

# AN ANALYSIS OF STUDENTS' UNDERSTANDING IN REVIEWING ARTICLES: CASE STUDIES AND THEIR PERSPECTIVE

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## Abstract

Literature review is the process of collecting, analyzing, and synthesizing information from various sources that are relevant to a particular research topic. These sources can be scientific journals, books, articles, research reports, or other credible sources. In college, the task of evaluating literature is very common. Students are often asked to conduct literature reviews as part of their coursework. This study aims to find out how students understand and carry out literature review tasks. For this reason, the researcher directly observed 4th semester students of Chemistry Education UNM who were working on literature review assignments. The researcher collected data from their assignments and also the results of the surveys they filled out. By analyzing this data, the researcher wanted to find out to what extent students understood this assignment, what difficulties they faced, and what they thought about the literature review assignment. The results of the study showed that students generally showed a very good category in using language according to writing rules. Meanwhile, for the level of understanding of the topic, completeness of literary sources, and analysis of literary content, they had shown a good category. However, in writing references to the results of the literature review, students only showed a sufficient category. The survey showed that the literature review assignment helped most students in analyzing information and finding relevant sources. However, many students have difficulty in grouping information, making in-depth conclusions, analyzing information, reading many articles, and understanding unfamiliar language. These difficulties make it difficult for test takers to focus on completing literature reviews. This indicates that lecturers need to improve the way they give literature review assignments and apply more effective teaching strategies to help students understand how to review literature well, so that students are more trained in critical and systematic thinking.

**Keywords:** Literature review; student perception; literacy; critical thinking; chemistry assignment

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## INTRODUCTION

Students' ability to critically review academic articles has attracted significant attention in educational research in recent years. Article reviewing is not simply an academic exercise, but rather an essential skill that fosters critical thinking, analytical skills, and a deep understanding of the subject matter. This is particularly relevant in higher education, where students are expected to analyze complex texts and synthesize information from multiple sources. The literature suggests that students often struggle with this task, underscoring the need for targeted pedagogical strategies to improve their reviewing skills [1].

Research has shown that students' perspectives play a significant role in their learning experiences, particularly when it comes to understanding and reviewing academic literature. For example, students' engagement in class discussions and active participation significantly impact their understanding of the material [2]. However, this

research tends to focus more on the end result of article reviewing rather than the cognitive processes involved. This leaves a gap in our understanding of how students actually process information, make connections, and construct understanding when conducting literature reviews.

Furthermore, the integration of case-based learning has been identified as an effective method for teaching evidence-based practice, enabling students to apply theoretical knowledge in practical contexts [3]. This approach not only enhances their understanding but also equips them with the skills necessary to critically evaluate academic articles. Furthermore, feedback mechanisms in educational settings are essential to developing students' ability to effectively review articles. Research shows that constructive feedback has a significant impact on student learning outcomes, especially in higher education contexts [4]. By providing clear and actionable feedback, educators can help students understand the complexities of academic

writing and improve their critical analysis skills. This is supported by findings that emphasize the importance of aligning assessment methods with learning objectives to enhance students' understanding of the review process. The role of technology in facilitating students' understanding of article review cannot be overstated. Digital tools and online resources have transformed the way students' access and interact with academic literature. For example, platforms that enable collaborative review and discussion can enhance students' critical thinking and analytical skills [5]. Furthermore, virtual labs and online databases have been shown to support students in their inquiry process, enabling them to develop a more nuanced understanding of the material [6]. While technology plays a vital role in information retrieval and management, there is still a gap in our understanding of how students effectively use technology for literature review.

The diversity of student experiences in higher education influences how the article review process is taught and understood. Different backgrounds and learning styles influence students' approaches to reviewing literature, necessitating a more inclusive and adaptive pedagogical framework [7]. By recognizing and addressing these diverse perspectives, educators can create more supportive learning environments that foster critical engagement with academic texts. In conclusion, analysing students' understanding of article reviewing is a complex issue that requires a comprehensive approach. By examining the interaction of pedagogical strategies, feedback mechanisms, technological tools, and the diversity of student experiences, this study aims to provide valuable insights into improving students' article reviewing skills. These findings will contribute to the discourse on effective teaching practices in higher education, which aim to equip students with the competencies to navigate the complexities of academic literature.

This study aims to explore students' understandings and perspectives in reviewing academic articles, a critical skill that is essential for academic success and professional development. The ability to critically analyse and synthesize information from multiple sources is increasingly recognized as an essential component of higher education, particularly in fostering critical thinking and analytical skills among students [8][9]. Previous research has shown that students often face challenges in understanding the complexity of academic literature, which hinders their ability to engage effectively with scholarly work [10]. This study seeks to address these challenges by examining pedagogical strategies that can improve students' article reviewing skills, thereby contributing to their overall academic performance and critical thinking abilities [11].

The strength of this study lies in its comprehensive approach, which integrates various factors that influence students' article review process, including feedback

mechanisms, collaborative learning environments, and the impact of diverse student backgrounds [12][13]. Using a qualitative methodology, this study will gather in-depth insights into students' experiences and perceptions, aiming to provide actionable recommendations.

## METHOD

The research method used is a qualitative approach with a case study design. The subjects of this study were all fourth semester students who took the Learning & Teaching course in the UNM chemistry education study program consisting of 20 sample groups. The sample was taken purposively, namely students who were given the task of completing a literature review assignment in groups with various topics in one semester. The data obtained were analyzed descriptively to identify the level of student understanding, obstacles faced, and their perspectives in reviewing literature.

There are 3 steps taken in analyzing and collecting data, namely through case study analysis by assessing the results of student literature reviews during assignment presentations according to the criteria in Table 1. Next, namely, analysis of student perspectives through questionnaires given to collect student experiences and perceptions of article review assignments. The last step is to integrate the results of case studies and student perspectives to get a more complete picture of student understanding in reviewing articles.

The results of the analysis and data collection are then interpreted to identify factors that influence student understanding in reviewing articles, challenges faced by students in reviewing articles so that recommendations are obtained to improve student understanding in reviewing articles. The criteria and categories for assessing literature reviews are analyzed in the following table:

**Table 1.** Criteria rubric and literature review assessment category

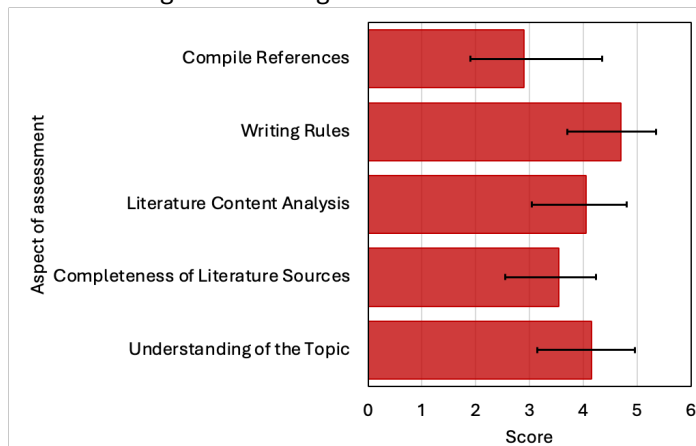
Criteria	Description	Assessment Category
Understanding of the Topic	Demonstrate a deep understanding of the topic (learning & teaching).	<ul style="list-style-type: none"> <li>• Excellent (5)</li> <li>• Good (4)</li> <li>• Sufficient (3)</li> <li>• Less (2)</li> <li>• Insufficient (1)</li> </ul>
Completeness of Literature Sources	The literature sources used are relevant (books & articles), up-to-date (last 10 years), and quite a lot (5-10 articles).	
Literature Content Analysis	Analyze the main ideas of the literature critically and objectively.	
Writing Rules	Use clear, straightforward	

Compile References	language, and in accordance with scientific writing rules Use the reference writing format according to the guide (APA Style).
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## RESULTS AND DISCUSSION

### General Description of the Results of Literature Review Analysis by Students

The general description of the results of the literature review analysis by students reflects their understanding of research methodology, the quality of the literature reviewed, and the relevance and contribution of the research to the wider field. In recent years, observing how students conduct literature reviews has become important to determine their academic abilities, especially in the context of methodology and integration of findings from various sources. The following are the results of the literature review analysis by chemistry education students at Makassar State University in the learning and teaching course:



**Figure 1.** Literature Review Assignment Analysis Results

This study found that the level of students' understanding in reviewing literature varied greatly in each criterion for each group. The writing rules criteria showed a very good assessment category. Students succeeded in communicating the results of their literature review using clear, straightforward language, and in accordance with scientific writing rules so that readers could easily understand the intended meaning. In this criterion, the ability to develop ideas is the main skill that students must have. Developing ideas is not easy because it requires high research reading skills to change the initial concept into writing that is easy for readers to understand [14]. The use of appropriate language also shows the level of professionalism of students in presenting the results of the literature review. The majority of student groups showed good assessments in the criteria for understanding the topic and the completeness of literature sources. Students were able to demonstrate a deep understanding of the topics

studied by each group such as technology and learning media, independent curriculum, to inclusive learning. The sources used in the literature review assignment were carefully selected by considering relevance, currency, and sufficient quantity. The books and scientific articles referred to include publications within the last 10 years. The process of searching and identifying credible literature sources is an absolute prerequisite in conducting a scientific review. Therefore, digital literacy competency has become a must for students [15].

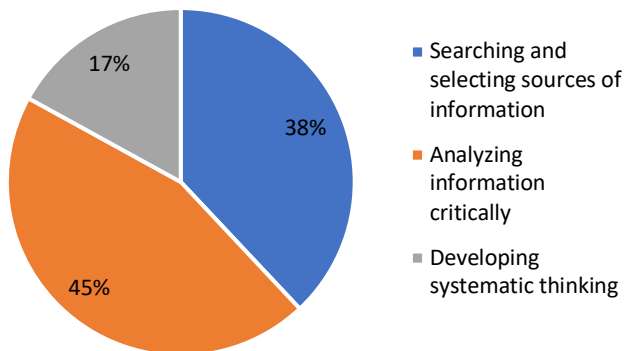
In the content analysis criteria, students have demonstrated good skills in analyzing literature critically and objectively. They explore the main ideas from various reading sources, so that they are able to build a good understanding of the topic being studied. This is in line with the theory of critical thinking which emphasizes the individual's ability to analyze, evaluate, and formulate arguments well [16]. A systematic and objective approach allows students to identify gaps in knowledge that still need further research, thus providing a valuable contribution to the development of science in this field. One of the main findings of the reviewed studies is the importance of the quality of the sources used in the literature review. It is not only the amount of literature reviewed, but the quality of the literature that influences the final conclusion [17]. This is in accordance with the critical understanding of students that evaluating the quality of previous research is an important step in compiling a good systematic review.

Different things can be seen in the reference criteria, especially in the use of the reference writing format which must be in accordance with the established guidelines, namely APA style. This is a concern because almost all groups of students were only able to obtain sufficient assessments on this criterion. This situation shows that there is still a gap in the understanding and application of the correct reference writing format, which is one of the inhibiting factors in achieving maximum scores on this aspect. Efforts to overcome this challenge can be done through comprehensive guidance, intensive training, and specific adaptations to the discipline can significantly improve students' ability to compile references [18]. Students can undergo a more comprehensive literature review process in a more transparent and standardized manner if they apply the criteria according to the lecturer's instructions [19]. This makes students not only produce better quality reviews, but also contribute to the formation of more diverse knowledge in their fields of study.

### Students' perspectives on literature review assignments

Students' perspectives on literature review assignments reflect the diverse challenges and experiences of critically analyzing scholarly works. Studies of students' experiences of writing literature reviews have shown difficulties in understanding appropriate methodologies and

integrating information from diverse sources into their writing. Liu's research highlights how students' lack of experience in searching for English-language academic literature can hinder their ability to write effective reviews [20]. This highlights the importance of practice-based learning that can help students develop these skills. In this study, 73 students from 20 groups were asked to provide their perspectives on the benefits of a literature review assignment as shown in the figure below:



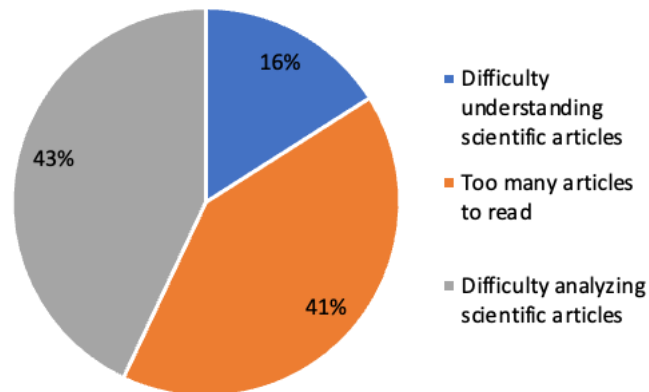
**Figure 2.** Perception of the benefits of literature review for students

The diagram above shows that of all students surveyed, 45% stated that the literature review assignment was a very effective tool in improving their ability to analyze information critically. This shows that most students recognize the importance of this assignment in developing higher-order thinking skills. Students who view scientific articles as a means to develop critical thinking skills demonstrate an understanding of the important role of scientific articles in their intellectual development.

Meanwhile, 38% of students stated that the literature review assignment helped them improve their ability to search for and select sources of information. Literature review is an important component of the research process, because it allows researchers to develop a comprehensive understanding of the existing knowledge on a particular topic. Although the percentage is lower than that of students who feel helped in critical analysis skills, this figure still shows a significant contribution from the assignment in honing basic pre-research skills. This finding indicates that the literature review assignment has great potential as a strong foundation for students in preparing and conducting future research.

Only 17% of students stated that the literature review assignment helped them improve their ability to develop systematic thinking. This figure indicates that most students still have difficulty in organizing information and constructing arguments logically. Students often struggle to effectively synthesize and integrate findings from multiple sources, leading to a tendency to simply summarize existing research rather than engage in deeper thinking [21]. It is not uncommon for students to feel overwhelmed by literature

review assignments. A study by Walter and Stouck illustrates that freshmen find these assignments to be a daunting academic challenge, as they require skills they have not yet fully mastered [22]. To address this issue, improvements are needed in the design of literature review assignments to focus more on developing students' systematic thinking skills.



**Figure 3.** Perceptions causing students' difficulties in reviewing literature

The diagram above shows that 43% of students stated that the biggest reason they had difficulty reviewing literature was because they found it difficult to analyze articles. This indicates a significant gap between students' analytical skills and academic demands that require them to be able to evaluate and integrate various sources of information. This gap can be influenced by various factors, including the lack of adequate training in critical analysis skills during the learning process, as well as the lack of practical experience in conducting comprehensive literature reviews. In this context, it is important for educational institutions to provide better support in the form of courses or workshops specifically designed to improve students' analytical skills.

The survey results showed that 41% of students said that one of the main reasons they had difficulty reviewing literature was because they felt they had to read too many articles, which often made them feel overwhelmed. The heavy workload, which includes the obligation to read and analyze 5-10 scientific articles, can make it difficult for students to focus on one particular topic. This inability to filter relevant and quality articles can be a significant obstacle to the in-depth review process, as students tend to feel trapped in a mass of information without a clear direction. In this context, it is important for lecturers to play an active role in helping students overcome this challenge. One solution that can be implemented is to provide training on effective reading strategies. This training can include techniques such as skimming and scanning, which can help students to quickly identify important information in articles, as well as how to organize systematic notes.

In addition, lecturers can also provide guidance on how to select relevant articles based on certain criteria, such as topic relevance, journal quality, and research methodology. In this way, students will not only be better prepared to face the burden of existing literature, but will also be able to conduct more in-depth and critical reviews, which will ultimately improve the quality of their research. Through a proactive approach and appropriate support, it is hoped that students can overcome these difficulties and improve their ability to conduct literature reviews effectively, so that they can contribute better to the academic field.

Meanwhile, 16% of respondents stated that one of the main reasons they had difficulty reviewing literature was because they found it difficult to understand scientific articles that were often written in complex language and contained concepts that might be unfamiliar to them. This shows that the complexity of the language and concepts used in scientific articles is often a barrier for students, especially for those who are new to the world of research or who come from different educational backgrounds. Most scientific articles are aimed at an audience that already has a deep understanding of a particular topic, so the use of certain terms can be alienating and confusing for lay readers. In addition, the often rigid and formal structure of scientific articles can also add to the difficulty in understanding the essence of the research presented.

Finally, it is important to note that students' experiences vary depending on their discipline and educational context. Mactavish et al. suggest that a clear structure in organizing a literature review can help students, especially in technical fields, to more easily understand and carry out the task [23]. With a good structure, they can focus more on the important aspects of the literature they are reviewing, resulting in a better quality review. In this context, it is important for educational institutions to provide adequate training and resources for students so that they can develop the academic literacy skills needed to navigate and understand scientific literature. With the right guidance, it is hoped that students will be more confident in reviewing and analyzing scientific articles, so that they can ultimately contribute more effectively to the development of science in their respective fields.

## CONCLUSION

This study shows that students are generally able to conduct literature reviews well, especially in terms of understanding the topic, completeness of sources, and critical analysis skills. Students successfully demonstrated a deep understanding of the topic being studied and were able to explore the main ideas from various reading sources. However, this study also identified several challenges faced by students in conducting literature reviews. One of the main challenges is in the use of reference writing formats.

Many students still have difficulty in implementing the correct reference writing format. The students' perspectives on literature review assignments show that most students recognize the importance of this assignment in developing critical thinking skills and improving understanding of a topic. However, they also find it difficult to find relevant literature sources, develop a coherent framework of thought, and understand literature in a complex manner. In addition, difficulties in analyzing information, the large number of articles to be read, and difficulties in understanding unfamiliar language make students overwhelmed and make it difficult to focus on completing literature reviews.

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