Characteristics of Academic Writings from Students in Exact Sciences and Social Humanities Departments at Higher Education Institutions in Banyumas Regency

1st Vera Krisnawati[1], 2nd Sarwiji Suwandi[2], 3rd Andayani[3]

{verakrisnawati@student.uns.ac.id[1], sarwijiswan@staff.uns.ac.id[2], andayani.@staff.ins.ac.id[3]}

Sebelas Maret University, Surakarta, Indonesia[1,2,3]

Abstract. This study aims to delineate the characteristics of academic writings from students majoring in Exact Sciences and Social Humanities at higher education institutions in Banyumas Regency. This investigation is a descriptive study carried out in higher education institutions in Banyumas Regency, encompassing Universitas Jenderal Soedirman, Universitas Wijaya Kusuma, Universitas Nahdlatul Ulama, and Politeknik Kesahatan Kampus VII. The data used are academic writings from students enrolled in the Indonesian Language course in Banyumas's higher education institutions. The methodologies employed in data collection involve observation and meticulous reading of all the academic writings produced by the students. The data analysis methodologies of this investigation encompass (a) data collection, (b) data selection, (c) data presentation, and (d) conclusion drawing. The conclusions drawn from this research highlight the unique characteristics embodied in the scientific writings of students from exact sciences and social humanities disciplines at higher education institutions in Banyumas Regency. The specifics under scrutiny include (a) the development of ideas, (b) the precision in problem discussion, (c) the adherence to writing conventions, (d) the utilization of citations, and (e) the incorporation of references.

Keywords: Characteristics; Academic Writings; Exact Sciences; Social Humanities.

1 Introduction

Universities and colleges necessitate their academic community to generate scientific literature, a requirement in accordance with the Regulation of the Minister of Education and Culture Number 39 of 2021, which emphasizes academic integrity in the creation of scientific works. Upholding academic integrity fosters an intellectual culture within higher education institutions while simultaneously guiding its members away from actions that could potentially breach academic norms. The process of creating scientific literature serves as a medium for preserving knowledge by articulating ideas or concepts derived from meticulous observation, comprehensive analysis, and rigorous research, all conducted following systematic scientific procedures (Suyono et al., 2015). Furthermore, the practice of scientific writing confers numerous advantages upon students (Widyartono, 2014), such as honing their reading skills, fostering scientific thought processes, and cultivating the ability to organize data effectively (Suntoro and Setyaningsih, 2022).

ICHSS 2023, December 27, Surakarta, Indonesia

DOI 10.4108/eai.27-12-2023.2350312

Notably, scientific writing is distinct from literary writing in that it necessitates adherence to specific academic criteria (Keith et al., 2020). It demands systematic composition, substantiation through relevant references, compliance with established rules, and thorough elucidation of ideas or concepts (Bowker, 2007). Academic texts, a category to which scientific writing belongs, span diverse forms, including papers, reports, final project reports, theses, dissertations, scientific articles, and popular scientific articles (Sumarwati, 2013). Student-generated scientific writings must draw upon pertinent references to bolster their ideas. The ideas or concepts presented must be detailed and specific, requiring students to develop and structure their thoughts methodically in their writings (Guo, 2022). Furthermore, scientific writings should embody authenticity, accuracy, and originality, enabling students to present their findings systematically to the readership (Blaschke, 2015). The findings should be articulated using appropriate, clear, and concise language (Lindsay, 2011), while maintaining unity and coherence (Oshima and Hogue, 2006). This is further underscored by the inclusion of argumentative sentences containing evidence, facts, and counterarguments (Ince et al., 2020). Consequently, student scientific writings must conform to the standard rules and regulations governing scientific writing (Rahardi, 2009).

Despite the emphasis on academic integrity and the importance of scientific writing, many students continue to grapple with adhering to the established norms. Often, the references utilized in their academic texts are insufficient or do not meet the standard requirements. Students also face challenges in expanding their ideas or concepts, reducing their academic papers to mere assignments. This is corroborated by the research of Kotz et al. (2013), which suggests that students encounter difficulties in crafting scientific papers due to their limited capacity to elaborate ideas, resulting in their texts being preliminary drafts. Alkhuzaee et al. (2019) further substantiate this, demonstrating that students lacking the skill to develop ideas encounter hurdles in producing scientific papers.

Existing literature on scientific writing has been extensively studied. Persadha's (2016) research reveals that economics students exhibit adequate skills in scientific writing. This competency encompasses aspects such as content development, organization of scientific texts, vocabulary and terminology usage, scientific language development, and application of spelling and writing techniques. Similarly, Yanti et al. (2018) found that Indonesian Language Education students displayed satisfactory proficiency in scientific writing. This competency encapsulated aspects of content, organization, grammar, style, and spelling, with 21% of students demonstrating good skills, 12% adequate, 33% poor, and 33% very poor.

The preceding discussions primarily spotlight the broad scientific writing competencies of students. This study, however, distinguishes itself by scrutinizing the unique attributes of scientific compositions created by students engaged in precise sciences (such as mathematics, health, and biology) and social humanities (including English language education, management, and law) at tertiary institutions in Banyumas Regency. The insights gleaned from this investigation are anticipated to bolster the composition of scientific works at higher education establishments, thereby enhancing the caliber of such writings.

2 Research Methods

This investigation is a descriptive analysis carried out at higher education institutions in Banyumas Regency, encompassing Jenderal Soedirman University, Wijaya Kusuma University, Nahdlatul Ulama University, and Health Polytechnic Campus VII. The data harnessed for this

study are the scientific compositions penned by students enrolled in the Indonesian Language course at these institutions. A compendium of 180 student scientific writings, all outcomes of the Indonesian Language course, were examined for this research. The data collection methodologies deployed included observation and meticulous perusal of all the student-produced scientific compositions. The data analysis strategies comprised (a) data accumulation, (b) data filtration, (c) data representation, and (d) inference derivation (Miles and Huberman, 1992). Peer review, facilitated by colleagues proficient in scientific writing, was employed as a triangulation technique in this study.

3 Result and Discussion

The attributes of scientific compositions examined in this research encompass: (a) the development of ideas, (b) the precision in problem discussion, (c) adherence to writing conventions, (d) utilization of citations, and (e) integration of references. Herein, we present the outcomes of the study concerning the unique traits of scientific writings produced by students of exact sciences and social humanities.

Diagram 1 Characteristics of Academic Writings of Students of Exact Sciences

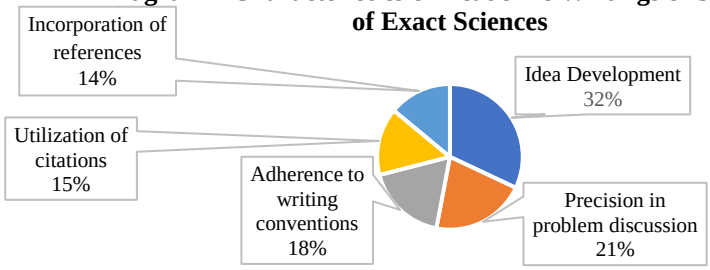
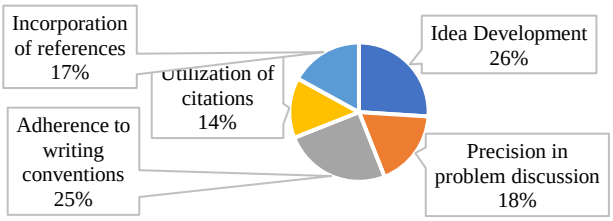


Diagram 2 Characteristics of Academic Writings of Students of Social Humanities



As per Diagrams 1 and 2, it is clear that the students from both exact sciences and social humanities have not fully optimized their ability to develop core ideas, with percentages standing at 32% and 26% respectively. The research findings suggest a lack of coherence in the students' ideation process. The propositions or concepts introduced are not interconnected. Students tend to reiterate ideas or thoughts across multiple paragraphs. The notions or recommendations expressed in the writings do not adequately complement the entire composition. Mastering the skill of idea or concept development in a scientific text is crucial for students to substantiate or defend their writings. Students are encouraged to engage in intellectual discussions with peers (Yu and Liu, 2021). Moreover, they can broaden their

knowledge by reading a plethora of references related to the issue at hand. The higher the reading proficiency of the students, the better their ability to evolve ideas in scientific writings. Conversely, students with lower reading competence tend not to maximize their ideation potential, often repeating ideas in single or multiple paragraphs.

The precision in problem deliberation in scientific writings of exact science and social humanities students show different percentages, standing at 21% and 18% respectively. Exact science students exhibit a higher percentage in terms of preciseness in issue deliberation compared to social humanities students. The issues delineated by exact science students tend to be more specific, coherent, and accurate in contrast to the scientific compositions of social humanities students.

The adherence to writing conventions in the academic papers produced by students of exact sciences and social humanities diverges, with percentages recorded at 18% and 25% respectively. Writing conventions in scholarly writing include the consistent application of spelling and grammatical rules. Students from the exact sciences seem to struggle in this domain. The academic papers scrutinized showcased abundant spelling mistakes in every paragraph, coupled with frequent misusage of words. Additionally, there were instances of grammatically flawed sentence structures, resulting in texts that were either incoherent or ambiguous. Conversely, students of social humanities demonstrated a fair competency in adhering to writing conventions, although their papers were not entirely free from spelling mistakes and grammatically incorrect sentences.

In the realm of academic writing, it is imperative for students to incorporate citations that are directly pertinent to the topic under discussion. The proportion of citation utilization in the scholarly papers of exact science and social humanities students stands at 15% and 14% respectively. The academic writings of these two disciplines display distinct characteristics. In the papers of exact science students, citations are typically positioned following the quotations, whereas in the papers of social humanities students, citations are generally placed preceding the quotations. Students from both disciplines have demonstrated an awareness of the importance of citations in their scholarly writings, albeit with distinct approaches.

The incorporation of references into academic compositions by students of exact sciences and social humanities demonstrates a variation, with rates standing at 14% and 17% correspondingly. This data implies a relatively modest employment of references. In scholarly writings, references fortify ideas or theories, and bear relevance to the issue under investigation. While students from exact sciences predominantly cite national and international journals, their counterparts in social humanities lean towards referencing books, national journals, and policy documents. Instances of incomplete reference citations have been observed in both disciplines. The inclusion of references in scholarly writing is pivotal. It amplifies the scope and depth of the author's perspectives, aligning them with the findings or results of the discussion, thereby necessitating the use of comprehensive references (Suherli, 2007).

Crafting scientific content forms an integral segment of the educational journey. The caliber of scientific writing hinges fundamentally on the student's writing prowess. Factors such as unity, coherence, grammatical accuracy, and systematic organization significantly influence the student's ability to produce scientific content (Fajri, 2016).

4 Conclusion

In alignment with their respective fields of study, students bear the responsibility of crafting scientific content. The research conducted revealed distinct characteristics between exact science and social humanities students. Both groups have demonstrated adherence to the rules and regulations surrounding scholarly writing, albeit at non-optimal percentages. The characteristics scrutinized pertain to (a) idea development, (b) precision in problem discussion, (c) adherence to writing conventions, (d) utilization of citations, and (e) incorporation of references.

References

[1] Suyono, M. P., Amaliah, R., Dewi Ariani, S. S., & Luciandika, A. (2015). *Cerdas Menulis Karya Ilmiah*. Penerbit Gunung Samudera [Grup Penerbit PT. Book Mart Indonesia].

[2] Widyartono, D. (2014). Model Perangkat Pembelajaran Menyunting Makalah Ilmiah Berbasis Blended Learning. In *Conference: Seminar Tahunan Linguistik Tingkat Internasional: Keragaman Budaya dalam Bingkai Keragaman Bahasa*.

[3] Suntoro, S., & Setyaningsih, N. H. (2022). Pemetaan Bibliometrik Dengan Vosviewer Terhadap Perkembangan Penelitian Bidang Menulis Karya Ilmiah. *Pustakaloka*, *14*(1), 53-70.

[4] Bowker, Natilene. (2007). *Academic Writing: A Guide to Tertiary Level Writing*. Massey.

[5] Sumarwati. (2013). *Menulis Karya Ilmiah dalam Bahasa Indonesia*. Surakarta: UNS Press.

[6] Guo, Jihong. (2022). Discovering Researcher Identity through Action Research – A Transformative Journey across Two Cultures. *Doctoral thesis*, York St John University.

[7] Blaschke, Gabriele Weber. (2015). *How to Write a Scientific Paper*. Cambridge University Press.

[8] Lindsay, David. (2011). *Scientific Writing: Thinking in Words*. Australia: CSIRO Publishing.

[9] Oshima, Alice dan Ann Hogue. (2007). *Introduction to Academic Writing*. United States of America.

[10] Ince, S., Hoadley, C., dan Kirschner, P.A. (2020). Research Workflow Skills for Education Doctoral Students and Postdoc: A Qualitative Study. *Journal of Academic Librarianship*, *46*(5).

[11] Rahardi, K. (2009). *Bahasa Indonesia untuk Perguruan Tinggi*. Jakarta: Erlangga.

[12] Kotz, D., Cals, J. W. L., Tugwell, P., & Knottnerus, J. A. (2013). Introducing a New Series on Effective Writing and Publishing of Scientific Papers. *Journal of Clinical Epidemiology*, *66*(4), 359–360. https://doi.org/10.1016/j.jclinepi.2013.01.001.

[13] Alkhuzaee, F. S., Al-Mehmadi, A. A., Al-Sehly, A. A., Nahari, M. H., Al-Muwallad, M. A., & Ali, M. (2019). Identifying the Facilitators and Barriersfor Scientific Writing Among Pharmacy Students in College of Pharmacy, Umm Al-Qura University - A qualitative

study. *Currents in Pharmacy Teaching & Learning*, *11*(12), 1265–1273. https://doi.org/10.1016/j.cptl.2019.09.004.

[14] Persadha, D. A. K. (2016). Studi Kompetensi Kemampuan Menulis di Kalangan Mahasiswa. *Muaddib: Studi Kependidikan dan Keislaman*, *6*(1), 1-20.

[15] Yanti, N., Suhartono, S., & Hiasa, F. (2018). Keterampilan Menulis Akademik Mahasiswa S-1 Program Studi Pendidikan Bahasa dan Sastra Indonesia FKIP Universitas Bengkulu. *Silampari Bisa: Jurnal Penelitian Pendidikan Bahasa Indonesia, Daerah, Dan Asing*, *1*(1), 1-16. https://doi.org/https://doi.org/10.31540/silamparibisa.v1i1.4.

[16] Miles, M. B. dan A. M. H. (1992). *Analisis Data Kualitatif. Terjemahan Tjetjep Rohendi Rohidi*. Jakarta: Universitas Indonesia.

[17] Yu, S., & Liu, C. (2021). Improving Student Feedback Literacy in Academic Writing: An Evidence-Based Framework. *Assessing Writing*, *48*(December 2020), 100525. https://doi.org/10.1016/j.asw.2021.100525.

[18] Suherli. (2007). *Menulis Karangan Ilmiah*. Depok: Arya Duta.

[19] Fajri, N. (2016) Assessing Unity, Coherence and Word Usage in Students' Writing University of Syiah Kuala, Banda Aceh. *English Education Journal (EEJ)*, 7*(*1), 102-116.

[20] Darmuki, Agus, Ahmad Hariyadi, dan Nur Alfin Hidayati. (2021). Peningkatan Kemampuan Menulus Karya Ilmiah Menggunakan Media Faststone di Masa Pandemi Civid-19. Jurnal Educatio. 7 (2): 389—397