Santo Tomás	1915
<i>Ninay : (ugali nang catagalugan) / Pedro A. Paterno; salin sa Tagalog ni Roman G. Reyes.</i>	Manila	De La Salle University Press	2002

the Pact of Biak-na-Bato (Reyes, 2006).

José Rizal (1861-1896)

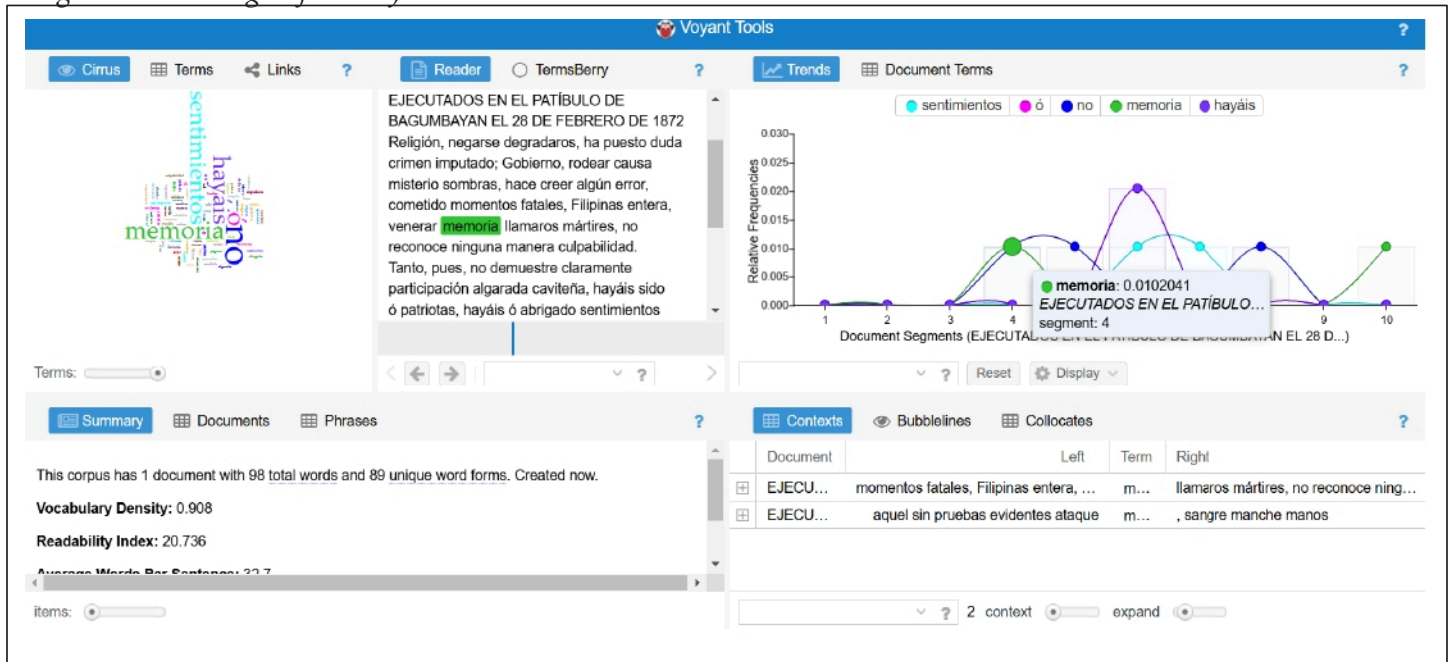
A national hero of the Philippines, Rizal is renowned for his novel "*Noli Me Tangere*" (Touch Me Not, 1887) (Rizal 1900) and "*El Filibusterismo*" (The Reign of Greed, 1891) (Rizal 1887). These works were instrumental in shaping Filipino national identity and consciousness during the Spanish colonial period (Rizal & Retana, 1908). At UC Berkeley Library, we have ten works by José Rizal in Spanish, all of which were published in the Philippines.

In the beginning of his work, *El Filibusterismo*, José Rizal dedicates a paragraph to Gomburza and reflects on the Cavite rebellion which is translated as follows:

To the Memory of the Priests Don Mariano Gómez (85 years), Don José Burgos (30 years), and Don Jacinto Zamora (35 years), executed on the gallows of Bagumbayan on February 28, 1872. Religion, by refusing to degrade you, has cast doubt on the crime attributed to you; the Government, by surrounding your case with mystery and shadows, leads to the belief that some

error was committed in fatal moments, and the entire Philippines, by venerating your memory and calling you martyrs, does not recognize your guilt in any way. Meanwhile, as long as your participation in the Cavite mutiny is not demonstrated, whether you were patriots or not, whether you harbored sentiments for justice or liberty, I have the right to dedicate my work to you as victims of the evil I strive to combat. And while we await the day Spain rehabilitates you and does not become complicit in your death, let these pages serve as a belated crown of dry leaves over your unknown graves, and may anyone who attacks your memory without evident proof stain their hands with your blood! J. Rizal [Ghent, 1891]

Can we postulate that J. Rizal's interpretation of Gomburza's sacrifice was the function of an imagined community that coalesced around the ideas of equity and freedom during the colonial epoch? The passage from Rizal can be examined through the lens of imagined communities. One part of the text reads, "Meanwhile, as long as your participation in the Cavite mutiny is not demonstrated, whether you were patriots or not, whether you harbored sentiments for justice or liberty, I have the right to dedicate my work to you as

Image 1 *Several insights from Voyant*

victims of the evil I strive to combat." Here, the imagined community refers to those involved in the Cavite mutiny, as well as those who shared a sense of justice or liberty. Rizal calls upon these groups and dedicates his work to another imagined community—the victims of the injustices he seeks to address. However, José Rizal's work highlighted the sacrifice of Filipino Catholic priests Mariano Gómez, José Burgos, and Jacinto Zamora, who advocated for equal rights between the Spanish and Filipino clergy, which resulted in the 1872 Cavite mutiny (Schumacher, 1972).

The Glorious Revolution of 1868 in Spain, which introduced democratic reforms and social changes, cannot be overlooked. These reforms and Spain's relative democratization created an environment where Filipino intellectuals like Jaena and Rizal found refuge. It's important to note that Spanish colonial rule in the Philippines was not benevolent. Its primary goal was to maintain the status quo, disregarding Filipino demands for reforms that could have eased the colonial burden and provided mechanisms for autonomy and self-determination. To reveal insights from the Spanish text, I used Voyant tools for analysis that revealed several insights, as shown in Image 1.

I cleaned up the text by identifying stop words and prepositions frequently used in Spanish from the provided text. I listed common functional words that serve grammatical purposes by carry little meaning on their own. Some examples include: *a*, *al*, *de* (of, from), *en* (in, on), *y* (and), *no* (no), *la/le* (feminine/masculine

definite article, *como* (as, like), *un* (indefinite article), *sobre* (on, about), *entre* (between), *ni* (nor), *mientras* (while), *este* (this), *esta* (this), *en tanto* (until), among others.

These words serve as connectors or help establish relationships between other words, phrases, and clauses in the sentence. They are essential for the grammatical structure of the language but are not typically relevant for carrying the core meaning of the text. However, this removal results in a text that is very short and thus the trends that Voyant Tools have offered in Image 1 can reveal only limited information as shown in Image 2.

Thus the cleaned up text is shown as follows:

EJECUTADOS EN EL PATÍBULO DE BAGUMBAYAN EL 28 DE FEBRERO DE 1872

Religión, negarse degradaros, ha puesto duda crimen imputado; Gobierno, rodear causa misterio sombras, hace creer algún error, cometido momentos fatales, Filipinas entera, venerar memoria llamaros mártires, no reconoce ninguna manera culpabilidad. Tanto, pues, no demuestre claramente participación algarada caviteña, hayáis sido ó patriotas, hayáis ó abrigado sentimientos justicia, sentimientos libertad, tengo derecho dedicaros trabajo víctimas mal trato combatir. Mientras esperamos España rehabilite día no haga solidaria muerte, sirvan páginas tardía corona hojas secas vuestras ignoradas tumbas, ¡todo aquel sin pruebas evidentes ataque memoria, sangre

manche manos!"

Voyant Tools allows to visualize the trends in this short text as shown in Image 2.

Rizal emphasizes that the priests are martyrs and that their memory should be respected, especially in the context of their wrongful execution. Rizal calls for the reclamation of their memory through phrases like:

"Filipinas entera, al venerar vuestra memoria y llamaros mártires" (All of the Philippines, in venerating your memory and calling you martyrs) – This implies that the public, particularly the Filipino people, should honor the priests as martyrs.

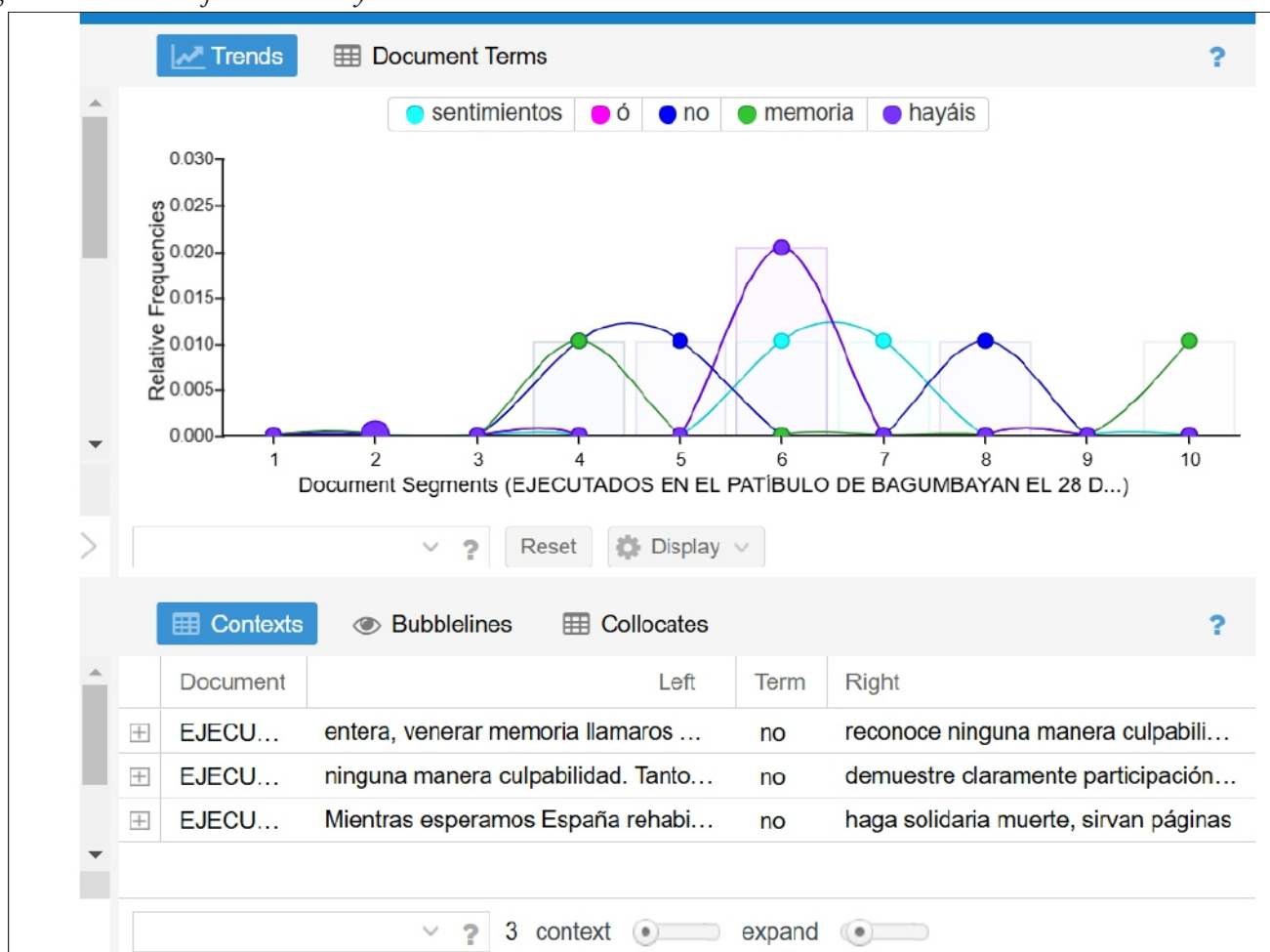
"sirvan estas páginas como tardía corona de hojas secas sobre vuestras ignoradas tumbas" (let these pages serve as a late crown of dry leaves on your forgotten graves) – This metaphor suggests that Rizal is offering a symbolic

tribute to the priests' memory, despite the fact that their graves have been ignored. It's a call for honoring their sacrifice, albeit in a delayed manner.

Voyant defines trends as a visualization that shows the frequency of terms across documents in a corpus or within segments of a document, depending on the selected mode. Each series in the graph is color-coded according to the word it represents, and a legend at the top of the graph indicates which words correspond to which colors. Users can click on words in the legend to toggle their visibility. Hovering over any point on the graph reveals a callout box with details about that point, including the word, its frequency (either raw or relative, depending on the mode), and the specific document or document segment.

For example, in Image 2, each dot relates to a word and how it is placed within the text. We can also see the word for *memoria* (memory) highlighted and how it

Image 2 A screenshot of trends in Voyant.



relates to the words *sentimientos* (sentiments). The trends allow us to perform closer reading of the text. So, while Rizal doesn't explicitly say the public must honor them, the text strongly implies that Filipinos should recognize the priests' martyrdom and sacrifice, even if the acknowledgment has been long delayed. Precisely, here we see the imagined community that Benedict Anderson emphasized in his work.

José Rizal's anticolonial stance can be analyzed by examining the visual connections among critical terms such as *sangre* (blood), *memoria* (memory), *víctimas* (victims), and *patriotas* (patriots). While these terms alone might not mean much to anyone individually, as a group with keywords like blood, memory, victims, and patriots, one can see the sentiments that J. Rizal was expressing. To test this hypothesis, I used Meta's Llama AI to analyze the text. The passage was analyzed and identified the overall sentiment as one of respect, admiration, and tribute to priests Don Mariano Gómez, Don José Burgos, and Don Jacinto Zamora, executed in 1872. José Rizal expresses solidarity with these individuals, whom he views as martyrs and victims of injustice.

Llama AI's sentiment analysis highlights specific feelings of indignation and criticism toward the Spanish government for its handling of the case, respect and veneration for the priests, hope for their rehabilitation and acknowledgment of innocence, and condemnation toward those who attack their memory without evidence. The tone is described as emotive, reflective, and critical, with poetic and elegant language, emphasizing key themes like justice, liberty, innocence, and memory, within the historical context of the 1872 executions.

The exact text of Rizal was then run through ChatGPT, another AI platform, to see how the analysis could differ from Meta's Llama 2.0 platform. I pasted Rizal's text just as he did for Meta AI and asked ChatGPT to conduct a sentiment analysis of the text.

ChatGPT's response can be summarized as follows, the passage emphasizes a strong emotional tone, characterized by admiration, defiance, and a call for justice. The sentiment analysis highlights several key elements:

1. **Reverence and Respect:** The speaker honors Mariano Gómez, José Burgos, and Jacinto Zamora with deep respect, challenging the accusations against them. They refer to these individuals as martyrs and victims of injustice, showing sympathy and veneration.
2. **Frustration and Criticism:** The writer criticizes

Spanish colonial authorities and the ambiguity around the men's deaths. They express frustration at the lack of transparency and hint at potential injustice in the trial and execution.

3. **Defiance and Assertion of Innocence:** There's a strong assertion of the priests' innocence, reflecting justice and defiance against wrongful accusations. The burden of proof lies with the accusers until proven otherwise.
4. **Call for Justice and Reparation:** The speaker expresses hope for justice and calls for Spain to take responsibility and reverse the injustice done.
5. **Caution Against Unfounded Attacks:** The final sentence warns against attacking the memory of these individuals without evidence, suggesting that doing so stains their legacy.

The text reverently remembers three priests, Mariano Gómez, José Burgos, and Jacinto Zamora, honoring them as martyrs and victims of injustice. The author criticizes Spanish colonial authorities for the ambiguous and potentially unjust trial and execution of these men. They assert the priests' innocence and call for justice and reparation, emphasizing the need for transparency and cautioning against unfounded accusations. These tools can indeed be useful for analyzing larger corpora of Spanish-language writings by Filipino authors.

Fernando María Guerrero (Fernando Ma. Guerrero (1873-1929))

Guerrero was a prominent writer who authored *El Hijo del Pueblo* (The Son of the People) in 1905. He is also known for his *Crisálidas* (Chrysalis) which is a poetry collection, published in 1914 (Guerrero, 1952). Some of his poems can be accessed at the Defensores de Lengua Española en Filipinas website. Also, from 1903, after the American occupation, he collaborated in a Spanish Tagalog bilingual newspaper, *El Renacimiento* (The Renaissance).

The newspaper's first issue, which came out on December 30, 1901, was dedicated to marking the fifth anniversary of the execution of José Rizal. In this commemorative issue, the editors published José Rizal's last letter that he wrote to his parents before his execution. In his last letter to his parents, as shown in the image above, Rizal expresses his love for his homeland, the Philippines: A man must die for his convictions and duties. Interestingly, Rizal wrote his last letter in Spanish instead of Tagalog.

Isabelo de los Reyes (1864-1938)

Isabelo de los Reyes, also known as Don Belong, was a

prominent Filipino patriot, writer, journalist, and labor activist. He is celebrated as the "Father of Philippine Folklore" and the "Father of the Philippine Labor Movement" for his significant contributions to preserving Filipino culture and promoting workers' rights (Bragado, 2002). He wrote *El Folk-Lore Filipino* (Filipino Folklore) in 1887, a two-volume work exploring the folklore of the Philippines (Reyes, 1994). He also published it in Madrid at *Tip. Lit de J. Corrales, La sensacional memoria de Isabelo de los Reyes sobre la revolución Filipina de 1896-97: por la cual fue deportado el autor al Castillo de Montjuic* [Isabelo de los Reyes' sensational memoir of the Philippine revolution of 1896-97: for which the author was deported to Montjuic Castle]. The views presented in this history of the Philippine Revolution are distinct from those of Emilio Reverter Delmas, whose book was mentioned earlier as one of the sources on the Philippine Revolution.

In Miguel Morayta's prologue to *La sensacional memoria de Isabelo de los Reyes*, he wrote about the role of Isabelo Reyes as follows:

Su larga estancia en la prisión le puso en contacto con un número considerable de filipinos, tan inocentes como él, así como de algunos partícipes de la insurrección y de tal cual culpable de haberla preparado por medio de la conspiración. Sus relaciones con unos y otros le permitieron conocer los secretos del plebeyo Katipunan y la irresponsabilidad absoluta de la Masonería y de la Liga Filipina en el movimiento revolucionario de agosto de 1896; y como en aquellos momentos, solemnísimos para tantos que horas después morían fusilados en Bagumbayan (Sagrada & López Jaena, 1891)

The English translation is as follows:

His long stay in prison brought him into contact with a considerable number of Filipinos, as innocent as he was, as well as with some participants in the insurrection and some who were guilty of having prepared it through conspiracy. His interactions with both groups allowed him to learn the secrets of the plebeian Katipunan and the absolute irresponsibility of the Masonry and the Liga Filipina in the revolutionary movement of August 1896; and as in those solemn moments, for so many who hours later died by firing squad in Bagumbayan.

Using Voyant tools can enhance our understanding of the relationships between various terms. I utilized the prologue of Morayta to describe some nuances of the

nationalist revolution in the Philippines. I downloaded a public domain copy of the text file from the Internet Archive to run the analysis (Image 3). Although the OCR copy contained many artifacts within the words, I used Meta's Llama AI 3.1 (build 405b) to clean up the text. Since Meta's Llama 3.1 has a word limit on how many words it can process if one is not to sign up for the Meta account, I divided the text into two parts to clean it up. I carefully verified the correctness of the rendered artifacts by comparing them with the representative letters in the PDF version of the text available on the Internet Archive. I ran the text through Voyant Tools, a web-based platform for digital humanities research and analysis. It's designed to facilitate close and distant readings of texts, enabling users to explore and visualize large amounts of text data.

Graciano López Jaena (1856-1896)

Lopez Jaena was a Filipino author, journalist, intellectual, and member of *Ilustrados*. He later joined *Katipunan* and was ultimately exiled to Barcelona, Spain, where he died. He is known for his novel *Frailocracia* (Friarocracy), published in 1889. López Jaena was also a key figure in the Propaganda Movement, advocating for reforms in the Philippines (Jamias, Navarro, & Tuazon, 2013).

The German National Library (*Staatsbibliothek zu Berlin—Preußischer Kulturbesitz*) has digitized his 1891 work, *Discursos y artículos varios*. Lopez Jaena's journalistic endeavors led him to launch *La Solidaridad* in 1888, a 12-page magazine that served as a voice for reform. As its editor, he championed vital causes, such as securing representation for Filipinos in the Spanish Congress, halting the unjust exile of his countrymen, and exposing the malpractices of friars in the Philippines.

CONCLUSION

In conclusion, examining Spanish literary heritage in the Philippines during the 19th and early 20th centuries reveals the complex evolution of Filipino literature shaped by 333 years of Spanish rule. This period saw Filipino intellectuals producing Spanish-language fiction and non-fiction, aided by the Spanish-imposed education system and transculturation processes. While American colonization shifted the linguistic landscape to English, Spanish-language literature endured, with figures like José Rizal and Pedro Paterno at the forefront of anti-colonial thought. UC Berkeley's collections offer valuable resources for studying this literary legacy, which reflects themes of identity, colonialism, and aspirations for reform and freedom in works published in both the

Image 3 A word cloud created using Voyant Tools

The screenshot displays the Voyant Tools interface. On the left, a word cloud features prominent terms such as 'españa', 'isabelo', 'reyes', 'filipinas', 'obra', 'madrid', and 'mismo'. Below the word cloud, a summary box provides the following statistics: 'This corpus has 1 document with 1,424 total words and 675 unique word forms. Created now. Vocabulary Density: 0.474. Readability Index: 12.835. Average Words Per Sentence: 49.1. Most frequent words in the corpus: a (29), no (11), filipinas (10), españa (7), reyes (6)'. On the right, a 'Reader' pane shows a snippet of text from D. Eloyilo Aguinaldo's introduction, with several words highlighted in blue. Below the text, a 'Contexts' table lists document segments with corresponding terms like 'opinión' and 'su o'.

Voyant tools also allow us to highlight the links between the terms as shown in Image 4.

Image 4 The linkages of terms within the D. Eloyilo Aguinaldo's introduction

This screenshot shows the Voyant Tools interface with a focus on term linkages and trends. On the left, a network graph (linkage) connects related terms, with 'insurrección' being a central node. The central 'Reader' pane shows the same text snippet as in Image 3, with 'insurrección' highlighted in blue. On the right, a 'Trends' graph displays the frequency of 'insurrección' across document segments, showing three distinct peaks. The x-axis is labeled 'Document Segments ("El propósito de este folleto España perdió las...")' and the y-axis is 'Relative Frequency'.

Philippines and Spain. The theoretical frameworks of Benedict Anderson's *Imagined Communities* and Partha Chatterjee's *Whose Imagined Community?* shed light on how Filipino authors used Spanish to form a distinct collective identity, separate from their colonizers. These theories reveal how 19th-century Filipino writers turned to Spanish literature as a means of fostering a unique national consciousness, even though they wrote in the language of their oppressors. In Partha Chatterjee's case, the question was whose imagined community through which Chatterjee asserted that while the print capitalism created milieu for the spread of nationalist ideas and fostering of a sense of community among those who were colonized, the discourse of the community was a product of interaction between the colonizers and those who were colonized. For instance as noted earlier in the section on Rizal, José Rizal, in his dedication to GomBurZa after the Cavite rebellion, wrote, "meanwhile, as long as your participation in the Cavite mutiny is not demonstrated, whether you were patriots or not, whether you harbored sentiments for justice or liberty, I have the right to dedicate my work to you as victims of the evil I strive to combat." Rizal's words illustrate the Filipinos who defied Spanish tyranny as patriots who sought justice and liberty. He portrayed the injustices under Spanish rule as an evil that needed to be fought against. While his message might have seemed idealistic, Rizal's actions were very real, as his struggle against the colonizers was a fight for independence.

Tools like OCLC's Choro Insights, along with resources like *Literatura Filipina en español*, have helped map the publishing patterns of these authors, demonstrating how digital humanities can deepen our understanding of colonial-era literature. By using AI and digital tools like Voyant, Llama 2.0, and ChatGPT, researchers can further analyze this corpus, revealing Filipino writers' resilience in using Spanish literature to construct a Filipino identity and preserve their legacy.

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Gender-Specific Machine Learning Analysis of Sarcopenia Risk in Aging Filipinos: Demographic and Lifestyle Perspectives

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Abstract

This study investigates the demographical and lifestyle risk factors for sarcopenia-specific gender risks to which the aging Filipino population would be predisposed, including age, occupation, smoking history, alcohol use, and existence of co-morbidities. The predictability of physical performance measures—lifting strength, need for assistance with walking, and ability to climb up/downstairs—utilizing machine learning models was assessed. Demographic factors, such as age and gender with the type of occupation, influenced the risk of sarcopenia. In contrast, lifestyle factors, such as smoking and alcohol intake, were not found to be predictive of sarcopenia in this sample. Such a high prevalence among males demands an approach by health intervention differently tailored to be gender sensitive.

For the performance of the different machine learning models, this study further gauges the different performance machine learning models and finds that SVM predicts the risk of sarcopenia with 85% accuracy as opposed to other approaches. In terms of recall, SVM did well in the case of prediction of males but underperformed in females and non-binary classifications, which may indicate an area of calibration. This research suggests that integrating predictive modeling into clinical practice can enhance early detection and targeted interventions for sarcopenia. It is advisable to implement. Further studies on sarcopenia using machine learning in the aging Filipino population is essential to determine novel risk factors, improve therapies, and predict disease progression, fostering evidence-based public health policies and better disease management.

Keywords: sarcopenia, gender-specific analysis, aging population, Philippines, machine learning, predictive modeling, health promotion

INTRODUCTION

The Philippines is experiencing a significant demographic shift as its population steadily ages. According to the Philippine Statistics Authority (PSA), the number of older adults increased from 7.5% in 2015 to 8.5% in 2020 (PSA, 2023). By 2030, projections indicate that older individuals will constitute between 10% and 19% of the population. This transition to an ageing society is largely attributed to declining fertility rates and increasing life expectancy, aligning with global demographic trends (Cruz et al., 2019). Consequently, addressing the health challenges the aging population

faces will become a critical focus in the coming years. Among these challenges, the rising prevalence of sarcopenia—a condition characterized by age-related loss of muscle mass and strength—poses a significant threat to the health, independence, and quality of life of older Filipinos. Sarcopenia has been linked to increased risks of falls, fractures, cognitive decline, and higher healthcare costs (Santilli, Bernetti, Mangione & Paoloni, 2014). Metter et al. (1997) suggest muscle mass and strength may decline in the 40s and 50% by the 80s. Sarcopenia affects 50 million people worldwide. Nearly 13% of 60-70-year-olds will be over 60 by 2050 (Seok, Kim, & Kim, 2023), which threatens health and

functional independence, especially in the Philippines' increasingly ageing population.

While global studies show a trend in the escalation of this condition, research specific to the Philippines remains scarce, particularly on gender-specific risk factors and lifestyle determinants (Cruz, et al. 2019). The closest to Sarcopenia is falls as the common health risk for the older population based on the report of the Longitudinal Study of Aging and Health in the Philippines (LSAHP). According to the report, falls are a leading cause of fatal and nonfatal injuries among the older population, which result in hospitalization, reduced ability to perform daily activities, and a diminished quality of life (Natividad, 2019a). Natividad (2019b) highlights that 19% of respondents to the LSAHP reported experiencing at least one fall in the past year, with an average of 1.7 falls during that period. Among those who fell, 15% sustained injuries severe enough to require medical treatment. Natividad (2019a) emphasizes that risk factors include advanced age, reduced mobility, comorbidities, disabilities, psychological distress, impaired balance, polypharmacy, and a history of falls. Importantly, the LSAHP highlights the lack of awareness about sarcopenia and limited access to government programs that could mitigate its effects (Cruz et. al, 2019).

Given these gaps, there is a need to design and implement effective information systems to improve awareness, promote early detection, and enable equitable access to resources for sarcopenia prevention and management. Demographic and lifestyle factors like age, gender, occupation, height, weight, smoking, alcohol intake, and co-morbidities are examined to determine if they affect the risk and occurrence of sarcopenia in aging Filipinos to help assess and promote national health. Pre-sarcopenic physical performance markers including lifting strength, gait assistance, chair-raising, stair-climbing, and fall history will help. By integrating gender-specific predictive models and machine learning tools, such systems can identify at-risk individuals, facilitate targeted interventions, and inform policy decisions. Understanding and mitigating sarcopenia risk factors is crucial to safeguarding the health and functional independence of the Philippines' aging population.

Research Objectives

The purpose of this research is to contribute to sarcopenia assessment and health promotion programs in the Philippines through a gendered analysis of the demographic and lifestyle factors, industry of work, smoking, alcohol intake, and the existence of co-

morbidities. These will determine the risks and occurrence of sarcopenia among elderly Filipinos. Specifically, the research aims to:

- A. Identify demographic factors (age, gender, occupation) contributing to sarcopenia risk;
- B. Assess lifestyle factors using lifestyle data (weight, height, smoking habits, alcohol consumption, presence of co-morbidities) influencing sarcopenia;
- C. Analyze the data of physical performance indicators (strength in lifting, assistance in walking, rising from a chair, ability to climb stairs, history of falls) as predictors of sarcopenia;
- D. Develop gender-specific predictive models for sarcopenia risk among aging Filipinos.

Conceptual/Theoretical Framework

This research integrates theoretical perspectives and empirical evidence to understand the gendered interplay of factors influencing sarcopenia risk among aging Filipino men, women, and other gender identities. This study encompasses three main components:

A. *Definition and measurement of Sarcopenia.* Sarcopenia is the age-related loss of muscle mass, strength, and function (Santilli et al., 2014). This framework will adopt international consensus guidelines that consider both muscle mass and function criteria. On the other hand, the Measurement Operational definitions include standardized methods for assessing muscle mass (e.g., bioelectrical impedance analysis, dual-energy X-ray absorptiometry) and muscle strength/function (e.g., grip strength, gait speed, physical performance tests).

B. *Determinants of Sarcopenia.* To understand the risks of Sarcopenia, it will also employ an analysis of the Gendered demographic factors such as:

- Sex: assigned at birth and gender identity: Differences in muscle mass and hormonal influences contribute to varying sarcopenia prevalence between men, women, and other gender identities. This would allow the investigators to understand how sarcopenia poses risks to gender identities and map out risks according to other genders.
- Age: Aging is a primary risk factor due to physiological changes in muscle composition and function
- Occupation/s: Physical and strenuous labour with which the participants are engaged that may lead to sarcopenia due to increased muscular activity. This also includes an overview

of the working conditions of the research partnerships that escalate or deter them from using strenuous labor.

- **Lifestyle:** This covers the height, weight, and physique that influence muscle mass and strength. Besides physique, lifestyle behaviors such as smoking habits and alcohol consumption impact muscle health and function.
- **Presence of Co-morbidities:** Chronic diseases such as diabetes and hypertension accelerate muscle loss.

C. Physical Performance Indicators: These include the following:

- Strength in Lifting:** Reflects muscle strength and functional capacity;
- Assistance in Walking:** Indicates mobility and independence;
- Rise from a Chair and Climb Stairs:** Assess lower extremity strength and functional ability;
- History of Falls:** Reflects balance, coordination, and overall physical frailty.

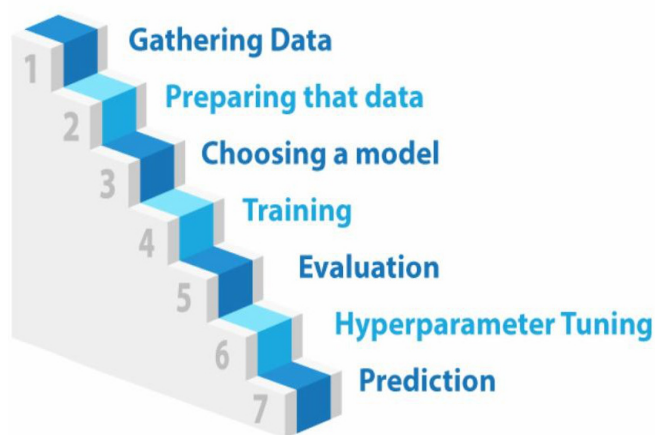
The conceptual framework employed in this study involves the use of machine learning classification algorithms to contribute to sarcopenia assessment and health promotion programs in the Philippines through a gendered analysis of the demographic and lifestyle factors.

Figure 1 displays data collection as the project's machine learning challenges and goal. Through databases, APIs, web scraping, or pre-existing datasets, relevant data is acquired. Next, data preprocessing removes outliers, missing values, and formatting errors. Normalizing and scaling normalize data. Categorical variables are encoded one-hot or label. Next, training, validation, and testing data are separated. Data distribution, relationships, and trends are shown and analyzed using exploratory data analysis (EDA). Also, identify plausible feature-target variable relationships. Feature engineering creates and modifies features to capture data patterns. Selecting model prediction-enhancing characteristics is key. Model selection involves choosing a suitable machine-learning strategy for a problem. Scikit-Learn, TensorFlow, or PyTorch can be used. Next, train the model on the training dataset. Grid search or random search fine-tunes hyperparameters.

In model assessment, accuracy, precision, recall, F1-score, and other metrics are used on the validation dataset to assess model performance. Cross-validation is often utilized to improve the finding's reliability. After

Figure 1 *Machine Learning Classification Algorithm*

7 steps of Machine Learning



validation, model tuning involves changing parameters to increase performance without overfitting via regularization or dropout. These efforts culminate in the final model selection when the model with the best validation results is chosen. Use the test dataset to evaluate the model's real-world performance. Once confident, the well-performing model predicts new, unforeseen facts.

The four different machine learning classification algorithms used in this study are as follows: K-Nearest Neighbor (KNN), Support Vector Machine (SVM), Logistic Regression and Random Forest. Each algorithm processes the data differently, identifying patterns and creating decision boundaries to analyze or predict older Filipinos' sarcopenia risk using gender-specific predictive models.

RESEARCH METHOD

This study utilizes quantitative methods – statistical tests and machine learning methods. Descriptive statistics and chi-square tests will be used to explore and compare the characteristics of the sample.

Research participants

The sample size required for a population of 108,667,043, the Philippines' 2020 population, with a 95% confidence level and a 5% margin of error, is roughly 384 people using the sampling strategy which is the random stratified sampling.

The data source for the data collection method came from a survey designed specifically for this study, which included demographic factors such as age, gender, and

industry of work; lifestyle factors such as weight, height, smoking habits, alcohol consumption, and the presence of co-morbidities; and physical performance indicators such as strength in lifting (measured by standardized weight), assistance in walking (self-reported or observed), ability to rise from a chair (time or difficulty level), ability to climb stairs (self-reported or observed), and number of falls experienced.

Sample of the study

Data gathering in this sector was challenging since the senior citizens were very careful who they spoke with. The data source came from only 268 elderly people from different parts of the Philippines randomly selected. They are older relatives and family members of friends and acquaintances. Most of them were from Bataan and Zambales. One in-person interview was conducted while holding the monthly gathering of seniors in Olongapo City, while all others were done through online surveys. Anonymized data was used so there is no need to provide written consent, guaranteeing confidentiality and ethical issues.

Models' Implementation Tools

For the implementation of the machine learning models, the study utilized the Python programming language and the Jupyter Notebook application in Anaconda. Jupyter Notebook is a web-based, interactive computing environment that enables the creation of human-readable documentation while describing the data analysis process. With this powerful tool, the ML models were developed and tested, facilitating the evaluation and interpretation of the results. The Statistical Package for Social Science or SPSS was utilized to compute linear regression.

Validation Method

The accuracy metric is a widely used evaluation measure to assess how well a model predicts the correct class labels. The formula for accuracy is as follows:

$$\text{Accuracy} = (\text{TP} + \text{TN}) / (\text{TP} + \text{TN} + \text{FP} + \text{FN})$$

where:

- **TP** (*True Positive*) represents the number of positive instances correctly predicted by the classification model.

- **TN** (*True Negative*) represents the number of negative instances correctly predicted by the classification model.
- **FP** (*False Positive*) represents the number of negative instances incorrectly predicted as positive by the model.
- **FN** (*False Negative*) represents the number of positive instances incorrectly predicted as negative by the model.

Confusion Matrix

The confusion matrix is a table that presents a summary of the model's performance by comparing predicted class labels against the actual class labels. It helps visualize the classification errors and correct predictions made by the model.

The confusion matrix typically looks like this:

Table 1 *Confusion Matrix*

	ACTUAL POSITIVE	ACTUAL NEGATIVE
Predicted Positive	True Positive (TP)	False Positive (FP)
Predicted Negative	False Negative (FN)	True Negative (TN)

Table 1 demonstrates that the confusion matrix is employed to evaluate the model's performance, depicting the allocation of correct and inaccurate predictions. The main goal is to minimize false negatives and false positives to enhance the model's predictive effectiveness.

It is an important tool for understanding, analyzing, and improving the performance of machine learning models, to make informed decisions and optimizations based on real-world performance metrics rather than relying solely on accuracy.

RESULTS AND DISCUSSION

Sarcopenia may be among the biggest health threats facing the fast-aging population in the Philippines. Other threats include a higher possibility of falls and fractures, metabolic syndrome, cognitive impairments, disabilities, poorer quality of life, admission and readmission to the hospital, and healthcare costs. This research aims to analyze gender-specific health outcomes using machine learning techniques, forecast sarcopenia risks, and identify key predictors.

Profile of the Respondents

A. Demographic Factors

Table 2 *Age Group and Gender of the Respondents*

CATEGORY	OPTIONS	FREQUENCY	PERCENT
Age Group	40-44	56	21.0%
	45-49	65	24.3%
	50-54	57	19.1%
	55-59	51	14.2%
	TOTAL	268	100%
Gender	Male	81	30.22%
	Female	181	67.54%
	Non-binary/third gender	2	0.75%
	Others	4	1.49%
	TOTAL	268	100%

Age Group: The age group in Table 2 is approximately evenly distributed among the 40- and 65-year-old age brackets. The age cohort of 45-49 years old comprises 24.3% of the sample. The proportion of individuals aged 60-65 is a mere 14.2% at the extreme end. In terms of age distribution, interest in this matter may be primarily among middle-aged or more senior individuals, as the issues being addressed are likely to be related to workforce engagement or aging.

Gender: The gender distribution is depicted in Table 2, which indicates that 67.5% of respondents are female, while 30.2% are male. Only 0.7% of respondents identified themselves as non-binary/third gender, while 1.5% did. The sample, therefore, is primarily composed of females, and the perspective or discovery may be contingent upon the subject of the study.

Industry of work: As depicted in Table 3, respondents work across many industries, with Government and Public Administration (35.1%) being most dominant, followed by education at 14.9%, and unemployment at 11.9%. Slightly smaller portions are derived from other professional services like consulting, engineering, information, and communication technologies or a variety of other kinds. This distribution suggests a broad strength in the public sector and public administration, education-related fields, and related sectors and services.

B. Lifestyle Factors

Smoking. The statistics show that most of the respondents are nonsmokers, representing 89.9% of the sample, while only 10.1% reported being smokers. This trend towards nonsmoking may reflect increased awareness of health risks associated with smoking or effective public health campaigns against smoking.

Table 3 *Industry of Work*

Industry of Work	FREQUENCY	PERCENT
Agriculture, Forestry, Fishing, and Hunting	10	3.7%
Health care and social assistance	15	5.6%
Transportation and warehousing	5	1.9%
Retail	9	3.4%
Education	40	14.9%
Government and Public Administration	94	35.1%
Manufacturing	1	0.4%
Homemaker	12	4.5%
Other Professional Services	22	8.2%
Retired	9	3.4%
Unemployment	32	11.9%
Others	19	7.1%
TOTAL	268	100%

Alcohol Drinker. Non-drinkers made up the larger percentage, at 87.4%, while 12.6% consume alcohol. The minimal percentage of people consuming alcohol may be suggestive of a well-informed decision or personal choice to abstain from alcohol intake for reasons of health and lifestyle concerns.

Co-morbidities. More than half, 52.6%, indicate no co-morbidities; others have diabetes, 13%; cardiovascular diseases, 9.7%; respiratory diseases, 3.7%; or other unspecified conditions, 18.6%. This sample appears relatively healthy, but the presence of chronic illnesses is noteworthy, diabetes and cardiovascular diseases, which merit follow-up.

Weight. The weight distribution among the respondents is relatively balanced, though the largest groups are 46.72–60.78 kg (103–134 lbs) at 23.8% and over 70.76 kg (156 lbs) at 20.8%. This variability implies different weight profiles that could lead to different health risk implications within the sample.

Height: Most heights of respondents are spread with the majority at 149 cm and below, that is, 16.7% and 152.4 cm, 15.7%. Differences in height will, therefore, imply variations in body composition that may be pertinent in understanding weight-height ratios and health indices.

Physical Activity or Exercise: Most of the respondents said they do not engage in physical activity, at 58.8%, while 42.2% did. This limited exercise may raise a red flag, especially regarding the health and well-being implications of exercising, especially among ageing or at-risk populations.

Research Hypotheses

The following three hypotheses have been formulated to

Table 4 *Lifestyle Factors*

CATEGORY	OPTIONS	FREQUENCY	PERCENT
Smoking	Nonsmoker	241	89.9%
	Smoker	27	10.1%
	TOTAL	268	100.0%
Alcohol Drinker	No	235	87.4%
	Yes	34	12.6%
	TOTAL	268	100.0%
Co-morbidities	Cardiovascular (heart) diseases	26	9.7%
	Diabetes	35	13.0%
	Cancer	3	1.1%
	Respiratory diseases	10	3.7%
	Kidney diseases	3	1.1%
	Others	50	18.6%
	None	141	52.6%
	TOTAL	268	100.0%
Weight (kg/lbs.)	46.72 - 60.78 / 103 - 134	64	23.8%
	47.17 - 62.14 / 104 - 137	16	5.9%
	48.98 - 64.8 / 108 - 143	27	10.0%
	50.34 - 66.67 / 111 - 147	52	19.3%
	53.0 - 70.30 / 117 - 155	53	19.7%
	70.76 and above / 156 and above	56	20.8%
	TOTAL	268	100.0%
Height (cm/feet)	149 and below / 4'11" and below	45	16.7%
	152.4 / 5'0"	42	15.7%
	154.9 / 5'1"	26	9.7%
	157.4 / 5'2"	36	13.4%
	160 / 5'3"	28	10.4%
	162.5 / 5'4"	24	8.9%
	165.1 / 5'5"	25	9.3%
	167.7 and above / 5'6" and above	41	15.3%
	TOTAL	268	100.0%
Physical Activity	Yes	113	42.2%
	No	155	58.8%
	TOTAL	268	100.0%

align with the objectives of this research:

Hypothesis 1: Occupation type is associated with the risk of physical limitations and muscle health decline, including sarcopenia, among elderly Filipino men and women.

Data analytics on occupational histories, muscle strength, and mobility measures suggest that sedentary occupations are linked to greater physical impairments, including reduced muscle strength and mobility challenges, compared to physically demanding occupations. However, the relationship may vary depending on gender, industry, and the specific physical measures assessed, with some impairments (e.g., stair climbing) showing a stronger association with occupation type than others (e.g., lifting strength or walking support).

Data analysis of physical strength and mobility measures by occupation category (Table 5) reveals gender and industry patterns. Strength (difficulty lifting 10 lbs.), chair rise, stairs, falls, and walking with support were measured. Crosstabulations were used to spread responses across occupational groups to compare physical abilities across industries. Chi-square tests have been performed to examine if industry, gender, and occupation have important effects on physical limitations. A significance level of $p < 0.05$ was used for these correlations.

The only variable that showed a statistically significant association with the type of industry was the ability to climb stairs ($p=0.022$), suggesting that some industries may require a higher level of physical capacity in this area. This would mean that employees in specific fields

Table 5 *Lifestyle Factors Related to the Risk of Sarcopenia among Filipino Aging Individuals*

Variable	Level of Difficulty	Nonsmoker Count	Smoker Count	Total Count	Square Value	df	p- Value	Notes
Lifting and Carrinying 10 lbs	None	121	14	135	0.132	2	0.936	1 cell (16.7%) expected <5
	Some	98	11	109				
	A lot or unable	23	2	25				
Transferring from Chair to Bed	None	194	21	215	1.563	2	0.458	2 cells 933.3% expected <5
	Some	41	4	45				
	A lot or unable	7	2	9				
Climbing 10 steps	None	151	19	170	2.062	2	0.357	1 cell (16.7%) expected <5
	Some	82	6	88				
	A lot or unable	9	2	11				
Falls in the Past Year	None	180	20	200	0.685	2	0.710	1 cell (16.7%) expected <5
	Some	52	5	57				
	≥ 4 falls	10	2	12				
Walking Difficulty Across Room	None	197	21	218	2.049	2	0.359	2 cells (33.3%) expected <5
	Some	39	4	43				
	A lot or unable	6	2	8				
Alcohol Drinker & Lifting 10 lbs.	None	119	16	135	0.336	2	0.845	1 cell (16.7%) expected <5
	Some	95	14	109				
	A lot or unable	21	4	25				
Alcohol Drinker & Transferring	None	191	24	215	4.262	2	0.119	1 cell (16.7%) expected <5
	Some	38	7	45				
	A lot or unable without help	6	3	9				
Alcohol Drinker & Climbing	None	147	23	170	0.377	2	0.828	1 cell (16.7%) expected <5
	Some	78	10	88				
	A lot or unable	10	1	11				
Alcohol Drinker & Falls	None	178	22	200	9.650	2	0.008	1 cell (16.7%) expected <5
	Some	50	7	57				
	≥ 4 falls	7	5	12				
Alcohol Drinker & Walking Difficulty	None	191	27	218	0.080	2	0.961	1 cell (16.7%) expected <5
	Some	37	6	43				
	A lot or unable	7	1	8				

face more challenges in climbing the stairs for the exerting requirements of their job or the physical stress of the type of industry in which they are working. Other physical abilities, such as lifting strength ($p = 0.368$), getting up from a chair ($p = 0.576$), fall history ($p = 0.675$), and assistance in walking ($p = 0.507$), did not reveal any significant association; hence, these impairments are not significantly different across the different types of occupations. This evidence shows that jobs can influence difficulties in mobility, but overall, most physical limitations are similar regardless of the industry.

Hypothesis 2: Lifestyle factors such as smoking and alcohol consumption may contribute to sarcopenia risk in the ageing Filipino population. However, smoking does not show a significant association with physical limitations or sarcopenia in this study. The role of alcohol consumption, or other non-lifestyle factors, in sarcopenia risk may be more prominent, and further analysis is needed to clarify these relationships. Gender-specific prevalence rates suggest higher sarcopenia rates among men, but the contribution of lifestyle factors to these differences remains unclear.

Table 5 indicates that the analysis of smoking as a lifestyle factor revealed nonsignificant relationships with any of the physical performance measurements in aging Filipinos; hence, it may not be a predictor of sarcopenia risk in this population. Specifically, the Chi-Square tests for strength $p = 0.936$, getting up from a chair $p = 0.458$, climbing stairs $p = 0.357$, falls $p = 0.710$, and assistance in walking $p = 0.359$ indicate that smoking status has no association with these activities. This suggests that smoker and nonsmoker difficulties are similar along all these measures, and smoking per se does not appear to increase problems with strength, mobility, or risk of falls.

Sarcopenia prevalence was higher in men, but smoking did not appear to contribute to physical difficulties associated with sarcopenia in ageing. Investigating various dimensions of performance, no differences were found between smokers and nonsmokers. These results suggest that lifestyle factors other than smoking, possibly alcohol consumption, or factors unrelated to lifestyle are most strongly related to the risk of sarcopenia among Filipino aging individuals.

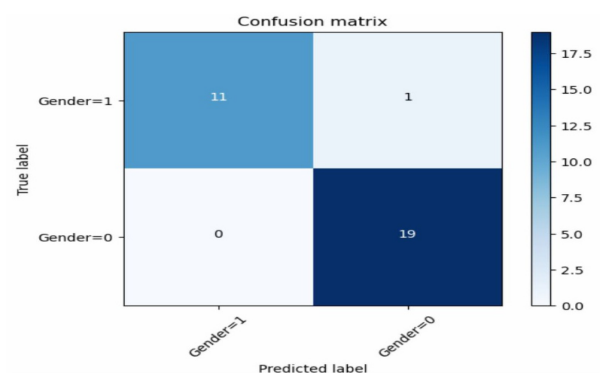
Hypothesis 3: Co-morbidities (diabetes, hypertension, and cardiovascular disease) are a major predictor of sarcopenia, as modeled by predictive analytics and decision-support systems that can be used to predict the interaction between co-morbidities and sarcopenia risk.

In this study, the model showed a high prediction rate for the presence of sarcopenia in both sexes. It gives a high accuracy in correctly predicting 30 out of 31 cases. It is a great predictive value since co-morbidities are indeed some of the strong predictors for sarcopenia in elderly Filipinos. For males (Gender 0), the model was correct in 11 of 12 cases. One error, a single false positive, does not strongly reduce the overall accuracy for this population. The model was 100% accurate for women or Gender 1, meaning all 19 cases were correctly classified. In other words, the performance of the model may be said to be perfectly reliable in detecting sarcopenia presence among women.

The model was perfect for women; no false negatives and false positives were observed, suggesting a particularly robust association between co-morbidities and sarcopenia risk in elderly Filipino women. This finding supports the hypothesis that co-morbidities might be more predictive of sarcopenia for women compared to men. -In males, the model functioned fine but still showed a solitary misclassification, which indicates the connection of co-morbidities with sarcopenia is not as strong and straightforward as that in women. It falls right in place within the notion that co-morbidities exerted a higher influence over the muscle wastage and sarcopenia risk, at least to women who are associated with the biological, hormonal, or lifestyle factors.

The log loss for this model was reasonable. The score of 1.1369 is not so very high but shows that, generally, there is still much room to improve the confidence of the model in making predictions, especially in scenarios where probabilities close to the decision boundary may have been assigned. This aspect is highly relevant for the refinement of the model in such cases that may fall under "gray areas" in between sarcopenia and not. However, this moderate log loss score does not mask the high classification accuracy seen in the confusion matrix (Figure 2).

Figure 2 *Confusion Matrix*



Consequently, healthcare professionals will focus on sarcopenia screenings and therapies for older Filipino females with comorbidities, as they are at elevated risk and the model demonstrates optimal accuracy in identification. Programs for lifestyle and health management customized for sarcopenia and associated disorders could significantly benefit that demographic.

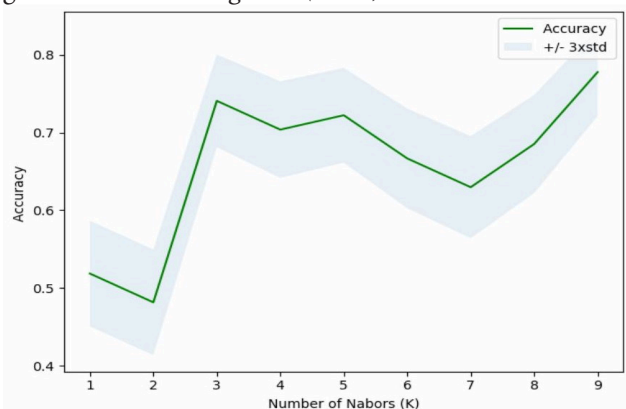
In elderly Filipino men, although co-morbidities continue to predict risk for sarcopenia, perhaps the association may not be that strong. Therefore, factors beyond co-morbidities, such as the level of physical activity or nutritional intake may need to be considered when assessing risk for sarcopenia in men.

Machine Learning Models

Leveraging the potential of machine learning, this research also aims to assess and compare the capabilities of four distinct algorithms - K-Nearest Neighbors (KNN), Random Forest, Support Vector Machine (SVM), and Logistic Regression - in the domain of sarcopenia risk.

1. **K-Nearest Neighbors (KNN):** KNN is a non-parametric classification algorithm that makes predictions based on the majority class of its k-nearest neighbors. The model indicated an ability to moderately predict risk when it came to the data set for the training group, with accuracy levels going up to 0.693, whereas accuracy levels for test groups stood at 0.667, which portrayed poor generality. A training accuracy of approximately 69% suggests that this model can capture and generalize on the patterns related to sarcopenia risk based on the training data alone. The decrease down to accuracy on the test set was around 67%, which represents a slight reduction in predictive performance, rather typical with KNN models when the selected features provide no substantial separability of classes. This would indicate that though the model does capture some underlying relationships in the data, other factors may still play a role in contributing to variability in sarcopenia risk that it fails to capture well.

Figure 3 *K-Nearest Neighbors (KNN)*



As related to gender, if incorporated as a feature, the model's accuracy implies that gender might contribute meaningfully to the prediction of sarcopenia risk, as men often show higher prevalence and risk factors associated with sarcopenia. However, it may also be the case that other predictors are important, such as the level of physical activity, nutrition, or lifestyle factors, including smoking or alcohol use, which would improve the performance of the model. Moreover, KNN's sensitivity to the scaling and relevance of the features implies that factors such as changes in muscle mass with age or gender could contribute to the risk of sarcopenia and be supplemented with other information to achieve better accuracy.

Overall, gender may play a role in prediction but is unlikely to be an adequate determinant of high-accuracy risk prediction in an aging population without additional, more specific health metrics.

2. **Random Forest:** Random Forest is a commonly used machine learning algorithm that combines the output of multiple decision trees to reach a single result. The confusion matrix indicated by the Random Forest model showed an overall of 42 correctly classified instances of the negative class, not-at-risk, while there are 57 classifications for the positive class at risk of sarcopenia with an over-classified result as indicated by being at wrong at 58 negative cases and 43 positive class instances. This gives an overall accuracy of 0.49 indicating that the model is far from being able to really classify the risk of having sarcopenia within that sample population. The precision of the classification report depicts 0.49 of precision for the negative class denoted as (0), and 0.5 for the positive class or (1), with rates of recall standing at 0.42 and 0.57, respectively. This implies that despite being a bit more accurate in the right classification of at-risk patients for sarcopenia, class 1, the model has a long way to go to achieve its optimal best. Negative class F1 scores 0.45 and the positive class F1 score 0.53 mean that precision and recall tend to balance against each other but still indicate that the predictors or features need to be made stronger to build their effectiveness.

With respect to gender as a risk predictor for sarcopenia, the performance of the Random Forest model implies that gender could be one of the features that might influence the predictions, but its direct contribution is not quantified from the given feature importance data. Feature importances show that feature_7, feature_3, and feature_5 are the most important predictors, though the exact nature of these features remains unspecified. If gender falls among these features, its relation to the risk of sarcopenia may prove to be critical because, according to earlier studies, men are generally at higher risk than women, said to be due to less muscle mass

Figure 4 *Random Forest*

Confusion Matrix:
[[42 58]
[43 57]]

Classification Report:

	precision	recall	f1-score	support
0	0.49	0.42	0.45	100
1	0.50	0.57	0.53	100
accuracy			0.49	200
macro avg	0.49	0.49	0.49	200
weighted avg	0.49	0.49	0.49	200

Feature Importances:

Feature	Importance
7 feature_7	0.111995
3 feature_3	0.109996
5 feature_5	0.107357
9 feature_9	0.102804
1 feature_1	0.099662
4 feature_4	0.097453
6 feature_6	0.096647
8 feature_8	0.092085
2 feature_2	0.091137
0 feature_0	0.090864

and differences at the level of physical activity compared to women. Low overall accuracy for the model indicates that although gender could play a role, it probably is not the most important determining factor in the prediction of risk for sarcopenia, indicating that other lifestyle, health, and demographic factors must be integrated to enhance predictive ability. These analyses suggest that the present form of the model is too superficial and requires further elaboration and investigation of more essential features that capture all critical relationships influencing sarcopenia risk in the different ageing genders.

3. Support Vector Machine (SVM): SVM is a powerful algorithm that aims to find the optimal hyperplane for separating classes in a high-dimensional space.

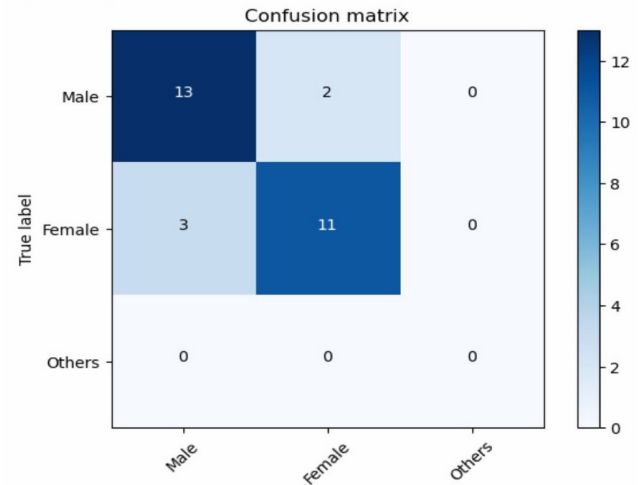
It can be depicted from the classification report and confusion matrix that SVM model is well performing in classifying among different gender categories, including male, female, others, for assessing the risk of sarcopenia. The accuracy of the model is 0.85, meaning it correctly classified the instances of the data set by a huge margin.

The precision for each class is depicted in Figure 5; 0: male = 0.88, 1: female = 0.81, and 2: others = 0.85. This indicates that the model can make an exact prediction of a given class very accurately, particularly so for males where the score is the highest. Precision would be

Figure 5 *Support Vector Machine (SVM)*

	precision	recall	f1-score	support
0	0.88	1.00	0.94	22
1	0.81	0.76	0.79	17
2	0.85	0.73	0.79	15
accuracy			0.85	54
macro avg	0.85	0.83	0.84	54
weighted avg	0.85	0.85	0.85	54

Confusion matrix, without normalization
[[13 2 0]
[3 11 0]
[0 0 0]]



defined as the ratio of true positives to the total number of predicted positives. It shows, therefore, that the model picks most instances of a gender correctly without many false positives.

Recall scores are the measures of how good the model is at correctly identifying actual instances of each class. In this case, recall for males is 1.00, which means all male instances in the test set were classified correctly. For females and others, the recall is lower at 0.76 and 0.73, respectively, indicating some misclassification within these categories. Recall is a measure of the proportion of true positives to actual positives and thus indicates the model does well at recognizing males but has an issue in classifying females and other gender identities accurately.

Classes show the balance between precision and recall. The F1-score for males was very good at 0.94, while for females and others, it was only at 0.79 and 0.79 respectively. The F1-score is a combination of precision and recall, so these variations indicate that proper classification strategies are required to improve them.

The performance of the model can also be understood from the confusion matrix:

- True Class Label "Male" 13 Correct predictions, 2 Misclassifications, are females

- True Class Label "Female" 11 correct predictions with 3 being Misclassified, males
- "Others" No predictions (i.e., the algorithm didn't recognize any instance belonging to this class as such in the prediction task.

Sarcopenia risk prediction findings show that the SVM model can tell males and females but not "others"—which may reflect data inadequacies in this class. Sarcopenia risk is heavily correlated with gender through biological and lifestyle factors. Hence, good accuracy for males indicates successful extraction of key group traits. However, more training or feature refinement may increase this model's ability to distinguish females and other gender identities, making it a better sarcopenia risk prediction in a more diverse population. The overall research stresses that gender and other demographic parameters should be incorporated in sarcopenia health outcome models since gender-specific therapies may be needed at certain thresholds.

4. Logistic Regression: Logistic Regression is a linear classification algorithm that models the probability of the binary outcome. In this study, the model showed a high prediction rate to predict sarcopenia presence of both sexes. It gives a high accuracy in that it predicts correctly 30 out of 31 cases. It is a great predictive value since co-morbidities are indeed some of the strong predictors for sarcopenia in the elderly Filipinos. For males (Gender 0), the model was correct in 11 of 12 cases. One error, a single false positive, does not strongly reduce the overall accuracy for this population. The model was 100% accurate for women or Gender 1, which meant that all 19 cases were correctly classified. In other words, the performance of the model may be said to be perfectly reliable in detecting sarcopenia presence among women.

The model was perfect for women, with no false negatives or positives, demonstrating a strong link between co-morbidities and sarcopenia risk in old Filipino women. This suggests that co-morbidities may predict sarcopenia more in women than men. In men, the model worked well but showed one misclassification, indicating that co-morbidities and sarcopenia are not as strongly linked as in women. It supports the idea that co-morbidities may have had a greater impact on muscle wastage and sarcopenia risk in women with biological, hormonal, or lifestyle variables.

The log loss for this model was reasonable. The score of 1.1369 is not so very high but shows that, generally, there is still much room to improve the confidence of the model in making predictions, especially in scenarios where probabilities close to the decision boundary may

have been assigned. This aspect is highly relevant for the refinement of the model in such cases that may fall under "gray areas" in between sarcopenia and not. However, this moderate log loss score does not mask the high classification accuracy seen in the confusion matrix. Based on the results, for example, healthcare providers will target sarcopenia screenings and interventions for elderly female Filipino with co-morbidity since these are at high risk and the model is most accurate in its identification. Lifestyle and health management programs tailored to conditions of both sarcopenia and concomitant conditions could go a long way for that population.

In elderly Filipino men, although co-morbidities continue to predict risk for sarcopenia, perhaps the association may not be that strong. Therefore, factors beyond co-morbidities, such as the level of physical activity or nutritional intake may need to be considered when assessing risk for sarcopenia in men.

CONCLUSION

1. Sarcopenia risk is heavily influenced by demographics. These factors include age, gender, and occupation. Apart from physical performance criteria, the Chi-Square test showed significant results for all demographic variables; thus, elevated male prevalence percentages compared to females emphasize the need for gender-sensitive health programs.
2. Contrary to common assumptions that lifestyle poses risk factors, alcohol and smoking may be insignificant risk factors for sarcopenia. Smoking and alcohol consumption cannot predict sarcopenia based on p-values because most of the p-values related to various physical performance indicators were quite high. While these risk variables are ubiquitous and associated with many bad health outcomes, they cannot predict risk in this elderly Philippine population. More data on lifestyle factors or health behaviors may be needed to attribute these factors to sarcopenia.
3. Patient sarcopenia risk classification accuracy varies by predictive model. Compared to KNN, 69.3%; Random Forest, 49%; and Logistic Regression, not available, SVM had 85% accuracy. Thus, proper model selection is crucial; in this situation, the SVM is accurate and may be useful for gender-based sarcopenia risk discrimination.
4. Gender classification is also good using SVM. Due to its recall value of 1.00, SVM categorized all males accurately. SVM underperformed for females and "others". Compared to other classes, this model

needs to be adjusted to accurately characterize both genders for health prediction.

5. The Random Forest model's confusion matrix showed 49% accuracy and zero correct gender predictions for "others." This implies low precision and recall for both males and females, suggesting this approach may not be appropriate for diagnosing sarcopenia risk. Reevaluating feature selection and tweaking parameters in the Random Forest model may improve prediction accuracy.
6. Sarcopenia risk prediction variables were identified by Random Forest model feature importance analysis. Features_7 and feature_3 were the most important, suggesting additional study of their implications in sarcopenia risk. This suggests targeted actions on these key variables could lower sarcopenia risk.
7. Needs inclusive physical performance intervention programs. The study recommends holistic health therapies that address sarcopenia-risk physical performance metrics. Since predictive models are not perfect, they must be updated and validated to provide accurate predictions. To minimize sarcopenia, community health programs should support data-driven insights to target interventions that enhance strength, mobility, and physical activity among aging Filipinos, with a specific focus on high-risk demographics. By integrating predictive analytics and health informatics, these programs can identify at-risk populations, monitor progress through digital health tools, and design personalized, evidence-based interventions that address the unique needs of diverse demographic groups.
8. Sarcopenia risk is influenced by physical performance indicators like weightlifting, chair transfer, and stair-climbing. The high associations between these metrics and demographics in Chi-Square testing demonstrate that these physical performance measurements predict sarcopenia. Sarcopenia-prone populations may benefit from periodic physical performance indicator examinations for early detection and intervention. It emphasizes data-driven and gender-sensitive health strategies.
9. Sarcopenia prevalence disparities between genders highlight the necessity for gender-specific health initiatives. Sarcopenia is more common in men, possibly because of variations in physical activity, health-seeking, and socioeconomic situations.
10. Possible clinical predictive modeling integration. The SVM model's promising results suggest predictive modeling for sarcopenia risk forecasting in clinical settings. Healthcare professionals can

stratify patients by risk and personalized interventions backed by data-driven insights. Machine learning algorithms can be integrated into clinical workflows, predictive models can analyze patient data to identify high-risk individuals early and can enable timely and targeted interventions for the aging population.

RECOMMENDATION

To support the study methodologically and medically, the following recommendations aim to assist researchers and healthcare professionals specifically interested in Sarcopenia and public health. There is still a need to conduct further studies to support the development of an information framework and predictive models for the condition:

1. Train healthcare professionals to use predictive modeling tools such as the SVM model to assess a patient's risk of sarcopenia. Its practice application will boost patient stratification and streamline personalized treatment plans specifically designed for older adults.
2. Increase sarcopenia awareness and research through an information framework that supports popular sarcopenia education programs for healthcare providers, caregivers, and the community.
3. Determine other gendered factors on sarcopenia, such as sexual orientation and gender identity. It is important to stress these factors as they are connected to other intersections such as lifestyle and socio-economic status, among others.
4. Promote a multidisciplinary approach to caring for the elderly. Physicians, dietitians, occupational therapists, and information professionals should collaborate to develop a data-driven information model on the assessment and management of sarcopenia, considering varying factors such as physical, socio-economic, nutritional, psychological, and gendered factors.
5. Further study on Sarcopenia using machine learning in the aging Filipino population of varying contexts is needed to identify novel risk factors, effective therapies, and long-term outcomes for better disease understanding. Machine learning can be utilized to predict disease progression, evaluate the effectiveness of interventions, and encourage evidence-based public health policies in the long run.

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