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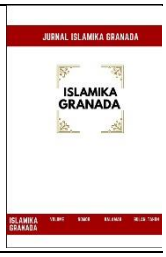

Perbedaan Kecerdasan Majemuk Berdasarkan Jenis Kelamin

Differences In Multiple Intelligences Based on Gender

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Abstrak

Tujuan penelitian ini untuk mengetahui perbedaan kecerdasan majemuk pada mahasiswa berdasarkan jenis kelamin. Penelitian merupakan penelitian kuantitatif komparasi, dengan populasi 495 mahasiswa dan taknik sampel total sampling. Teknik analisis data yang digunakan adalah teknik independent sample t-test. Berdasarkan hasil analisis data, didapatkan hasil bahwa terdapat perbedaan kecerdasan majemuk pada mahasiswa berdasarkan jenis kelamin dengan nilai statistic yang diperoleh sebesar 2.908 dan sig 0.004, artinya hipotesis dalam penelitian ini diterima, dengan asumsi kecerdasan majemuk mahasiswa perempuan lebih tinggi daripada kecerdasan majemuk mahasiswa laki-laki. Mahasiswa laki-laki lebih dominan pada kecerdasan logical-mathematical, kecerdasan intrapersonal dan kecerdasan bodily-kinesthetic, sedangkan mahasiswa perempuan lebih dominan pada kecerdasan linguistic-verbal, visual-spatial, kecerdasan interpersonal, naturalistic, existential, dan musical-rhythmic and harmony.

Kata Kunci: Kecerdasan Majemuk; Gender; T-test.

Abstract

This research will determine whether there are differences in multiple intelligences in students based on gender. This research is a comparative quantitative study with a population of 495 students and a total sampling technique. The data analysis technique used is the independent sample t-test technique. The data analysis revealed significant differences in multiple intelligence between male and female students. The statistical value was 2.908, with a p-value of 0.004. This confirms that the hypothesis in this study was accepted, indicating that female students exhibited higher levels of multiple intelligence than male students. Male students are more dominant in logical-mathematical intelligence, intrapersonal intelligence, and bodily-kinesthetic intelligence. Female students, on the other hand, are more dominant in linguistic-verbal, visual-spatial, interpersonal, naturalistic, existential, and musical-rhythmic and harmony intelligence.

Keywords: *Multiple Intelligence; Gender; T-test.*

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INTRODUCTION

Learning is a process of interaction between students and educators and learning resources in a learning environment. Learning is a process that helps students learn well. Intelligence is essential for the interaction process to run smoothly. When we talk about intelligence, the first thing that comes to mind is a person's cognitive ability. Intelligence is often defined as the ability to understand something and the ability to think. The smarter a person is, the faster they understand a problem and the quicker they take steps to resolve it. Intelligence can be seen from various approaches, including learning theory, neurobiological theory, psychometric theory, and developmental theory.

Gardner (2013) asserts that intelligence is comprised of three components: the ability to solve problems, generate new problems, and create something. Every child has nine intelligences, based on the concept of multiple intelligences. There are three types of intelligences: well-developed, adequate, and deficient. Children can develop it to an adequate level. These intelligences work together to make daily activities possible. Every child has various ways to show their intelligence (Ardiana, 2022).

According to Gardner's multiple intelligences view, intelligence is defined as the ability to solve problems that occur in real everyday life, generate new problems to be solved, and create something or offer services that will give rise to respect in one's culture (Musfiroh 2010).

Gardner introduces the theory of multiple intelligence, which states that intelligence includes eight intelligences, including: linguistic intelligence, mathematical intelligence, visual intelligence, musical intelligence, kinesthetic intelligence, interpersonal intelligence, intrapersonal intelligence, and naturalist intelligence (Jasmine, 2007).

The theory of multiple intelligence asserts that each student has different intelligences. Students will grasp and understand a lesson more easily if the material is delivered in accordance with their dominant intelligence (Nita, et. al, 2019). These differences can occur in male and female students.

Previous research revealed that gender differences were significant on two of the four factors. Additionally, gender roles were not significant on any factor. However, the study found a strong interaction on the logical-mathematical intelligence factor. Men with high masculinity had significantly higher estimates compared to feminine men. They concluded that they found “direct evidence for the idea that in male individuals, but not in female individuals, self-ratings of certain aspects of intelligence are strongly influenced by gender roles.” Both studies used student samples and only self-estimates, whereas this study aimed to systematically test the impact of participants' gender and gender roles on self-estimates of “multiple intelligences” as well as partners' intelligence estimates and perceptions of hypothetical gender stereotypes. And non-stereotypical characters (Furnham, Clark and Bailey, 1999; Rammstedt and Rammsayer, 2002).

It is clear from various intelligence studies that logical reasoning, mathematical and spatial intelligence are considered masculine domains, while "intelligence" or interpersonal and emotional skills are more often considered feminine domains (Beloff, 1992; Bennett, 2000; Rammstedt & Rammsayer, 2000). Bennett (2000) definitively

states that mathematical, spatial, and kinesthetic intelligence are considered masculine, while personal, musical, and verbal intelligence are considered feminine. Other research shows that gender differences favoring males in mathematical ability occur in all cultures as well as in children and early adolescents. This is despite the fact that there are no gender differences or that girls outperform boys (Hyde et al., 1990; Rammstedt & Ramsayer, 2001). Furthermore, girls consistently outperform boys in academic performance, making this the primary source of information about children's abilities in school.

The abundance of studies on multiple intelligences with students as participants demands a paradigm shift in research. Multiple intelligences can be used to study education in general, such as leadership in companies (Hoffman & Frost, 2006) or parenting patterns (Furnham, 2000). It can also be used to study civil society (Arnold, 2019) or anything connected to education and learning and teaching.

This research will determine whether there are differences in multiple intelligence in students based on gender. The hypothesis is that there are differences in multiple intelligence in students based on gender.

METHOD

This research employs a quantitative method with a correlation approach. Quantitative methods are research methods that collect data in the form of numbers and then analyze them using certain statistical calculations to answer the hypotheses that have been formulated (Jannah, 2018). A comparative approach was used to identify the differences in multiple intelligences in students based on gender. The study population was 495 psychology students. The sample size for this study was 495 students. The sampling technique used was total sampling.

The instrument used in this research is the Multiple Intelligence Scale from Gardner (2013). The scale model used is a Likert scale with four answer choices: very suitable, suitable, not suitable, and very not suitable. The data analysis method used is the comparative method, specifically the independent sample t-test analysis technique with a significance level of 0.05.

RESULTS AND DISCUSSION

The results of research conducted on 495 students yielded the following descriptive statistical test results:

Table 1. Demographics data

Gender	n
Men	245
Women	250

The table above shows that 245 male students and 250 female students participated in this research. Furthermore, we test assumptions using the normality test and homogeneity test. The normality test determines whether the data used by a researcher is normally distributed or not normally distributed. The results of the hypothesis testing are as follows:

Table 2. Normality test

		w	p
Logical-Mathematical	Men	0.976	< .001
	Women	0.978	< .001
Linguistic-Verbal	Men	0.980	0.001
	Women	0.978	< .001
Interpersonal	Men	0.963	< .001
	Women	0.984	0.007
Intrapersonal	Men	0.961	< .001
	Women	0.948	< .001
Visual-Spatial	Men	0.984	0.006
	Women	0.986	0.002
Bodily-Kinesthetic	Men	0.988	0.006
	Women	0.986	0.008
Musical-rhythmic and Harmonic	Men	0.984	0.006
	Women	0.972	< .001
Naturalistic	Men	0.979	0.001
	Women	0.983	0.005
Existential	Men	0.944	< .001
	Women	0.944	< .001

Data is normally distributed if its significance value is less than 0.05, while data that is not normally distributed has a significance value greater than 0.05. The table above clearly shows that all data from the variables are normally distributed, as indicated by their significance value. The significance value is less than 0.05.

The second assumption test is the homogeneity test. The homogeneity test is carried out using the Levene's test, which determines whether the sample is homogeneous based on the sig value. The significance level is 0.05. The following table shows the results of the Levene's test.

Table 3. Equality of variances

	F	df1	df2	p
Logical-Mathematical	0.032	1	493	0.857
Linguistic-Verbal	0.719	1	493	0.397
Interpersonal	0.483	1	493	0.488
Intrapersonal	3.114	1	493	0.178
Visual-Spatial	0.018	1	493	0.895
Bodily-Kinesthetic	2.288	1	493	0.131
Musical-rhythmic and Harmonic	4.424	1	493	0.136
Naturalistic	0.526	1	493	0.468
Existential	1.700	1	493	0.193

The table above clearly shows that the respondents in this study are homogeneous or equal. The Levene's test results clearly show that the sig value was > 0.05, starting from 0.131 to 0.895.

Hypothesis testing revealed a significant difference in compound intelligence between male and female students, with statistical values of 2.908 and a sig of 0.004. This study's hypothesis was thus accepted, with the assumption that female students exhibited higher compound intelligence. The results of this research are presented in the table below.

Table 4. T-test

	Test	Statistic	df	p
Logical-Mathematical	Student	2.543	493	0.001
	Mann-Whitney	34582.000		0.003
Linguistic-Verbal	Student	2.734	493	0.006
	Mann-Whitney	34650.500		0.001
Interpersonal	Student	3.590	493	< .001
	Mann-Whitney	36124.000		< .001
Intrapersonal	Student	2.471	493	0.008
	Mann-Whitney	31570.000		0.005
Visual-Spatial	Student	4.599	493	< .001
	Mann-Whitney	37788.500		< .001
Bodily-Kinesthetic	Student	3.257	493	0.001
	Mann-Whitney	36131.500		< .001
Musical-rhythmic and Harmonic	Student	1.047	493	0.006
	Mann-Whitney	33033.000		0.004
Naturalistic	Student	2.939	493	0.008
	Mann-Whitney	32815.000		0.007
Existential	Student	3.648	493	0.001
	Mann-Whitney	29436.500		0.002

A clear statistical difference exists between male and female students in terms of logical-mathematical intelligence, with a value of 2.543 and a significance level of 0.001. Furthermore, there is a clear difference between male and female students in the linguistic-verbal variable. The statistical value is 2.734, with a sig. 0.006. The interpersonal variable also shows significant differences between male and female students, with a statistical value of 3.590 and a p-value of less than 0.001. In the intrapersonal variable, there is a clear difference between male and female students, with a statistical value of 2.471 and a sig of 0.008.

There is a clear difference between male and female students in the visual-spatial variable. The statistical value is 4.599, and the significance level is less than 0.001. Furthermore, there is a clear difference between male and female students in the bodily-kinesthetic variable, with a statistical value of 3.257 and a sig of 0.001. In the musical-rhythmic and harmonic variables, there are clear differences between male and female students, with statistical values of 1.047 and sig 0.006. In the naturalistic variable, there is a clear difference between male and female students, with a statistical value of 2.939 and a sig of 0.008. Furthermore, there is a clear difference between male and female students in the existential variable, with a statistical value of 3.648 and a sig of 0.001.

Furthermore, the results of the descriptive analysis clearly show that women have higher multiple intelligence scores than men. The mean value for women is 245,102 with a standard deviation of 27,880, while the mean value for men is 240,102 with a standard deviation of 28,161. The logical-mathematical intelligence of male students is clearly higher than that of female students. The mean value for male students is 27,849 with a standard deviation of 4,021, while the mean value for female students is 26,928 with a standard deviation of 4,035. Female students also have higher linguistic-verbal intelligence, with a mean value of 28,380 and SD 3,977 compared to male students with

a mean value of 27,371 and SD 4,091. The following table presents the results of a descriptive test for multiple intelligences.

Tabel 5. Descriptive analysis

	Group	N	Mean	SD
Logical-Mathematical	Men	245	27.849	4.021
	Women	250	26.928	4.035
Linguistic-Verbal	Men	245	27.371	4.091
	Women	250	28.380	3.977
Interpersonal	Men	245	27.853	3.839
	Women	250	28.612	3.852
Intrapersonal	Men	245	28.441	3.588
	Women	250	29.296	3.251
Visual-Spatial	Men	245	24.996	4.380
	Women	250	25.192	4.346
Bodily-Kinesthetic	Men	245	23.788	4.856
	Women	250	22.424	4.454
Musical-rhythmic and Harmonic	Men	245	22.714	5.920
	Women	250	23.188	5.250
Naturalistic	Men	245	25.649	4.723
	Women	250	26.256	4.585
Existential	Men	245	30.441	2.912
	Women	250	31.604	2.687

Female students score higher on interpersonal intelligence, with a mean value of 28,612 and SD 3,852, compared to male students, who score 27,853 with a SD of 3,839. Female students outperformed male students in the intrapersonal intelligence variable, with a mean value of 29,296 and SD 3,251 compared to male students with a mean value of 28,441 and SD 3,588. Female students also perform better on the visual-spatial intelligence variable, with a mean value of 25,192 and SD 4,346 compared to male students with a mean value of 24,996 and SD 4,380.

Male students also demonstrate higher bodily-kinesthetic intelligence, with a mean value of 23,788 and SD 4,856, compared to female students with a mean value of 22,424 and SD 4,454. Furthermore, there are also differences in musical-rhythmic and harmonic intelligence. Female students have higher musical-rhythmic and harmonic intelligence, with a mean value of 23,188 and SD 5,250 compared to male students, who have a mean value of 22,714 and SD 5,920.

Female students have higher naturalistic intelligence than male students. The mean value for female students is 26,256, with a standard deviation of 4,723. The mean value for male students is 25,649, with a standard deviation of 4,723. It is clear that existential intelligence differs between male and female students. Female students have higher existential intelligence, with a mean value of 31,604 and SD 2,687, compared to male students with a mean value of 30,441 and SD 2,912.

It is clear that multiple intelligences are often related to learning or are still in the field of education. However, there are also those who see them based on gender. This is evidenced by the work of Bowles (2008), Furnham et al. (1999, 2002), Furnham & Shagabutdinova (2012), Furnham & Ward (2001), Loori (2005), Alavinia & Farhady (2012), Baş & Beyhab (2010), and Fadloli et al. (The studies included in this review are

from 2021, 2005, 1996, 1999, 2006, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, and 2023. They include normal students who are still children (Cason, 2001; Niswatin et al., 2020), those with disabilities (Hearne & Stone, 1995; Rettig, 2005; Stevens, 2020), and others.

Intelligence is a major determinant of performance on academic tests. It typically correlates at around 0.6 (Eysenck, 1979). Therefore, it is logical to conclude that there should be a male advantage in test performance, given the male advantage in intelligence. It is important to note that success in the exam is not solely determined by intelligence. Other factors, such as motivation and effort, also play a significant role. It is likely that women are more motivated than men, which would offset their lower average intelligence and result in no difference in test performance. However, we proceed with the assumption that this is not the case. The higher average IQ of men will indicate better performance on tests (Lovejoy, 1981; Lynn, 1987; Watson & Kimura, 1991).

Intelligence is not only used during exams. It is also needed in carrying out various activities. Student involvement in organizational activities is an effective way to help them develop the skills and character needed in society (Central Statistics Agency, 2021). However, effective management and implementation of organizational activities on campus requires a deeper understanding of the latest approaches in education, including the theory of multiple intelligences and the use of educational games.

The theory of multiple intelligences, first proposed by Howard Gardner, states that the human mind consists of eight intelligences—linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalistic—plus a possible ninth (existential) (Armstrong, 2017). In the context of classroom instruction, Armstrong explains that this theory can help educators develop curriculum, plan lessons, assess students, provide special education, develop cognitive skills, use educational technology, etc. in ways that suit each student's unique intelligence. This approach is essential for managing extracurricular activities in schools. Each activity can be designed to develop specific intelligences.

Armstrong (2017) provides a clear and compelling understanding of how each individual has a unique combination of intelligence. This approach is crucial because it empowers educators to respect individual differences in the classroom. They can develop curriculum, plan lessons, and assess students in ways that recognize and utilize students' multiple intelligences.

The theory of multiple intelligence states that every student has different intelligences. Students will grasp and understand a lesson more easily if the material is delivered in accordance with their dominant intelligence. A student with a musical intelligence will understand certain subjects more easily. For example, students have a type of intelligence that stands out in visual intelligence. It is therefore easier for them to grasp lessons if they are explained using various forms that can be observed (Nita, et. al, 2019).

The intelligence of students in class is diverse, and the teaching staff must include and process material according to the intelligence of these students. Lecturers must use a variety of teaching methods to ensure that each student feels supported and engaged

during lectures. It is essential that lecturers take the time to ascertain the intelligence of each student before teaching (Nita, et.al, 2019). Male and female students exhibit differences in their multiple intelligences, as evidenced by research. Male students are particularly strong in logical-mathematical intelligence, intrapersonal intelligence, and bodily-kinesthetic intelligence. This means that male students typically think logically, independently, and prefer activities outside the classroom. Female students, on the other hand, are more dominant in linguistic-verbal, visual-spatial, interpersonal, naturalistic, existential, and musical-rhythmic and harmony intelligence.

CONCLUSION

The data analysis revealed a clear difference in multiple intelligence between male and female students. The statistical value was 2.908, with a significance level of 0.004. This confirms the hypothesis that female students have a higher multiple intelligence than male students. Male students are more dominant in logical-mathematical intelligence, intrapersonal intelligence, and bodily-kinesthetic intelligence. Female students, on the other hand, are more dominant in linguistic-verbal, visual-spatial, interpersonal, naturalistic, existential, and musical-rhythmic and harmony intelligence.

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