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STUDENTS' LEARNING STYLES FROM VARIOUS PERSPECTIVES: A STUDY AT SEVERAL FACULTIES OF LAMBUNG MANGKURAT UNIVERSITY

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Abstract

This study aims to analyze students' learning styles from various perspectives across multiple academic disciplines at Lambung Mangkurat University, specifically the Department of Natural Science Education, Department of Sports and Health Education, Department of Management, Department of Pharmacy, Department of Physics, and Department of Psychology. A mixed-methods design was employed, integrating quantitative and qualitative approaches. Quantitative data were collected using the VARK (Visual, Aural, Read/Write, Kinesthetic) learning style inventory administered to 320 students selected through stratified random sampling from the six departments. Descriptive statistics and one-way ANOVA were used to determine variations in learning style preferences across disciplines. In addition, qualitative data were obtained from in-depth interviews and focus group discussions involving 24 students and 8 lecturers to explore underlying factors influencing learning style differences. The findings indicate that kinesthetic and visual learning styles are dominant among students in the Department of Sports and Health Education, Department of Natural Science Education, and Department of Pharmacy, whereas read/write and auditory preferences are more prevalent among students in the Department of Management, Department of Psychology, and Department of Physics ($p < 0.05$). Qualitative analysis highlights that curriculum characteristics, lecturer teaching strategies, learning environment, and students' prior learning experiences significantly shape these preferences. The integration of both quantitative and qualitative findings suggests the importance of designing adaptive and diverse teaching strategies that accommodate multiple learning styles to optimize students' learning outcomes across different academic disciplines in higher education.

Keywords: Higher education, Lambung Mangkurat University, learning styles, mixed methods, VARK.

INTRODUCTION

Understanding students' learning styles is critical for optimizing instructional design and improving learning outcomes in higher education. Learning styles represent students' preferred ways of processing information, interacting with learning materials, and engaging with instructional strategies (Fleming & Baume, 2006). One of the most widely used frameworks to classify these preferences is the VARK model, which categorizes learners into Visual, Aural, Read/Write, and Kinesthetic modalities. The relevance of learning style research lies in its potential to enhance student engagement, accommodate learner diversity, and improve academic performance across disciplines (Pashler et al., 2009).

Numerous studies have demonstrated variations in learning style preferences among students in different academic disciplines. Almigbal (2015) reported that 42.6% of medical students demonstrated a strong kinesthetic preference, which was significantly correlated with clinical skill performance ($p < 0.01$). Wright (2015) found that students in business and social sciences predominantly adopted read/write learning styles, indicating that academic context influences how students process and retain information. Similar trends are evident in health sciences education; for instance, kinesthetic and visual styles often dominate among students who engage in laboratory-based or hands-on learning environments (Baykan & Nacar, 2007).

In the Indonesian context, learning style research is also growing. Marzulina et al. (2019) observed that visual (38.7%) and auditory (33.5%) preferences dominated among English as a Foreign Language (EFL) students, with visual preference correlating positively with English proficiency ($r = 0.430$, $p < 0.05$). Widharyanto and Binawan (2020) highlighted cultural diversity as a significant factor, finding that students from different ethnic groups exhibited distinct preferences, with aural and kinesthetic styles being more prevalent among students from practical and collaborative learning environments. This suggests that Indonesian students' learning styles are influenced by multiple contextual variables, including curriculum design, cultural background, and teaching methodologies.

Despite the growing number of studies on learning styles, existing research in Indonesia still tends to focus on single academic disciplines or specific programs, such as English education, teacher training, or health sciences, without providing a cross-disciplinary comparison within one institution. Moreover, many studies rely primarily on quantitative surveys, particularly the VARK inventory, to describe distribution patterns of learning styles but fail to explore the contextual factors such as curriculum design, pedagogical approaches, and student experiences that may influence these preferences (Almigbal, 2015; Marzulina et al., 2019; Widharyanto & Binawan, 2020). This limited approach restricts our understanding of why particular learning styles are dominant in certain disciplines and how these preferences relate to educational practices. As a result, there is still insufficient evidence for higher education institutions in Indonesia to design adaptive and inclusive teaching strategies that take into account discipline-specific learning needs.

Lambung Mangkurat University (ULM) offers a unique opportunity to address this gap because it encompasses diverse academic disciplines with distinct pedagogical orientations, including Natural Science Education, Sports and Health Education, Management, Pharmacy, Physics, and Psychology. Each of these departments has unique curriculum structures, learning outcomes, and teaching methods that are likely to shape students' learning style preferences differently. Yet, no comprehensive study has examined how learning style distributions vary across these disciplines within ULM or explored the contextual factors behind such variation.

Therefore, this research investigates learning style preferences across six departments at Lambung Mangkurat University using a mixed-methods approach, integrating quantitative analysis of learning style distributions with qualitative exploration of contextual factors influencing those preferences. By combining these two approaches, the study aims to produce a holistic understanding of how academic context shapes learning style diversity. The findings are expected to provide evidence-based recommendations for adaptive instructional design, thereby supporting inclusive and effective teaching practices in Indonesian higher education.

METHOD

Research Design

This study employed a mixed-methods design that integrated quantitative and qualitative approaches to provide a comprehensive understanding of students' learning styles across academic disciplines. The quantitative component focused on measuring students' learning style preferences using the VARK questionnaire (Fleming & Baume, 2006), while the qualitative component explored contextual factors influencing these preferences through in-depth interviews and focus group discussions (Creswell & Plano Clark, 2018).

Population and Sample

The population included all undergraduate students from six departments at Lambung Mangkurat University: Natural Science Education, Sports and Health Education, Management, Pharmacy, Physics, and Psychology. A stratified random sampling technique was applied to ensure representation from each department (Etikan & Bala, 2017). A total of 320 students participated in the survey, while 24 students (4 from each department) and 8 lecturers were involved in qualitative interviews.

Research Instruments

1. Quantitative data collection

The VARK questionnaire was used to identify students' learning style preferences (Visual, Aural, Read/Write, Kinesthetic). The questionnaire consisted of 16 items with multiple-choice answers. Scores were calculated according to VARK guidelines, and students were categorized based on their dominant learning style (Fleming & Baume, 2006).

2. Qualitative data collection

Semi-structured interviews and focus group discussions explored factors influencing students' learning style preferences, including curriculum design, instructional strategies, and learning environment (Creswell & Poth, 2017).

Data Analysis

1. Quantitative analysis

Quantitative data were analyzed using descriptive statistics (mean, percentage, and frequency) and inferential statistics (one-way ANOVA) to examine differences in learning styles across departments (Field, 2018).

Table 1. Descriptive Data for VARK Score

Learning Style	Mean Score	Standard Deviation	Percentage of Students (%)
Visual	6.4	1.2	28.7
Aural	5.8	1.5	24.5

Learning Style	Mean Score	Standard Deviation	Percentage of Students (%)
Read/Write	6.1	1.3	21.6
Kinesthetic	7.2	1.4	25.2

Table 2. ANOVA Output

Source of Variation	Sum of Squares	df	Mean Square	F-value	Sig.
Between Groups	42.56	5	8.51	4.27	0.002
Within Groups	245.38	314	0.78		
Total	287.94	319			

2. Qualitative Analysis

Qualitative data from interviews and discussions were transcribed, coded, and analyzed thematically (Braun & Clarke, 2006) to identify themes related to curriculum influence, lecturer strategies, and learning environment factors shaping learning styles. Triangulation was conducted to ensure data validity (Carter et al., 2014).

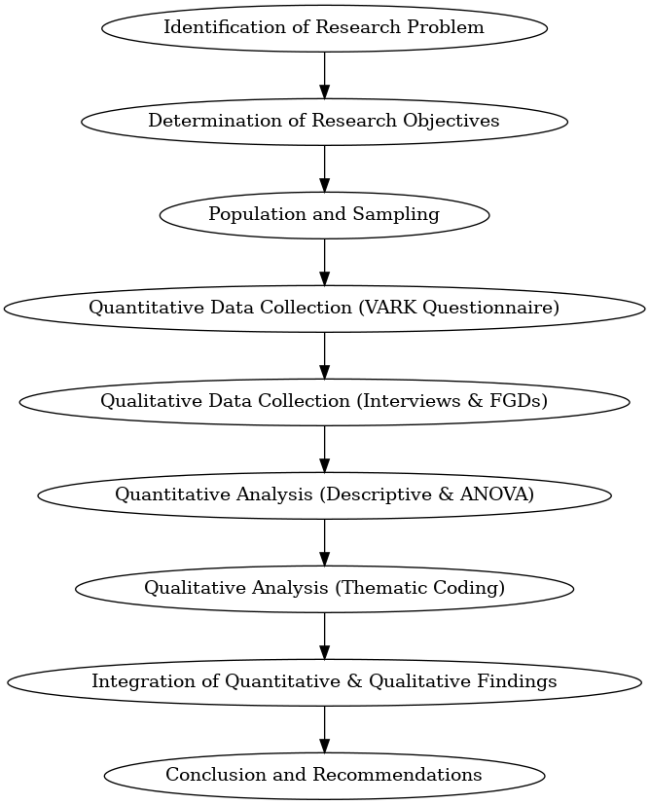

Figure 1. Flow Chart

RESULTS AND DISCUSSION

The analysis of the VARK questionnaire responses from 320 students across six departments (Natural Science Education, Sports and Health Education, Management, Pharmacy, Physics, and Psychology) revealed variations in dominant learning style preferences.

Table 3. Distribution of Learning Style Preferences by Department

Department	Visual (%)	Aural (%)	Read/Write (%)	Kinesthetic (%)
Natural Science Education	29.4	22.5	18.1	30.0
Sports and Health Education	21.7	15.3	11.0	52.0
Management	18.9	28.0	35.1	18.0
Pharmacy	24.2	21.0	16.8	38.0
Physics	27.5	23.3	30.2	19.0
Psychology	22.0	32.4	31.0	14.6

One-way ANOVA indicated significant differences in learning style distributions among departments ($F(5,314)=4.27$, $p=0.002$). Post-hoc analysis showed that Physical Education and Health students significantly preferred kinesthetic learning compared to students in Management and Psychology, who preferred read/write and aural learning respectively.

Qualitative analysis revealed three primary factors influencing learning style preferences: (1) curriculum orientation, where applied and lab-based programs (e.g., Physical Education, Pharmacy) encourage kinesthetic learning; (2) lecturer teaching strategies, with Management and Psychology programs emphasizing theoretical frameworks and extensive readings, leading to read/write and aural preferences; and (3) learning environment, where availability of hands-on facilities (e.g., sports fields, laboratories) impacts students' choice of learning strategies.

The findings of this study demonstrate that learning style preferences among students at Lambung Mangkurat University (ULM) vary significantly depending on their academic discipline. The dominance of kinesthetic learning among Physical Education and Health students (52%) reflects the highly practical and movement-based nature of their curriculum. This is consistent with Kharb and Samanta (2013), who found that medical and health-related programs often attract students with kinesthetic preferences due to their heavy reliance on laboratory work, clinical practice, and field training. Similarly, Baykan and Nacar (2007) reported comparable findings among first-year medical students, emphasizing that educational experiences involving hands-on tasks naturally encourage kinesthetic learning tendencies.

In contrast, students from Management and Psychology demonstrated stronger read/write (35.1%) and aural (32.4%) preferences, which aligns with Wright (2015), who observed similar trends in business and social science students. These fields typically involve theoretical frameworks, extensive reading, report writing, and class discussions, which naturally attract students who prefer textual or auditory learning modalities. Furthermore, Natural Science Education and Sports and Health Education students exhibited relatively balanced distributions with a notable preference for visual learning (29.4% and 27.5%, respectively), which corroborates Almigbal (2015), who found that science and engineering students often rely on visual representations such as graphs, diagrams, and symbolic models for conceptual understanding.

From a theoretical perspective, these findings can be interpreted using Ausubel's theory of meaningful learning and Vygotsky's sociocultural theory. Ausubel emphasized the importance of prior knowledge and meaningful integration of new information, which explains why

Management and Psychology students may gravitate towards read/write and aural modalities that allow structured, conceptual learning through text and dialogue (Ausubel, 2000). Meanwhile, Vygotsky's concept of social interaction and the Zone of Proximal Development (ZPD) highlights how learning environments and collaborative practices shape cognitive development (Vygotsky, 1978). The strong kinesthetic preference in Physical Education students may be partially attributed to the social and interactive nature of physical learning contexts, where students engage in cooperative tasks and hands-on activities within their ZPD.

The results also echo the caution expressed by Pashler et al. (2009), who argued that while recognizing learning styles is valuable, tailoring teaching exclusively to a single style may not significantly improve outcomes. Instead, our findings support adopting flexible, multimodal instructional approaches. For example, lecturers in kinesthetic-dominated programs such as Physical Education may integrate digital visualizations and textual resources to complement hands-on learning, while lecturers in read/write-oriented disciplines such as Management might adopt case-based simulations to engage other modalities.

Implications for Higher Education Practice

The implications of these findings extend to both instructional design and curriculum development. First, understanding dominant learning styles within each discipline allows lecturers to design adaptive learning activities that align with students' natural learning preferences without ignoring other modalities. For example, integrating motion analysis software in Physical Education, concept maps in Physics, or debate-based learning in Psychology could support more balanced learning experiences.

Second, these findings highlight the importance of lecturer professional development. Educators should be trained to recognize and respond to learning diversity, as recommended by Fleming and Baume (2006). In the context of Indonesian higher education, where classrooms are often heterogeneous, such adaptive strategies could improve student engagement, reduce dropout rates, and enhance learning outcomes.

Finally, this research contributes to the growing discourse on student-centered learning in Indonesia by providing empirical evidence that learning style preferences differ significantly across academic disciplines. It supports the shift towards flexible curriculum frameworks and the use of blended learning technologies, particularly important in the post-pandemic era where hybrid learning environments have become increasingly common (Zhang et al., 2019).

Challenges for Future Learning in Higher Education

The diversity of learning styles found in this study highlights key challenges for the future of higher education. First, the increasing adoption of blended and online learning requires universities to redesign instructional models to be multimodal, ensuring that they can accommodate kinesthetic, visual, aural, and read/write learners simultaneously. According to Bond et al. (2021), one of the most pressing issues in post-pandemic education is ensuring digital platforms and learning management systems (LMS) can support interactive and experiential learning for kinesthetic learners who traditionally depend on hands-on engagement.

Second, the digital divide remains a significant challenge, particularly in developing countries. Zalat et al. (2021) emphasize that access to adequate devices, stable internet, and digital

literacy skills varies widely among students. This gap disproportionately affects students in rural areas or those from low-income families, limiting their ability to fully engage with e-learning materials that match their learning preferences (World Bank, 2022). For example, while visual and read/write learners may adapt relatively easily to text-based and visual content available online, kinesthetic learners in programs such as Physical Education or Pharmacy often require virtual simulations and augmented reality tools, which are expensive to develop and implement (Ali, 2020).

Third, lecturer readiness and professional development are crucial for implementing effective multimodal teaching strategies. Many instructors continue to rely on traditional lecture-based methods, which primarily support aural and read/write learners but often fail to engage kinesthetic and visual learners. Garrison and Vaughan (2013) and Hodges et al. (2020) note that lecturer training programs in online pedagogy, technology integration, and student-centered teaching approaches are critical for improving learning outcomes in digitally diverse classrooms.

Finally, higher education institutions must consider curriculum flexibility. The shift to digital learning environments has accelerated the adoption of micro-credentials, modular learning, and personalized learning pathways (Altbach & De Wit, 2022). However, implementing such flexible frameworks in Indonesian universities remains limited (Basar, 2021), partly due to regulatory constraints and lack of institutional readiness.

Addressing these challenges requires systemic interventions, including investment in educational technology infrastructure, faculty development programs, and curriculum redesign. These findings align with the broader call for future-ready universities capable of providing equitable, inclusive, and adaptive education in line with the Sustainable Development Goals (SDG 4) on quality education (United Nations, 2023).

CONCLUSION

This study revealed significant variations in learning style preferences among students across six departments at Lambung Mangkurat University, namely Natural Science Education, Sports and Health Education, Management, Pharmacy, Physics, and Psychology. The findings showed that Sports and Health Education students predominantly preferred kinesthetic learning, Management and Psychology students exhibited stronger read/write and aural preferences, while Science Education and Physics students showed a balanced distribution with notable visual learning tendencies. These variations are strongly influenced by the nature of each academic discipline, curriculum design, and teaching strategies.

The results further indicate that students' learning styles are shaped not only by individual cognitive preferences but also by contextual factors, including the availability of practical learning facilities, lecturers' instructional approaches, and the orientation of each academic program. This highlights the need for flexible and multimodal instructional designs to support diverse learning preferences and optimize learning outcomes.

From a theoretical perspective, the findings align with Ausubel's meaningful learning theory and Vygotsky's sociocultural framework, emphasizing that learning is most effective when new knowledge is meaningfully integrated and socially mediated. These findings also reaffirm previous research indicating discipline-specific differences in learning style tendencies.

The study contributes to the ongoing discourse on student-centered learning in higher education by providing empirical evidence that supports the integration of adaptive, multimodal

teaching strategies and the development of inclusive learning environments. It also underscores future challenges for higher education, particularly in designing equitable and technology-rich learning ecosystems that accommodate diverse learning styles, enhance student engagement, and prepare institutions for the digital transformation of education.

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GAYA BELAJAR MAHASISWA DARI BERBAGAI PERSPEKTIF: STUDI DI BEBERAPA FAKULTAS PADA UNIVERSITAS LAMBUNG MANGKURAT

Abstrak

Penelitian ini bertujuan untuk mengeksplorasi gaya belajar mahasiswa dari berbagai perspektif lintas disiplin ilmu di Universitas Lambung Mangkurat (ULM). Pendekatan mixed methods digunakan dengan melibatkan data kuantitatif melalui kuesioner VARK dan data kualitatif melalui wawancara serta diskusi kelompok terarah. Sebanyak 320 mahasiswa dari enam jurusan: Pendidikan IPA, Pendidikan Olahraga dan Kesehatan, Ilmu Manajemen, Farmasi, Fisika, dan Psikologi – berpartisipasi dalam penelitian ini. Analisis kuantitatif menunjukkan variasi preferensi gaya belajar yang signifikan (p=0,002), dengan mahasiswa Pendidikan Olahraga dan Kesehatan cenderung dominan pada gaya belajar kinestetik (52%), sementara mahasiswa Manajemen dan Psikologi lebih menyukai gaya belajar membaca/menulis dan auditori, serta mahasiswa Pendidikan IPA dan Fisika menunjukkan kecenderungan kuat pada gaya belajar visual. Analisis kualitatif mengungkap bahwa perbedaan gaya belajar dipengaruhi oleh orientasi kurikulum, strategi mengajar dosen, dan lingkungan belajar. Temuan ini mendukung perlunya desain pembelajaran multimodal dan inklusif yang mempertimbangkan perbedaan gaya belajar antar disiplin ilmu. Penelitian ini juga menyoroti tantangan ke depan, terutama dalam penyediaan ekosistem pembelajaran berbasis teknologi yang adil dan mampu mengakomodasi keragaman gaya belajar di perguruan tinggi.

Kata kunci: *Gaya belajar, VARK, pendidikan tinggi, desain pembelajaran, Universitas Lambung Mangkurat.*