

# Analysis of the Relationship between Culture-Based Learning Experience and Students' Critical Thinking Skills Based on Gender

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**Abstract-**This study examined the connection between culture-based learning experiences and students' critical thinking based on gender. This survey study utilized purposive random sampling in selecting 60 students (40 females and 20 males) as the samples. A questionnaire was employed to collect the culture-based learning experience data, which were then analyzed using regression analysis with a significance level of 0.05. Based on the findings, it can be concluded that 1) students' critical thinking based on gender is less developed than those based on culture, and 2) there is a significant relationship between culture-based learning experiences and students' critical thinking skills based on gender. The results of the interviews supported the survey's findings that implementing culture-based learning could enhance students' critical thinking by improving both the planning and implementation of learning activities.

**Index Terms-** Culture-based learning experiences, critical thinking skills, gender differences

## INTRODUCTION

Higher education's objectives are closely related to today's 21st-century learning. Developing 21st-century skills that become a reference for learning includes problem-solving, critical thinking, and communication and collaboration skills (Tanti et al., 2020; Wahyudiati & Ningrat, 2019). As one of the characteristics of learning success in higher institutions, critical thinking skills are represented in the learning process and learning experiences. The learning process greatly determines the achievement of learning objectives focusing on understanding concepts and developing students' soft skills. Referring to the findings of recent studies showed that learning activities still frequently prioritize conceptual comprehension above the growth of students' critical thinking skills or other soft skills (Isnaeni et al., 2021; Tanti et al., 2020; van Peppen et al., 2021; Wahyudiati & Ningrat, 2019; Wahyudiati & Qurniati, 2022). As a result, one of the critical elements that must be addressed in learning activities at tertiary institutions is the development of student's critical thinking skills.

Learning activities in tertiary institutions decide how much of students learning potential can be developed to be professional and competent in their discipline (Fadli & Irwanto, 2020; Sumardi et al., 2020). Applying learning methods or models that refer to problem-solving activities is believed to train students' skills to think more critically (Irwanto et al., 2018; Valdez & Bungihan, 2019; Wahyudiati et al., 2020a). Integrating the lecture with the students' real-world experiences or local wisdom could help

students comprehend concepts and improve their soft skills. A culture-based learning approach could enhance their critical thinking and problem-solving skills and make it easier for students to understand concepts to achieve better learning outcomes (Sutrisno et al., 2020; Wahyudiati & Ningrat, 2019; Yuliana et al., 2021). Therefore, because they participate actively and independently in constructing knowledge and skills in their learning, that would help them improve their critical thinking skills.

Critical thinking skills is defined as a person's ability to analyze and solve problems through the scientific method. Students' critical thinking skills can be developed through learning activities that apply the scientific method starting from problem analysis, logical identification of problems, and being able to solve problems systematically (Iyamuremye et al., 2022; Rahmawati, 2018; Wahyudiati & Qurniati, 2022). In addition, the ability to think critically can be stimulated through learning activities that are oriented towards discussion and scientific investigations and presenting research results to solve problems, as well to prove hypotheses by utilizing the local potential of students (Iyamuremye et al., 2022; Rahmawati, 2018; Sutrisno et al., 2020; Wahyudiati et al., 2020a; Wahyudiati & Qurniati, 2022; Yuliana et al., 2021). Thus, there is a relevance between culture-based learning experiences and students' critical thinking skills as an indicator of achieving learning goals in tertiary institutions.

The application of culture-based learning is an alternative that can be applied to improve students' critical thinking skills. However, previous research revealed that learning activities or processes in tertiary institutions focus more on achieving cognitive learning outcomes than students' critical thinking skills (Abonyi et al., 2014; Fadli, 2019; Fadli & Zaki, 2014). In addition, implementing a culture-based learning approach in tertiary institutions still tends to be limited, which leads to less exciting and significant learning. Moreover, previous research results found a relevance between learning experiences and critical thinking skills based on gender (Cheung, 2009; Wahyudiati et al., 2019, 2020b). Therefore, it is essential to conduct research in tertiary institutions to analyze the relationship between culture-based learning experiences and students' critical thinking skills from a gender perspective.

## I. METHOD

This study employed survey research using a cross-sectional survey design and a quantitative technique (Creswell, 2000). A cross-sectional survey design aims to examine the significant relationship between two or more variables in characterizing

natural field settings and scenarios. Using purposive random sampling, 60 students were selected as the samples of the study in the department of Islamic Education at Mataram State Islamic University, including 40 female and 15 male students.

The data were collected through a questionnaire and supported by interview data to strengthen the results. The instrument for measuring critical thinking skills adopted Oliver Hoyo's rubric (2003) with 4 indicators, namely; (1) analytical skills, (2) attitudes towards scientific inquiry, (3) application of

## II. FINDINGS & DISCUSSIONS

Based on the research objective: to analyze the relationship between culture-based learning experiences and students' critical thinking skills based on gender, the average score and standard deviation were first determined. Determining the average score aimed to describe students' level of critical thinking skills and cultural-based learning experiences based on gender. The data analysis showed that students' culture-based learning experience was higher, with a mean value of 88.50. The average value of students' critical thinking skills was 80.75, as shown in Table 1.

**Table 1. The mean value of culture-based learning experiences and students' critical thinking skills based on gender**

Aspects measured	N	Mean	SD
culture-based learning experience	60	88.50	4.88
critical thinking skills	60	80.75	4.23

Furthermore, the regression test results showed a significant relationship between culture-based learning experiences and students' critical thinking skills based on gender with a p-value less than 0.05 (Table 2), which means that the null hypothesis is rejected and  $H_a$  is accepted.

**Table 2. Regression Test Results of Culture-Based Learning Experience and Critical Thinking Skills of Students Based on Gender**

Test	df	F	Sig
Regression	2	.754	.000

The results portray that the average value of students' culture-based learning experiences based on gender (88.50) tends to be higher than students' critical thinking skills (80.75). These confirm that the critical thinking skills of male and female students have significant differences (Hayati & Berlianti, 2020; Wahyudiati, 2022). The critical thinking skills measured in this study consist of several indicators, including analytical skills, attitudes towards scientific investigations, application of scientific attitudes, and learning experiences. The mean value of students' critical thinking skills was 80.75, indicating that the ability to analyze, scientific investigation abilities, and learning experiences in tertiary institutions positively impact the growth of students' critical thinking skills based on gender. There is a significant impact because the lecturer develops learning activities that refer to scientific investigation and are based on scientific methods. This result is supported by previous research, which proved that

scientific attitudes, and (5) learning experiences. The researcher self-developed the culture-based learning experience instrument used in this study. First, it tested the validity and reliability of the instrument by obtaining a Cronbach's alpha coefficient value of  $\alpha = .88 > .70$ , indicating that it met the reliability requirements (Hair et al., 2006). In analyzing the data, a regression test was performed to ascertain the connection between students' critical thinking and culture-based learning experience.

activating students in learning activities could develop critical thinking skills through applying a learning model that is oriented towards a contextual approach combined with scientific methods (Suardana et al., 2018; Sumarni & Kadarwati, 2020; Yusuf & Adeoye, 2012)

The development of students' critical thinking skills, including analytical skills, attitudes towards scientific investigations, application of scientific attitudes, and learning experiences, are influenced by applying a contextual approach and students' learning experiences. Problem-solving-based learning experiences allow students to actively formulate and solve problems to create more significant and enjoyable learning (Fadli, 2022; Turpin & Cage, 2004; Wahyudiati, 2021). In addition, the previous research also pointed the critical thinking of female students tends to be higher than their male counterparts because female students have more positive interests, determination, curiosity, and chemistry attitudes than male students (Villafañe & Lewis, 2016). The following interview results support the research findings:

Ha (lecturer) uttered, "male students have lower motivation in performing scientific investigation activities and completing assignments compared to female students, which makes male students' critical thinking skills tend to be lower."

La (female student) said, "I am very motivated in completing scientific investigation activities because I could train my skill to analyze and solve problems by applying the scientific method."

An (male student) further stated, "Learning activities that allow for analytical activities to train logical thinking skills are more challenging for me rather than carrying out scientific investigation activities."

Other research findings also proved a significant relationship between culture-based learning experiences and students' critical thinking skills based on gender. Implementing culture-based learning in learning activities can be reflected in integrating lectures with life and local wisdom. Likewise, previous research findings showed that integrating culture into learning will help students relate the subject matter to daily life experiences to be more motivated to develop soft skills such as problem-solving skills and critical thinking skills (Patonah et al., 2021; Rahmawati et al., 2017; Wahyudiati, 2022; Wahyudiati & Ningrat, 2019). A significant relationship exists between culture-based learning experiences and students' critical thinking skills. Integrating materials with local wisdom could involve students actively constructing knowledge and developing problem-solving skills, analytical abilities, and proving hypotheses. Therefore, it could improve the students' critical thinking skills. Another research also discovered that a learning environment based on a contextual approach could develop more exciting and enjoyable learning

since it is relevant to students' daily experiences that it positively impacts learning outcomes (Anggraeni & Pentury, 2022; Astawa et al., 2022; Wahyudiati et al., 2020b).

Culture-based learning experiences emphasizing the development of students' critical thinking skills could also affect learning outcomes. Critical thinking skills and culture-based learning experiences could increase student interest in actively constructing their knowledge and learning skills to improve student academic achievement (Ladson-Billings, 1995; Valdez & Bungihan, 2019; Yuliana et al., 2021). Thus, a learning approach that prioritizes scientific investigation activities integrated with local wisdom is crucial to establish a more significant learning experience. Learning experiences that make students more motivated to learn actively and independently are one of the factors that can influence the development of students' critical thinking skills. Therefore, lecturers are expected to be able to design and implement innovative approaches or learning models based on local culture.

### III. CONCLUSION

Based on the study's results, it can be concluded: 1) students' critical thinking skills based on gender are lower than culture-based learning experiences, and 2) there is a significant relationship between culture-based learning experiences and students' critical thinking skills based on gender. The findings from the survey were reinforced by interview results which showed that implementing culture-based learning, which can improve students' critical thinking skills, still needs to be developed in planning and implementing activities in the learning process. Thus, lecturers are expected to design and implement more innovative approaches or learning models based on local culture to develop students' soft skills.

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