Students Gender Perspective and Scientific Attitudes in Higher Education

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Abstract- This study aims to describe students' gender perspective (GP) and scientific attitudes (SA) based on gender. The research sample was 80 students, consisting of 20 males and 60 females. This survey study adopted a quantitative approach using a cross-sectional survey design. The data were analyzed through the MANOVA test. The results revealed no difference in gender perspective (GP) and scientific attitudes (SA) based on gender. The interviews strengthened the quantitative data results, which showed that gender perspective (GP) and scientific attitudes (SA) were based on gender because gender-responsive learning has started being implemented in higher education.

Index Terms- gender perspective (GP), scientific attitudes (SA), higher education students

I. INTRODUCTION

The national policy on education stated that educational opportunities for citizens in each education unit do not differentiate gender, race, ethnicity, religion, social position, or economic level regarding the specificity of each education unit (Article 7, Law No. 20 2003). Based on this, education is obliged to provide equal opportunities for each individual and provide the same services to students to minimize the occurrence of inequality at the primary, secondary and tertiary education levels. Integrating the practice of gender inclusion into the curriculum and inserting it into courses that include social sciences, humanities, science, and religion are the ways to its realization (Marhumah, 2010; Baso, 2006; Adriana, 2009). Thus, it is crucial to apply a gender-responsive learning process to optimize the potential and roles of students without gender bias. However, various research studies proved gender-biased learning in higher education is still there, and that leads to poor quality of learning success, such as attitudes, knowledge, and skills. (Mufidah, 2010).

The gap in obtaining equal and consistent opportunities to do the functions and roles between men and women in the learning process shows the gender disparity in implementing national education. It is indicated by the tendency for women to get smaller educational opportunities than men (Muhammad, 201). Ironically, gender inequality is reflected in the textbook content that shows the women's position in the community is filled with gender-biased values (Adriana, 2009; Marhumah, 2010; Grown, Caren, & Valodia, 2010; Mufidah, 2010). The occurrence of the gender gap is caused by four main factors (Adriana, 2009), namely; (1) access; (2) control; 3) participation, and (4) benefits. These four factors are also the main problems in higher education that needs to be solved through a study on the implementation of gender-responsive learning at the tertiary level.

The success of learning in higher education is not only focused on implementing learning activities that do not gender-biased. It is also essential to do active and innovative learning approaches or models to develop students' scientific attitudes (SA). Through the development of learning tools and the application of constructivism-based learning approaches and models, students could develop problem-solving skills and scientific attitudes (Wahyudiati, 2022). Yet, previous research revealed that students' are low in their affective, cognitive, and psychomotor aspects due to the lecturers' poor skills in developing and applying a constructivism-based learning approach (Fadli & Irwanto, 2020; Sutrisno, Wahyudiati & Louise, 2020; Singh, 2016). Moreover, current learning practices prioritize the development of students' cognitive learning outcomes; meanwhile, the development of scientific attitudes (SA) is neglected (Sumardi & Wahyudiati, 2021; Zeidan and Jayosi, 2014).

Referring to the urgency of the research, the findings of this study are expected to describe and map the factual conditions of the students' gender perspective (GP) or gender-responsive learning and scientific attitudes (SA), which hasn't been explored much, especially at the tertiary level. In addition, various research discovered that there is a relationship between constructivism-based learning experiences on the development of students' hard skills and soft skills to provide the students with the experience to compete in facing the era of the industrial revolution 4.0 (Wahyudiati & Fitriani, 2021, Wahyudiati et al. al., 2020; Fadli & Masnun, 2020; Sumardi & Wahyudiati, 2021). Therefore, this research seeks to draw the factual conditions of students' gender perspective (GP) or gender-responsive learning and scientific attitudes (SA) at the tertiary level in the view of gender.

II. METHOD

This quantitative survey study employed a cross-sectional survey design. A cross-sectional survey design measures the relationship between two or more variables to measure factual conditions (Creswell, 2000). The research sample was determined through a cluster random sampling technique at the State Islamic University of Mataram. The total sample was 80 students (60 female and 20 male). A gender-responsive learning questionnaire and a scientific attitude questionnaire were distributed to collect the quantitative data. Additionally, it performed focus group interviews (FGD) to reassure the quantitative data. The data collected from gender-responsive learning and scientific attitude questionnaires were analyzed using the Manova test. The Manova

prerequisite test was supported by the results of Levene's test with a p-value > 0.05 (the data is homogeneous), and it met the assumptions of the Manova test (Bernard, 2000).

III. FINDINGS & DISCUSSIONS

After fulfilling the prerequisite test, the Manova test was used to analyze the quantitative data. The data were normally distributed with a p-value > 0.05, and the multicollinearity test was obtained with a VIF value = 0.45. It means there was no multicollinearity and the scatter plot matrix for the linearity test showed a positive correlation for each pair of variables. The results of Levene's GP and SA test analysis were p value > 0.05 (Table 1), meaning that there was a difference in variance or the data were homogeneous, so the Manova prerequisite test was fulfilled.

Table 1. The results of Levene's test (Homogeneity test).

	F	df1	df2	Sig.
Gender perspective (GP)	.512	4	284	.747
Scientific attitudes SA)	.503	4	284	.756
Overall	.595	4	284	.737

Next, it proceeded with hypothesis testing. The results of the Manova test showed no difference in gender-responsive learning and students' scientific attitudes in terms of gender with p>0.05 (Table 2), meaning that the null hypothesis is accepted and the alternative hypothesis is rejected.

Table 2. The results of the Manova Test of GP and SA based on gender

Effect		Sig.
Gender	Pillai's Trace	.064
	Wilks' Lambda	.064
	Hotelling's Trace	.064
	Roy's Largest Root	.064

Research findings based on the MANOVA test showed no difference in gender-responsive learning and students' scientific attitudes regarding gender perspective. It confirmed that there is no difference in students' culture-based learning and the scientific attitude influenced by gender (Masnun & Fadli, 2022). The absence of gender-based differences is due to gender-responsive learning has been quite intensely implemented in higher education (Masnun & Fadli, 2022), as well as the development of student learning experiences that are integrated with students' daily lives (Wahyudiati, 2022). The following interview results support these results:

Aj (Lecturer) stated, "gender-responsive learning has been applied in classroom learning by involving male and female students to be actively involved in learning activities that their academic results are not much different."

Ja (Male) stated, "Learning experiences that refer to gender-responsive learning are often applied in the learning that we have the same opportunity to be involved in the discussion , perseverance, cooperation, responsibility, mutual respect, and sensitivity to the environment and interview. The data were analyzed using a difference t-test to determine differences in the students' scientific attitudes from a gender perspective.

and problem-solving activities which positively impacts my scientific attitude."

Furthermore, Ri (Female) revealed, "I am very motivated in completing the lecture assignments because we have equal opportunities between male and female students to participate during learning activities actively; it has a positive impact on my future career development."

Gender equality can be interpreted as the existence of equality and the provision of fair opportunities in rights and obligations, as well as responsibilities between men and women to participate in political, socio-cultural, legal, educational, economic, national defence and security. Moreover, men and women have the same rights and obligations to play an active role in national development. Indicators of gender equality are marked by the absence of discrimination and injustice between men and women in all life aspects. This means no absolute and standard roles or giving double burdens, subordination, and marginalization of both men and women. Various concrete steps that can be applied to formulate policies about gender equality in national education include three main aspects (Marhumah, 2010; Ghofur, 2008; Mufidah, 2010), including; (1) opening up more equitable educational opportunities at all levels of education by taking into account gender equality; (2) minimizing all forms of practice of gender inequality and disparity from all levels of education and (3) providing fair and widest opportunities for women to take part in all aspects of economic, political, social, cultural, educational fields, as well as in the formulation of development policies.

The results of other studies also showed there is no difference in scientific attitudes between male and female students' higher education learning. Constructivism-based learning improves students' scientific attitudes in higher education (Fadli & Zaki, 2022). In addition, the advantages of constructivism-based learning create an active and collaborative learning atmosphere that is integrated with students' daily experiences to enhance their scientific attitudes (Wahyudiati, 2020). These results are reinforced by the results of interviews as follows:

Ba (Lecturer) stated, "Scientific attitudes between male and female students tend to be evenly distributed because they are given equal opportunities to be actively involved in constructing knowledge and learning experiences."

Na (Male) stated, "I am very motivated to take courses based on constructivism so that it has a positive impact on improving my scientific attitude and problem-solving abilities."

Furthermore, Fi (Female) revealed, "In learning activities, it is emphasized to be actively involved during the learning process so that we have the experience to develop soft skills and have a significant effect on my scientific attitude."

Students' scientific attitudes and gender-responsive learning experiences are positively correlated with student learning outcomes. This factual condition is confirmed by different research results, which found that constructivism-based learning has a positive effect on increasing scientific attitudes and significantly impacts student academic achievement (Patonah et al., 2021; Wahyudiati, 2022). Therefore, developing scientific attitude skills and learning experiences emphasizing gender-

responsive learning is essential in learning activities from primary, secondary, and tertiary education levels. Furthermore, higher education institutions must facilitate educators to design and implement gender-responsive learning programs and refer to 21st-century skills to optimize the development of students' hard skills and soft skills to support their future career development.

IV. CONCLUSION

The current study presented no difference in students' gender perspective (GP) and scientific attitudes (SA) based on gender. The results of interviews strengthened the survey findings, which discovered that the gender perspective (GP) and scientific attitudes (SA) were based on gender because gender-responsive learning has already been implemented in higher education learning. As a follow-up, it is necessary to investigate how the strategy of developing gender-responsive and skill-based learning tools for the 21st century impacts male and female students' scientific attitudes. In addition, the findings of this study are valuable to bridge further research on how to improve soft and hard skills in gender-responsive learning practices.

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