

Insights from the vision-mission statements of Philippine and other ASEAN universities: a K-means clustering analysis

Julius Ceazar G. Tolentino¹, John Paul P. Miranda²

¹College of Education, Pampanga State University, Bacolor, Philippines

²College of Computing Studies, Pampanga State University, Mexico, Philippines

Article Info

Article history:

Received Aug 1, 2024

Revised Mar 22, 2025

Accepted Jun 8, 2025

Keywords:

Globally-competitive workforce
K-means

State universities and colleges

Sustainable development goals

Text analysis

ABSTRACT

This study analyzed the vision and mission statements (VMS) of 117 Philippine state universities and colleges (SUCs) and compared them with 330 other ASEAN universities to identify thematic trends and institutional priorities. Using web scraping and K-means clustering, the study identified thematic clusters in VMS. Thematic trends through word frequency and collocation analyses provided further insights and a comparative analysis examined differences between Philippine SUCs and other ASEAN universities. Philippine SUCs' vision statements formed three clusters: global competitiveness, premier recognition, and regional leadership in science and technology. Mission statements clustered into: mandated functions, global innovation, and advancement in the sciences. Philippine SUCs emphasized institutional prestige, workforce development, and sustainability while other ASEAN universities focus more on knowledge creation, student empowerment, and internationalization. Philippine SUCs aligned their VMS with national development and global ranking metrics and prioritizes institutional recognition and economic contributions more than the other ASEAN universities. Future studies should expand to more private institutions and international comparisons to assess broader higher education trends.

This is an open access article under the [CC BY-SA](#) license.



Corresponding Author:

Julius Ceazar G. Tolentino

College of Education, Pampanga State University

Bacolor, Pampanga, Philippines

Email: jcgtoleentino@pampangastateu.edu.ph

1. INTRODUCTION

Higher education institution (HEI) around the world relies on set of philosophical principles, historical developments, and societal functions that define their identity and purpose. These elements clarify the role of HEIs in promoting national development goals and in striving for excellence beyond academic performance. A clear vision and mission play a crucial role in institutional governance. According to Sánchez [1], these elements are essential in guiding decision-making. Özdem [2] emphasized that the vision and mission provide a philosophical foundation that supports strategic management and future advancement. These statements serve as a blueprint that directs institutional goals and actions. They also help unite stakeholders toward shared objectives and act as a tool for aligning decisions with institutional priorities.

In the Philippines, HEIs have experienced changes in curriculum structure due to the implementation of the K-12 basic education program under Republic Act 10533. This reform requires a thorough review of existing academic programs to ensure consistency with the changes in basic education. Republic Act 7722, known as the "Higher Education Act of 1994," established the commission on higher

education (CHED) to oversee the higher education system in the country. CHED sets policies and standards to promote quality assurance and expand access to higher education.

By academic year 2019–2020, the Philippine higher education system included 121 local universities and colleges (LUCs), 112 state universities and colleges (SUCs) with 421 satellite campuses, and 1,728 private institutions. These private institutions consisted of 356 sectarian and 1,373 non-sectarian schools, as reported in the higher education statistical data. This structure reflects the country's strong commitment to providing a broad and inclusive range of educational opportunities.

While the Philippine higher education system presents a complex and diverse landscape, it remains essential to compare it with other systems in the ASEAN region. ASEAN member countries share a regional vision for integration, cooperation, and quality improvement in education [3]. The comparative analysis of vision and mission statements (VMS) can provide insight into how institutions in different ASEAN nations position themselves in terms of educational priorities, identity, and aspirations. Understanding similarities and differences across countries can help identify emerging regional themes as well as highlight areas for potential collaboration and inform national policy development. Such comparison is particularly valuable in the context of internationalization, where alignment with regional goals and global standards becomes increasingly important.

2. THEORETICAL AND METHODOLOGICAL FRAMEWORK

2.1. Vision and mission statements (VMS) statements

VMS are fundamental components that express an organization's identity, purpose, and direction. These statements are integral to strategic management and are designed to guide institutional decision-making and behavior. They not only shape organizational goals but also serve as a unifying framework for employees by articulating shared aspirations and operational objectives [4]–[6].

The vision statement typically conveys an institution's long-term aspirations including on what it hopes to become or achieve in the future [6]. In contrast, the mission statement outlines the organization's present objectives and the means by which these goals will be realized. The formulation of both statements is considered vital to the success of strategic planning, as emphasized by Bayrak [6], who argue that well-crafted VMS are crucial for ensuring coherence and direction within organizations.

Several studies have examined how these statements reflect institutional values and priorities. For instance, Sakellarios and Gann [7], in their analysis of environmental organizations, found that the language used in these documents can reveal underlying themes and influence institutional focus. Through text analysis, they were able to identify both conceptual elements and emergent discourses embedded in the statements. Similarly, Armas and Jugo [8] examined the VMS of universities to assess their alignment with the sustainable development goals (SDGs). Their study found that vision statements often articulate institutional aspirations such as global recognition, interdisciplinary collaboration, and a commitment to innovation. In a related study, Olusola *et al.* [9] analyzed the VMS of leading African universities and reported a strong emphasis on global impact, research excellence, and the provision of quality educational services.

2.2. Text mining analysis and K-means clustering

Text mining is a method used to extract meaningful insights, patterns, and structures from unstructured textual data. It operates through natural language processing (NLP), which allows computers to understand and interpret human language. By transforming large volumes of raw text into structured formats, text mining enables researchers to discover underlying themes and support data-informed decision-making. This approach has been applied to various sources such as academic papers, government documents, and online reviews [10]–[13]. Miranda and Bringula [14] analyzed presidential speeches to extract recurring themes, while Anderson [12] explored COVID-19 literature for emerging trends and insights. Text mining also plays a growing role in analyzing user-generated content on social media platforms like Twitter, Facebook, and YouTube [15]–[18], where frameworks have been developed to mine public discourse and sentiments.

NLP, backbone of text mining, enables the interpretation of language structures which makes it especially useful for analyzing structured narratives such as VMS. These institutional texts articulate goals, values, and identity, and offer rich source of data for understanding strategic priorities. In educational contexts, text mining has been used to evaluate institutional communication and guide policy and academic planning. It has also supported decision-making in areas such as program development and institutional benchmarking [19]–[21]. Through text analytics, institutions can identify both unique and shared priorities expressed across documents and help in revealing key insights not easily captured through manual analysis alone.

K-means clustering complements text mining by organizing textual data into meaningful groups based on similarity. As an unsupervised machine learning algorithm, K-means does not require labeled data; instead, it identifies clusters using patterns found in word frequency and distribution and often transformed through techniques such as term frequency–inverse document frequency (TF-IDF) [22]–[24]. This makes it

ideal for identifying thematic similarities across documents like VMS. Past studies have used K-means to analyze various text content ranging from public documents, microblogs, online forums, job ads, public speeches, and social media feedback [25]–[27].

2.3. Research problems

The VMS of educational institutions reflect their identity, purpose, and strategic direction. These statements reveal how universities perceive their role in national and global contexts and how they aim to contribute to societal development. In the Philippine context, analyzing the VMS of SUCs can provide insights into common aspirations, educational priorities, and developmental goals. However, to better understand how Philippine universities position themselves within the broader regional landscape, it is essential to compare their VMS with those of universities in other ASEAN countries. Such a comparative analysis can highlight shared regional values, unique national priorities, and potential areas for collaboration or differentiation. By applying K-means clustering to the VMS of universities in the Philippines and selected ASEAN countries, this study aims to answer the following research questions:

- What thematic trends can be identified in the VMS of Philippine SUCs?
- How do the VMS of universities in other ASEAN countries compare with those of Philippine SUCs in terms of thematic content, priorities, and aspirations?

3. METHOD

3.1. Research approach

The study adopted data mining as the main research approach. It focused on analyzing the VMS of universities in the Philippines and other ASEAN countries. Shu and Ye [28] describe data mining as a method for extracting meaningful insights from large datasets. This approach allows researchers to detect complex patterns and relationships within extensive data [28]. Data mining also enables scalable investigations, which makes it appropriate for studies involving dynamic and cross-regional comparisons. In this research, K-means clustering was applied to discover thematic patterns. The comparative analysis examined how the aspirations and strategic directions of Philippine universities correspond with or differ from those of universities across the ASEAN region.

3.2. Data collection procedures

The study involved six main stages, as illustrated in Figure 1: i) text data collection, ii) data preprocessing which includes filtering and elimination of stop words, numbers, special and unreadable characters, iii) typesetting, iv), Elbow method, v) K-means clustering, and vi) comparative analyses. VMS from 117 Philippine SUCs were gathered between May 9 and 13, 2022, using online scraping of official university websites. The Philippine CHED provided a verified list to ensure that only recognized SUCs were included. For the ASEAN dataset, VMS were sourced from the official websites of 378 universities across various ASEAN countries. During the data validation process, 48 universities were excluded due to the unavailability of official English versions of their VMS. The final datasets contain the 117 Philippine SUCs and 330 ASEAN universities.



Figure 1. Research workflow

3.3. Data preprocessing, clustering, and analysis

The dataset underwent a rigorous data preprocessing phase to ensure data consistency and accuracy. The process involved several essential steps. The first step removed stop words to eliminate frequently occurring but non-informative words. The second step cleaned the data by removing special characters that could interfere with text analysis. The third step standardized the dataset through typesetting by converting all text to lowercase to maintain uniformity. The fourth step addressed noise removal by excluding words not recognized in English. The fifth step applied word stemming to reduce words to their base forms (e.g., “achieving” to “achieve”). The final step involved tokenizing the cleaned text into word tokens to form

the corpus for clustering. These procedures ensured that the dataset remained well-structured and appropriate for the clustering process.

The K-means clustering algorithm was applied separately to the Philippine and ASEAN corpora. The algorithm can handle unlabeled data and identifies thematic patterns in the datasets [29], [30]. The clustering process used Python programming to produce scalable and reproducible results. The Elbow method determined the optimal number of clusters (k) by identifying the point where adding more clusters did not significantly reduce variance [29]. The next phase was a comparative thematic analysis. This phase aimed to identify common themes between Philippine SUCs and ASEAN universities. It also examined unique themes in the Philippine context and analyzed regional trends across ASEAN institutions. Researchers assigned thematic names to each cluster after extensive discussions. Educational management experts, school leaders, and stakeholders provided insights during this process. The identified clusters and comparative insights were presented to a panel of experts. The panel reviewed the findings to confirm that the thematic interpretations accurately represented the institutional priorities expressed in the VMS.

4. RESULTS AND DISCUSSION

4.1. Thematic trends in Philippine SUCs' vision and mission statements

The study identified three key themes for the VMS of the Philippine SUCs dataset as show in Table 1. The Elbow method determined the optimal number of clusters for both corpora. The vision corpus contains 1,996 words with 495 unique terms. The mission corpus includes 3,921 words with 785 unique terms. In the vision statements, “development” and “education” rank as the most frequent terms. This shows a clear focus on national progress and educational excellence. The mission statements highlight “research” as the most prominent term. This underscores its role as a core institutional mandate. Collocation analysis shows that “education” in the vision statements connects with terms such as “leading,” “excellence,” and “technology.” The term “development” relates to “globally” and “competitive.” In the mission statements, “research” associates with “extension,” “quality,” and “services.” This reflects the institutions’ strong commitment to societal impact.

Table 1. VMS themes in Philippine SUCs

Category	Theme	Top keywords	Example
Vision	Globally-competitive and nationally-responsive workforce for sustainable development	education, develop, global, sustainable, development	A premier institution of innovative and ethical leaders for sustainable development
	Universities of premier recognition	premier, leader, recognize, nationally, competitive	A premier national university that develops leaders in the global knowledge economy
	Regional leadership in science and technology	technology, science, region, excellence, center	NEUST is a locally responsive and internationally relevant and recognized University of Science and Technology
Mission	Mandated functions of the SUCs	extension, research, quality, provide, education	To develop an empowered, productive, and morally upright citizenry through high quality, innovative, and relevant instruction, research, extension, and entrepreneurship programs adhering to international standards
	Global innovation toward sustainable development	develop, innovative, sustainable, global, technology	To develop virtuous human capital and sustainable innovations in a knowledge-driven global economy
	Advancement in the sciences	shall, provide, sciences, field, advancement	To provide advanced education, higher technological, professional instruction and training in fisheries technology, arts and sciences, education, industrial technology, engineering, aquaculture, seaweed farming and other related fields of study and as may be relevant to national development. It shall also undertake research, extension services and production activities in support of the development of the Province of Iloilo and provide progressive leadership in its areas of specialization.

4.1.1. Clusters derived from the vision statements

Thematic analysis of the vision statements from Philippine SUCs identified three primary clusters. The first cluster, globally-competitive and nationally-responsive workforce for sustainable development, shows the emphasis on producing graduates with global competencies. These graduates meet national development needs. Philippine SUCs aligned their visions with global ranking metrics. They aspire for international recognition. This focus on global competitiveness matches previous studies. Such studies

highlight the role of universities in producing graduates who contribute to both local and international markets. The second cluster, universities of premier recognition, reflects the desire of SUCs to achieve premier status at national and international levels. SUCs aim to lead in specialized fields such as agriculture, technology, and education. They believe premier recognition attracts foreign students and promotes global partnerships. The third cluster, regional leadership in science and technology, shows SUCs' ambition to excel in science and technology. Each region's scientific strengths support national development efforts. Agencies like the Department of Science and Technology assist these efforts. Through programs such as niche centers in the regions for R&D (NICER), SUCs contribute significantly to regional science and technology advancement. They also strengthen community development and innovation.

4.1.2. Clusters derived from the mission statements

The mission statements of Philippine SUCs revealed three key thematic clusters. The first cluster, mandated functions of the Philippine SUCs, shows that SUCs are committed to four primary functions: instruction, research, community service (extension), and production. Instruction is the most prominent function because it equips students with essential knowledge, skills, and values. Research plays a crucial role by generating solutions to societal issues. Community service contributes to local development through the application of research and instruction. Production supports institutional sustainability by supplementing operational resources [31], [32]. The second cluster, global innovation toward sustainable development, shows that SUCs recognize the growing influence of the United Nations' SDGs. SUCs aim for global recognition by aligning their missions with these goals and participating in global ranking systems such as the times higher education (THE) impact rankings [33]. Several Philippine SUCs have earned positions in THE rankings which highlights their dedication to sustainability, research, and outreach. The final cluster, advancement in the sciences, highlights the role of SUCs in scientific progress. SUCs focus on specific scientific disciplines that match national development priorities. They strengthen their expertise in science and technology to meet the evolving needs of national and global communities [33]. This commitment establishes SUCs as significant contributors to the scientific and technological development of the country.

4.2. Thematic analysis of the vision and mission of other ASEAN universities

The ASEAN vision statements contain a total of 4,632 words with 1,222 unique words while mission statements contain 10,364 words with 1,764 unique words. In vision statements, the most frequently used words include "university," "education," "leading," "research," and "development." This suggests that ASEAN universities emphasize academic excellence, leadership, and knowledge advancement as central to their institutional aspirations. In mission statements, the most frequent words are "research," "education," "development," "community," and "quality." The prominence of "research" and "education" reflects the institutions' focus on knowledge generation and teaching, while "community" and "quality" highlights their commitment to societal engagement and academic standards. These themes are consistent with findings from a content analysis of top-ranked universities' mission statements which revealed a strong emphasis on teaching and training functions, as well as research and public interest roles [34].

Using K-means clustering, five themes emerged from the analysis of ASEAN universities as shown in Table 2. For their vision statements, the ASEAN universities emphasize knowledge creation and intellectual growth. Institutions seek to foster innovation and promote lifelong learning. Some universities prioritize medical and health sciences, which highlights their commitment to patient care and medical research. Many universities focus on education and human development, with a strong emphasis on empowering individuals through quality learning. Others emphasize global integration and research, demonstrating their dedication to scientific advancements and international collaboration. A significant number of institutions adopt a student-centric and innovation-driven approach, preparing students to become future leaders in technological and creative industries. As for their mission statements, ASEAN universities defined their missions through a combination of education, research, and societal contributions. Many institutions focus on education and community development, aiming to provide high-quality education while fostering strong ties with local and global communities. Some universities place research at the center of their mission, with a focus on research and growth that contributes to sustainable development. Others emphasize knowledge and academic development, striving to advance learning and intellectual contributions to society. A key priority for many institutions is professional and ethical development, which underscores their goal of producing responsible and ethical professionals. Another prominent theme is training and internationalization which aligns with the growing emphasis on equipping students with globally competitive skills and expertise.

4.3. Comparative thematic analysis of Philippine SUCs and other ASEAN universities

The ASEAN universities and Philippine SUCs share a strong commitment to educational excellence, scientific advancements, and global competitiveness. As shown in Table 3, ASEAN universities highlighted

knowledge creation and intellectual development as their core foundation. They position themselves as institutions that generate new knowledge and foster research-driven progress. Philippine SUCs share this focus but connect it to workforce development for national and global markets. Their vision statements show an emphasis on producing graduates who meet national needs while possessing global competencies. At the same time, institutional prestige and global recognition appear as a major focus for Philippine SUCs. Many SUCs aim to become premier institutions in their specialized fields, such as agriculture, technology, and education. This focus differs from ASEAN universities which highlighted student-centric and innovation-driven approaches. These universities aim to empower students as future leaders and problem-solvers. Philippine SUCs also emphasize regional leadership in science and technology, whereas ASEAN universities focus on global integration and collaboration. Philippine SUCs align their scientific strengths with national development goals, while ASEAN universities seek to build strong international partnerships. These differences revealed that Philippine SUCs place a stronger emphasis on institutional positioning and national economic contributions while ASEAN universities focus on knowledge generation and student empowerment. This focus on workforce development aligns with the Philippine government's emphasis on human resources development readiness in ASEAN [35].

Table 2. VMS themes in other ASEAN universities

Category	Theme	Top keywords	Example
Vision	Knowledge creation and intellectual development	creation, intellectual, insight, improve	A globally recognized institution fostering intellectual growth and innovation.
	Medical and health sciences	medical, patients, provides, facilities	To be a leading medical university providing excellent patient care and research.
	Education and human development	education, knowledge, human, core, innovative	An institution dedicated to empowering individuals through quality education and lifelong learning.
	Global integration and research	globally, integration, scientists, leveraging	A globally connected university committed to scientific advancements and collaboration.
Mission	Student-centric and innovation	students, innovation, knowledge, transfer	Empowering students to lead in innovation and technological advancements.
	Education and community development	education, community, technology, science	To provide high-quality education and foster community-driven development.
	Research and growth	research, mission, world, provide, growth	To conduct world-class research that contributes to sustainable development.
	Knowledge and academic development	knowledge, learning, university, development	To create and disseminate knowledge that benefits society and academia.
	Professional and ethical development	students, professionals, ethical, contribute	To train ethical professionals and responsible citizens for the future.
	Training and internationalization	training, international, high-quality, human resources	To develop globally competitive graduates through rigorous training and research.

Table 3. Comparison of vision statement themes

Other ASEAN universities	Philippine SUCs	Comparison
Knowledge creation and intellectual development	Globally-competitive and nationally-responsive workforce for sustainable development	Both emphasize intellectual growth and skill-building for global and national competitiveness. ASEAN universities focus on knowledge generation, while SUCs directly link knowledge to workforce development.
Medical and health sciences	(No direct equivalent)	ASEAN universities highlight the medical and health sector, while Philippine SUCs do not emphasize it in their vision themes.
Education and human development	Universities of premier recognition	ASEAN universities focus on education and lifelong learning, while SUCs emphasize achieving premier status in specific fields such as agriculture, technology, and education.
Global integration and research	Regional leadership in science and technology	Both emphasize scientific advancement, but ASEAN universities highlight global collaboration, while Philippine SUCs focus on regional leadership in science and technology.
Student-centric and innovation	(No direct equivalent)	ASEAN universities focus on fostering student-led innovation, while Philippine SUCs prioritize institutional prestige rather than student-specific goals.

The mission statements of other ASEAN universities and Philippine SUCs also displayed important differences, as shown in Table 4. Both emphasized education, research, and societal development but Philippine SUCs defined their roles through mandated functions. These institutions identify instruction, research, community service (extension), and production as their core responsibilities. Other ASEAN universities present these responsibilities more broadly under education and community development without explicitly listing them. Moreover, sustainability and global impact appear as defining themes in the mission statements of Philippine SUCs. Many of these institutions aligned their research and outreach efforts with the united SDGs and global ranking systems like THE impact rankings. This focus on global innovation for

sustainable development sets Philippine SUCs apart from other ASEAN universities which emphasized research growth without explicitly mentioning sustainability.

Both other ASEAN universities and Philippine SUCs highlighted the importance of scientific and technological advancements. However, Philippine SUCs focus on specific scientific disciplines that support national priorities, while other ASEAN universities approach research and development from a broader perspective. Other ASEAN universities also place greater emphasis on professional and ethical development, which does not appear as a primary theme in the mission statements of Philippine SUCs. Instead, SUCs prioritized institutional sustainability and innovation as key elements of their long-term missions.

Table 4. Comparison of mission statement themes

Other ASEAN universities	Philippine SUCs	Comparison
Education and community development	Mandated functions of the Philippine SUCs	Both prioritize education and service to the community. Philippine SUCs explicitly outline instruction, research, extension, and production as core functions.
Research and growth	Global innovation toward sustainable development	Both focus on research and innovation, but Philippine SUCs align their efforts with sustainability and global rankings, while ASEAN universities emphasize general research contributions.
Knowledge and academic development	Advancement in the sciences	Both stress scientific progress and knowledge development. ASEAN universities take a broad approach, while Philippine SUCs focus on specific scientific disciplines relevant to national priorities.
Professional and ethical development	(No direct equivalent)	Other ASEAN universities highlight professional and ethical training, which is not explicitly stated in the Philippine SUCs' mission clusters.
Training and internationalization	Global innovation toward sustainable development	Both emphasize preparing graduates for international success. Other ASEAN universities focus on training and global competitiveness, while Philippine SUCs tie their goals to sustainability and innovation.

5. CONCLUSION

This study analyzed the VMS of 117 Philippine SUCs and 330 other ASEAN universities to identify thematic trends and institutional priorities. Philippine SUCs highlight three key themes in their vision statements: producing a globally competitive workforce, attaining premier university status, and leading in regional science and technology. These institutions emphasized their role in national development and aligned their research and education programs with regional scientific advancements. Their mission statements focus on fulfilling government-mandated functions, advancing global innovation for sustainable development, and strengthening scientific research based on national priorities. These themes indicated a strong commitment to workforce preparation, institutional prestige, and sustainability-driven innovation. A comparison with ASEAN universities revealed similarities in education, research, and global competitiveness but also differences in institutional focus. ASEAN universities emphasized student-driven innovation, global integration, and broad knowledge creation, while Philippine SUCs focus on institutional recognition, national workforce alignment, and regional scientific leadership. ASEAN universities place importance on professional and ethical development, a theme not explicitly present in Philippine SUCs. Instead, SUCs focus on government-mandated roles and sustainability goals. These differences suggest that ASEAN universities seek global collaboration and research impact, while Philippine SUCs prioritize national economic contributions and regional expertise. Future research could explore private HEIs in the Philippines to provide a broader perspective on institutional priorities. Expanding the study to include more universities from various institutional categories could offer deeper insights into regional higher education strategies. The use of NLP and large language models (LLMs) could improve the detection of emerging patterns in VMS. Conducting further comparative studies based on institutional scope, academic specialization, and global ranking participation could enhance the understanding of how universities shape their strategies to meet national and global demands.

ACKNOWLEDGMENTS

This study was supported by Pampanga State University.

FUNDING INFORMATION

The authors declare no funding involved.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Julius Ceazar G. Tolentino	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
John Paul P. Miranda	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

INFORMED CONSENT

The authors obtained informed consent from all individuals included in this study.

ETHICAL APPROVAL

This research adhered to ethical guidelines including the Belmont Report, Helsinki Declaration, Philippine Data Privacy Act of 2012, and PCHRD's 2022 guidelines.

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author.





REFERENCES

- [1] J. D. C. -Sánchez, "Mission and vision statements of universities worldwide-a content analysis," *M.Sc. thesis*, School of Management, Universidad del Rosario, La Candelaria, Colombia, 2017, doi: 10.2139/ssrn.3051361.
- [2] G. Özdem, "An analysis of the mission and vision statements on the strategic plans of higher education institutions," *Educational Sciences: Theory & Practice*, vol. 11, no. 4, pp. 1887–1894, 2011.
- [3] M. A. Lim., I. F. Anabo, A. Q. P. Ngoc, M. A. Elepano, and G. Kuntamarat, *The state of higher education in Southeast Asia*. Jakarta, Indonesia: EU-ASEAN, 2016.
- [4] A. A. Taiwo, F. A. Lawal, and M. E. Agwu, "Vision and mission in organization: myth or heuristic device?," *The International Journal of Business & Management*, vol. 4, no. 3, pp. 127–134, 2016.
- [5] A. S. Singh and M. D. Shah, "The case of a management institute in India: recrafting the vision and mission," *CASE Journal*, vol. 17, no. 2, pp. 261–286, 2021, doi: 10.1108/TCJ-07-2020-0087.
- [6] T. Bayrak, "A content analysis of top-ranked universities' mission statements from five global regions," *International Journal of Educational Development*, vol. 72, 2020, doi: 10.1016/j.ijedudev.2019.102130.
- [7] M. D. Sakellarios and D. A. Gann, "Critically evaluating university mission and vision statements," *International Journal of Evaluation and Research in Education*, vol. 13, no. 6, pp. 3906–3913, 2024, doi: 10.11591/ijere.v13i6.29277.
- [8] K. L. Armas and R. R. Jugo, "Education for a sustainable future: analysis of universities vision and mission statements in line with global sustainable development goals," *Journal of Lifestyle and SDGs Review*, vol. 4, no. 1, 2024, doi: 10.47172/2965-730X.SDGsReview.v4.n00.pe01790.
- [9] S. A. Olusola, O. O. Oluseye, U. M. Saviour, K. J. Iember, and D. O. Ayomiposi, "A content analysis of the vision and mission statements of top ten leading Universities in Africa," *Cogent Education*, vol. 9, no. 1, 2022, doi: 10.1080/2331186X.2022.2143648.
- [10] D. Tao, P. Yang, and H. Feng, "Utilization of text mining as a big data analysis tool for food science and nutrition," *Comprehensive Reviews in Food Science and Food Safety*, vol. 19, no. 2, pp. 875–894, 2020, doi: 10.1111/1541-4337.12540.
- [11] A. M. Celestial-Valderama, A. Vinluan, and S. D. Moraga, "Mining students' feedback in a general education course: basis for improving blended learning implementation," *International Journal of Computing Sciences Research*, vol. 5, no. 1, pp. 568–583, 2021.
- [12] B. S. Anderson, "Using text mining to glean insights from COVID-19 literature," *Journal of Information Science*, vol. 49, no. 2, pp. 373–381, 2023, doi: 10.1177/01655515211001661.
- [13] M. T. Ibrahim and A. Tella, "Analysis of text mining from full-text articles and abstracts by postgraduates students in selected Nigeria universities," *International Journal of Higher Education*, vol. 9, no. 4, pp. 169–183, 2020, doi: 10.5430/ijhe.v9n4p169.
- [14] J. P. P. Miranda and R. P. Bringula, "Exploring Philippine Presidents' speeches: a sentiment analysis and topic modeling approach," *Cogent Social Sciences*, vol. 7, no. 1, 2021, doi: 10.1080/23311886.2021.1932030.
- [15] R. Behzadidoost, M. Hasheminezhad, M. Farshi, V. Derhami, and F. Alamiyan-Harandi, "A framework for text mining on Twitter: a case study on joint comprehensive plan of action (JCPOA)- between 2015 and 2019," *Quality and Quantity*, vol. 56, no. 5, pp. 3053–3084, 2022, doi: 10.1007/s11135-021-01239-y.
- [16] S. Wu, "The text mining and classification analyses of tumor based on Twitter," *IETE Journal of Research*, vol. 69, no. 4, pp. 1945–1951, 2023, doi: 10.1080/03772063.2021.1878939.
- [17] M. B. Garcia, "Sentiment analysis of tweets on coronavirus disease 2019 (COVID-19) pandemic from Metro Manila, Philippines," *Cybernetics and Information Technologies*, vol. 20, no. 4, pp. 141–155, 2020, doi: 10.2478/cait-2020-0052.
- [18] C. A. Cruz and F. Balahadia, "Analyzing public concern responses for formulating ordinances and laws using sentiment analysis through VADER application," *International Journal of Computing Sciences Research*, vol. 6, pp. 842–856, 2022, doi: 10.25147/ijcsr.2017.001.1.77.
- [19] C. G. Dias and A. M. de Moraes, "A text mining approach in patents and papers: analyzing wind and solar energy trends," *International Journal of Computer Applications*, vol. 175, no. 37, pp. 1–12, 2020, doi: 10.5120/ijca2020920947.





- [20] J. I. P. Rave, G. P. J. Álvarez, and J. C. C. Morales, "Multi-criteria decision-making leveraged by text analytics and interviews with strategists," *Journal of Marketing Analytics*, vol. 10, no. 1, pp. 30–49, 2022, doi: 10.1057/s41270-021-00125-8.
- [21] S. Dutta, H. B. Gunay, and S. Bucking, "Benchmarking operational performance of buildings by text mining tenant surveys," *Science and Technology for the Built Environment*, vol. 27, no. 6, pp. 741–755, 2021, doi: 10.1080/23744731.2020.1851545.
- [22] R. P. Bringula, J. N. Victorino, M. M. De Leon, and M. R. Estuar, "Cluster and sentiment analyses of YouTube textual feedback of programming language learners to enhance learning in programming," in *Proceedings of the Future Technologies Conference (FTC) 2019*, 2019, pp. 913–924, doi: 10.1007/978-3-030-32523-7_67.
- [23] T. Weißer, T. Saßmannshausen, D. Ohrndorf, P. Burggräf, and J. Wagner, "A clustering approach for topic filtering within systematic literature reviews," *MethodsX*, vol. 7, 2020, doi: 10.1016/j.mex.2020.100831.
- [24] H. S. Lubis, M. K. M. Nasution, and A. Amalia, "Performance of term frequency-inverse document frequency and K-means in government service identification," in *2024 4th International Conference of Science and Information Technology in Smart Administration (ICSINTESA)*, 2024, pp. 772–777, doi: 10.1109/ICSINTESA62455.2024.10748106.
- [25] L. I. Berlina, U. S. Aesyi, and K. Kharisma, "Community perspective analysis of Yogyakarta special region using K-means algorithm," *Emerging Information Science and Technology*, vol. 5, no. 2, pp. 66–73, 2024, doi: 10.18196/eist.v5i2.24729.
- [26] A. V. Kumar and K. N. Meera, "Sentiment analysis using K-means clustering on microblogging data focused on only the important sentiments," in *2022 10th International Conference on Emerging Trends in Engineering and Technology - Signal and Information Processing (ICETET-SIP-22)*, 2022, pp. 1–5, doi: 10.1109/ICETET-SIP-2254415.2022.9791723.
- [27] J. Sawicki, M. Ganzha, and M. Paprzycki, "The state of the art of natural language processing—a systematic automated review of NLP literature using NLP techniques," *Data Intelligence*, vol. 5, no. 3, pp. 707–749, 2023, doi: 10.1162/dint_a_00213.
- [28] X. Shu and Y. Ye, "Knowledge discovery: methods from data mining and machine learning," *Social Science Research*, vol. 110, 2023, doi: 10.1016/j.ssresearch.2022.102817.
- [29] M. A. Syakur, B. K. Khotimah, E. M. S. Rochman, and B. D. Satoto, "Integration K-means clustering method and elbow method for identification of the best customer profile cluster," *IOP Conference Series: Materials Science and Engineering*, vol. 336, no. 1, Apr. 2018, doi: 10.1088/1757-899X/336/1/012017.
- [30] W. Hardi, W. A. Kusuma, and S. Basuki, "Clustering topic groups of documents using K-means algorithm: Australian embassy Jakarta media releases 2006-2016," *Berkala Ilmu Perpustakaan dan Informasi*, vol. 15, no. 2, pp. 226–238, 2019, doi: 10.22146/bip.36451.
- [31] A. C. Gomez and A. C. Gomez, "Content analysis of mission statements of selected state universities in the philippines: basis for strategic educational management planning," *Globus Journal of Progressive Education*, vol. 11, no. 1, pp. 7–12, 2021, doi: 10.46360/globus.edu.2020211002.
- [32] L. E. Tuyo, "Governance of state universities and colleges in region XII, Philippines," *International Journal of Multidisciplinary and Current Educational Research (IJMCER)*, vol. 4, no. 2, pp. 29–36, 2022.
- [33] S. M. J. Sayson, "Assessing the impact, alignment with sustainable development goals, challenges, and sustainability of community extension projects in philippine state universities and colleges (SUCs): a scoping review," *Journal of Harbin Engineering University*, vol. 45, no. 10, pp. 51–59, 2024.
- [34] İ. Gözükar, "Mission and vision statements of foundation universities in the context of university roles: a content analysis," *China-USA Business Review*, vol. 14, no. 9, pp. 464–476, 2015, doi: 10.17265/1537-1514/2015.09.005.
- [35] ASEAN, *Human resources development readiness in ASEAN: Philippines country report*. Jakarta, Indonesia: The Association of Southeast Asian Nations, 2021.

BIOGRAPHIES OF AUTHORS



Julius Ceazar G. Tolentino     is the chairperson of the Department of Physical Education and the Concurrent Coordinator of the Research Management Unit of the College of Education, Pampanga State University, Bacolor, Pampanga, Philippines. He is currently completing his dissertation for the degree, Doctor of Philosophy in Curriculum and Instruction at the Philippine Normal University-Manila (The National Center for Teacher Education). He finished his International Continuing Professional Education Program titled "Continuity of Education-eLearning Philippines" from the Texas International Education Consortium, based in Austin, Texas, United States of America, via the Scholarships for Graduate Studies Abroad and International Relations of the Commission on Higher Education, Philippines. He also received the following degrees: Master of Science in Human Movement Science from the University of the Philippines Diliman (2021); and Master in Physical Education and Sports from the Bataan Peninsula State University, City of Balanga, Bataan, Philippines (2016). His research interests include physical education pedagogy; research and development; cultural studies; and human movement science with an emphasis on leisure. He can be contacted at email: jcgtoleto@pampangastateu.edu.ph.



John Paul P. Miranda     is an assistant professor and the international linkages and partnerships project head for the office for international partnerships and programs at Pampanga State University. His publications are indexed in both Scopus, Web of Science, and IEEE databases. He is a proud member of the National Research Council of the Philippines-attached agency to the Department of Science and Technology which is an advisory body to the Philippine Government on matters of national interest. His area of interests in publications are related to data science, analytics, educational technology, and software development. He can be contacted at email: jppmiranda@pampangastateu.edu.ph.