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Gender and Perception: Implementation of Web-based Character Assessment in Science Learning

Darmaji[1], Astalini[2], Dwi Agus Kurniawan[3*], Febri Tia Aldila[4], Haerul Pathoni[5]

[1,2,3,4,5] Department of Mathematics and Natural Sciences Education, Jambi University, Jambi, Indonesia

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ABSTRAK

Pemanfaatan teknologi informasi dalam pendidikan merupakan dampak nyata dari perkembangan ilmu pengetahuan dan teknologi. Perkembangan teknologi di bidang pendidikan memunculkan inovasi dalam sistem penilaian seperti penilaian berbasis web. Penggunaan penilaian berbasis web untuk menilai karakter siswa akan memunculkan persepsi siswa yang berbeda yang dapat dipengaruhi oleh perbedaan gender. Oleh karena itu, penelitian ini dirancang untuk menganalisis bagaimana perbandingan persepsi siswa terhadap penerapan penilaian karakter berbasis web dalam pembelajaran IPA berbasis perbedaan gender. Penelitian ini merupakan penelitian kuantitatif dengan pendekatan survey yang dilakukan dengan mengisi angket persepsi siswa yang berisi 30 pernyataan. Sampel dalam penelitian ini adalah 120 siswa yang dipilih secara purposive sampling. Data yang diperoleh akan dianalisis menggunakan statistik deskriptif dan statistik inferensial dengan pengujian hipotesis berupa uji Anova satu arah untuk mengetahui ada tidaknya perbandingan persepsi siswa terhadap penerapan penilaian karakter berbasis web dalam pembelajaran IPA berbasis perbedaan gender. Hasil penelitian menunjukkan bahwa persepsi siswa laki-laki menunjukkan hasil yang lebih positif daripada persepsi siswa perempuan terhadap penerapan penilaian karakter berbasis web dalam pembelajaran IPA.

ABSTRACT

The use of information technology in education is a real impact of the development of science and technology. The development of technology in the field of education has led to innovations in assessment systems such as web-based assessments. The use of web-based assessment to assess student character will bring up different student perceptions which can be influenced by gender differences. Therefore, this study was designed to analyze how the comparison of students' perceptions of the application of web-based character assessment in science learning based on gender differences. This research is quantitative research with a survey approach which was conducted by filling out a student perception questionnaire containing 30 statements. The sample in this study was 120 students who were selected by purposive sampling. The data obtained will be analyzed using descriptive statistics and inferential statistics with hypothesis testing in the form of one-way Anova test to determine whether there is a comparison of student perceptions of the application of web-based character assessment in science learning based on gender differences. The results showed that male students' perceptions showed more positive results than female students' perceptions of the application of web-based character assessment in science learning.

1. INTRODUCTION

The use of information technology in education is a real impact of the development of science and technology (Arifin & Sukmawidjaya, 2020; Saputro & Setyawan, 2020). The use of technology as a tool that can expand human capacity plays a role in shaping students behavior (Bice et al., 2018; Lin et al., 2019; Garcia et al., 2020). The improvement of students' abilities is determined by the ability of teachers to utilize information technology that is adapted to the situation and learning context (Onojah et al., 2020; Tanti et al., 2021). The use of technology in education can create innovative learning activities and improve the quality of learning activities (Darmaji et al., 2020; Mardiana, 2020; Suma et al., 2020). Technology can be used as a tool in science learning as an effort to develop students' cognitive, skills, and attitudes. Assessment covers all complex aspects in an integrated manner so that it becomes a central part of education (Baird et al., 2017; Schneider & Bodensohn, 2017; Black & Wiliam, 2018). The assessment that is currently still widely used is the conventional paper-based assessment which has several weaknesses, namely the procurement of logistics in paper form requires large costs, requires a longer time in recording, cannot be done in real terms. time, and slow feedback (Hamid, 2016; Sahidu et al., 2017; Sahidu et al., 2019). Therefore, the role of technology in assessment is needed to overcome the various weaknesses caused by the use of conventional paper-based assessments. The use of technology in assessment is commonly referred to as electronic assessment (e-assessment). E-assessment is an assessment using information technology with an automatic

*Corresponding author.
E-mail addresses: darmaji86@gmail.com (Darmaji)

response that covers the entire assessment environment (Rodríguez-Gómez et al., 2014; Adesemowo et al., 2016). E-assessment has several advantages, namely: (1) can be managed on demand; (2) interactive testing room; and (3) can cover large amounts. E-assessment that is widely used is web-based assessment (Bahar & Asil, 2018).

Web-based assessments are increasingly popular to use compared to paper-based assessments because they can minimize assessment time (Liu et al., 2017; Astalini, Darmaji, et al., 2019). The use of web-based assessment is a very easy, effective, and efficient way because it is very adaptive to use and allows students to receive information directly (Wongwatkit et al., 2016; Wang, 2018). The e-assessment system can facilitate various assessments more comprehensively (Zheng et al., 2017; Dhina et al., 2021). E-assessment is effective for use in the assessment of the affective domain in order to obtain information that describes students' behavior (Astalini, Kurniawan, et al., 2019; Phillips et al., 2019; Dhina et al., 2021). The affective domain is important in science learning because it is related to the behavior that students rise in science learning so that assessments in the affective realm need to be considered more deeply. The development of student behavior is very important because the main result of the educational process is a change in behavior, namely attitudes and character (Darmaji et al., 2021). Therefore, the development of student behavior in science learning is very important to be considered and managed properly. Strengthening the nation's character can be done through educational practices by applying the values of Pancasila (Permatasari & Anwas, 2019; Pike et al., 2020; Sopacua et al., 2020). The inculcation of Pancasila values must be carried out as early as possible so that it is expected to improve the character of students (Purnama, 2015; Rockenbach, 2020). Strengthening student character is important because it is a reflection of the nation's character and as a step to realize national education goals (Budi & Arina, 2019; Nuryana & Suyadi, 2019; Permata & Mustadi, 2020). The character of each student in the science learning process will be different, this is due to the difference in the character of each student and the different views (perceptions) of students towards learning itself. Moreover perception is a student's process of receiving, interpreting, and evaluating information such as materials, techniques, and learning media based on what the five senses respond to (Darmaji et al., 2019). Perception is closely related to human characteristics that make humans make continuous contact with their environment (Oh et al., 2019; Darmaji et al., 2020). Perception occurs spontaneously and automatically which can result in a positive perception or a negative perception (Hergan, 2018; Önder et al., 2020). The perception given by students to an object can be influenced by gender (Dharma, 2016). If gender is linked in the assessment process, students' perceptions of the gender-based assessment process will emerge (Setyaningsih et al., 2018).

Web-based assessment is widely applied in schools so that it has an impact on the assessment process in schools. As what have done by previous researcher which examines that web-based dynamic assessment can improve student achievement on weather and climate material (Lin & Wang, 2017). In line with other research that shows that students find it easy when using web-based assessments as indicated by the high attitude of students towards web-based assessments (Öz, 2014). And beside of that, there are research which states that web-based language assessment allows teachers to conduct assessments in a professional context (Marczak et al., 2016). These studies only discuss the impact of the use of web-based assessment. The development of web-based assessment can be applied to measure the cognitive and affective domains. The development of a web-based assessment that is used to measure the affective domain of students has not been carried out by other researchers. Whereas the affective domain is very important to assessed and developed with a web-based assessment method. Therefore, web-based assessment to measure the affective domain of students in the form of student character is very important to do. When a web-based assessment to measure student character has been applied, it will bring up student perceptions of the developed website-based assessment. Students' perceptions of website-based assessments to measure student character in science learning can show different results which can be caused by gender differences. Therefore, the urgency in this study is to analyze students' perceptions of the application of web-based assessments to measure students' character in science learning which can be viewed from gender differences. In connection with the importance of assessing student perceptions in the assessment process, it is necessary to conduct research on student perceptions in the assessment process to analyze the comparison of student perceptions regarding the implementation of web-based character assessment, especially in science learning based on gender differences. Therefore, this research is considered important because it aims to analyze and compare students' perceptions about the application of web-based character assessment in science learning based on gender differences.

2. METHODS

This research is quantitative research with a survey approach. Quantitative research is a structured research that produces new findings through statistical methods so that it focuses on numerical data (Jaya,

2020). Quantitative research emphasizes quantity and numbers expressed on a likert scale and analyzed by percentage analysis techniques (Zedko et al., 2017; Rokhim et al., 2020). Quantitative research with a survey approach is research that only collects data using the specified instrument without giving any treatment to the respondents (Kurdi, 2018). Quantitative research with a survey approach uses a questionnaire as a data collection instrument which is then analyzed in the form of scores (Indra et al., 2020; Priantini, 2020; Wulandari et al., 2020). The data collection instrument is an evaluation tool to collect respondent data which must be validated first (Pranatawijaya et al., 2019; Jang & Protacio, 2020). This study uses a student perception questionnaire as a way of collecting data. Questionnaires are used to determine learning activities, collect data and evaluate research results (Mauliza & Nurhafidhah, 2018). The questionnaire used in this study was a student perception questionnaire consisting of 30 statements and arranged in four Likert scales, namely very bad, bad, good, and very good. The grid of student perception instruments and the category for the student perception questionnaire are shown in Table 1 and Table 2.

Table 1. Grid of Student Perception Questionnaire Instruments

Rating Indicator	Rated Aspect	Items
Web-based Assessment Material	Font color selection	1, 2
	Font size selection	3, 4
	Size chart and chart compatibility	6
	Clarity of tables and graphs	7, 8, 9
Language used in Web-Based Assessment	The language used is easy to understand	5, 10, 11
	Grammar used according to improved spelling	12, 18
Web-based Assessment Display	Ease of use of media	13, 14, 19, 25, 26, 27, 28, 29, 30
	Attractive media display	15, 16, 17
Benefits of Web-Based Assessment	Media provides information on student character	21, 22, 23
	Make it easier for teachers to measure student character	20, 24

Table 2. Category of Student Perception Questionnaire Results

Interval	Score	Category
30,0 – 52,5	1	Very bad
52,6 – 75,0	2	Bad
75,1 – 97,5	3	Good
97,6 – 120,0	4	Very good

The population is the whole object that is closely related to the characteristics in the research variables that you want to study and draw conclusions (Arisantiani et al., 2017; Lestari et al., 2017; Rujakat, 2018). The populations in this study were students of class VIII SMPN 6 Batanghari. The population has a close relationship with the sample in a study. The research sample is part of the population that is representative (representing the entire population) so it is stated that the number of samples is the total population (Astiti et al., 2017; Ayuni et al., 2017; Zedko et al., 2017). The sample used in this study amounted to 120 students. The population and samples in the study were taken using certain sampling techniques. The sampling technique used in this study is a purposive sampling technique. Purposive sampling is a sampling technique based on certain criteria that are considered in depth (Melesse & Mekonnen, 2020; Tegeh et al., 2020). Purposive sampling is applied in research that is used to obtain research subjects based on special considerations according to research objectives and needs (Etikan et al., 2016; Susilawati et al., 2019; Rahmawati & Anwar, 2020). Purposive sampling was used in this study because the research sample was determined based on the considerations given by the researcher, namely the basic ability to operate a laptop or cellphone for learning which was determined based on the value of ICT (Information and Communication Technology) subjects who passed above the completeness score.

This study uses two data analysis techniques, namely descriptive statistics and inferential statistics. Descriptive statistical analysis is used to analyze the data by describing the data according to the actual situation and can be accounted for (Hartiyani & Ghufron, 2020). Descriptive statistics analyze data by calculating the mean, median, mode, standard deviation, variance, maximum score, and minimum score (Marquezin et al., 2016; Paramitha & Margunayasa, 2016; Quintela-del-Río & Francisco-Fernández, 2017). While inferential statistics is data analysis by applying inferential statistical formulas used in testing hypotheses proposed in research and drawing conclusions (Dewi et al., 2019). Inferential statistics consist

of prerequisite tests (normality test and homogeneity test) and hypothesis testing (Paramita et al., 2019; Susilawati et al., 2019; Zulfa & Haryanto, 2021). The hypothesis test conducted in this study is the one-way anova test to see a comparison of perceptions in two or more groups.

3. RESULT AND DISCUSSION

Results

Assessment is an activity to describe the measurement results to determine the success of the learning process. Assessment is one of the most important things in the educational process because it is used as an aspect of consideration in making decisions (Divayana et al., 2017; Yüksel & Gündüz, 2017). Electronic assessments such as web-based assessments are expected to provide new experiences for students in filling out student character questionnaires. The novelty of this study is more specific on aims to analyze the comparison of students' perceptions of the implementation of web-based character assessment in science learning based on gender differences. Assessment of student character in science learning conducted through the website has features that can be easily accessed by users. Electronic assessment (e-assessment) has several advantages so that it is more refreshing to use. Therefore, electronic assessments such as web-based assessments are needed in assessing student character in science learning. The results of the student character assessment obtained were then analyzed to see whether there were differences in each class. Description of students' perceptions of the implementation of web-based character assessment in science learning based on gender differences in class VIII A can be seen in Table 3.

Table 3. Description of the Perception of Class VIII A Students on the Implementation of Web-Based Character Assessment in Science Learning

	Interval	f	(%)	Category	Mean	Median	Mode	Min	Max
Female	30,0 – 52,5		0%	Very bad	100.50	102.00	95	88	109
	52,6 – 75,0	0	0%	Bad					
	75,1 – 97,5	9	37.5%	Good					
	97,6 – 120,0	15	62.5%	Very good					
Male	30,0 – 52,5	0	0%	Very bad	97.44	99.50	100	89	104
	52,6 – 75,0	0	0%	Bad					
	75,1 – 97,5	6	37.5%	Good					
	97,6 – 120,0	10	62.5%	Very good					

Based on Table 3, it is found that the perception of class VIII A students towards the implementation of web-based character assessment in science learning based on gender differences is included in the very good category. With the percentage of female students' perceptions of the same value as the male students' perceptions, namely 62.5%. Furthermore, a description of the perception data of class VIII B students towards the implementation of web-based character assessment in science learning based on gender differences can be seen in Table 4.

Table 4. Description of the Perception of Class VIII B Students on the Implementation of Web-Based Character Assessment in Science Learning

	Interval	f	(%)	Category	Mean	Median	Mode	Min	Max
Female	30,0 – 52,5	0	0%	Very bad	97.61	97.00	95	88	104
	52,6 – 75,0	0	0%	Bad					
	75,1 – 97,5	13	56.5%	Good					
	97,6 – 120,0	10	43.5%	Very good					
Male	30,0 – 52,5	0	0%	Very bad	95.18	96.00	89	89	104
	52,6 – 75,0	0	0%	Bad					
	75,1 – 97,5	9	52.9%	Good					
	97,6 – 120,0	8	47.1%	Very good					

Based on Table 4, it is found that the perception of class VIII B students towards the implementation of web-based character assessment in science learning based on gender differences is included in the good category. The percentage of female students' perceptions is higher than that of male students. Female students with a percentage of 56.5% and male students 52.9%. Furthermore, a description of the perception

data of class VIII C students on the implementation of web-based character assessment in science learning based on gender differences can be seen in Table 5.

Table 5. Description of the Perception of Class VIII C Students on the Implementation of Web-Based Character Assessment in Science Learning

	Interval	f	(%)	Category	Mean	Median	Mode	Min	Max
Female	30,0 – 52,5	0	0%	Very bad	96.76	98.00	99	85	106
	52,6 – 75,0	0	0%	Bad					
	75,1 – 97,5	10	47.6%	Good					
	97,6 – 120,0	11	52.4%	Very good					
Male	30,0 – 52,5	0	0%	Very bad	100.21	101.00	92	92	108
	52,6 – 75,0	0	0%	Bad					
	75,1 – 97,5	6	31.6%	Good					
	97,6 – 120,0	13	68.4%	Very good					

Based on Table 5, it is found that the perception of class VIII C students towards the implementation of web-based character assessment in science learning based on gender differences is included in the very good category. The percentage of male students' perceptions is higher than that of female students. Female students with a percentage of 52.4% and 68.4% male students. This study also conducted prerequisite tests, namely normality test (to determine whether the data is normally distributed or not) and homogeneity test (to determine whether several population variants are the same or not). The results of normality and homogeneity tests can be observed in Table 6 and Table 7.

Table 6. Normality Test

Test of Normality				
Class	**Gender**	**Statistic**	**df**	**Sig.**
VIII A	Female	0.944	24	.204
	Male	0.897	16	.071
VIII B	Female	0.926	23	.088
	Male	0.899	17	.065
VIII C	Female	0.977	21	.877
	Male	0.909	19	.070

Based on the data analysis in Table 5, it can be seen that the data are normally distributed in all classes and genders because the value of Sig. > 0.05. The normality test used is Shapiro-Wilk because the sample is less than 50 in each class.

Table 7. Homogeneity Test

Test of Homogeneity of Variances				
Gender	**Levene Statistic**	**df1**	**df2**	**Sig.**
Female	1.911	2	65	0.156
Male	0.339	2	49	0.714

Based on Table 7, it can be seen that the data of female students and male students in all classes are homogeneous. The homogeneity test results for female students are 0.156 and the homogeneity test results for male students are 0.714. Both show homogeneous data because the value of Sig. > 0.05. After the data is normally distributed and homogeneous, then a hypothesis test is carried out, namely the one way anova test. One-way anova test was used to compare students' perceptions of the application of web-based character assessment in science learning based on gender differences in more than two groups. The results of the one-way anova test can be seen in Table 8.

Table 8. One Way Anova Test

Anova	
Gender	**Sig.**
Female	0.034
Male	0.020

Based on Table 8 regarding the one way anova test, it can be seen that the value of Sig. female students of 0.034 and the value of Sig. male students of 0.020. So, in the anova test, female students and male students Ha were accepted because of the value of Sig. < 0.05 or there is a significant difference between the average student perceptions of the implementation of web-based character assessment in science learning based on gender differences. Furthermore, further tests were carried out to see which class had different perceptions with the post hoc test and the Tukey HSD[a] test as shown in Table 9 and Table 10.

Table 9. Post Hoc Test (Multiple Comparisons)

Multiple Comparisons							
Gender	**(I) Class**	**(J) Class**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
						Lower Bound	**Upper Bound**
Female	Female VIII A	Female VIII B	2.891	1.455	.123	-.60	6.38
		Female VIII C	3.738	1.490	.038	.17	7.31
	Female VIII B	Female VIII A	-2.891	1.455	.123	-6.38	.60
		Female VIII C	.847	1.505	.840	-2.76	4.46
	Female VIII C	Female VIII A	-3.738	1.490	.038	-7.31	-.17
		Female VIII B	-.847	1.505	.840	-4.46	2.76
Male	Male VIII A	Male VIII B	2.261	1.809	.430	-2.11	6.63
		Male VIII C	-2.773	1.762	.267	-7.03	1.49
	Male VIII B	Male VIII A	-2.261	1.809	.430	-6.63	2.11
		Male VIII C	-5.034	1.734	.015	-9.22	-.84
	Male VIII C	Male VIII A	2.773	1.762	.267	-1.49	7.03
		Male VIII B	5.034	1.734	.015	.84	9.22

Based on Table 9 which was carried out through the post hoc test, it can be seen that only female students in grades VIII A and VIII C have an average perception that is different from the value of Sig. of 0.038 < 0.05. The average difference in perceptions of female students in grades VIII A and VIII C is 3,738, which ranges from 0.17 (lower bound) to 7.31 (upper bound) at the 95% confidence level. Then, only male students in grades VIII B and VIII C had a different average perception with the Sig score. of 0.015 < 0.05. The average difference in perceptions of male students in grades VIII B and VIII C is 5.034 which ranges from 0.84 (lower bound) to 9.22 (upper bound) at the 95% confidence level.

Table 10. Tukey HSD Test

Gender	**Class**	**N**	**Subset for alpha = 0.05**	
			1	**2**
Female	Female VIII C	21	96.76	
	Female VIII B	23	97.61	97.61
	Female VIII A	24		100.50
	Sig.		.836	0.133
Male	Male VIII B	17	95.18	
	Male VIII A	16	97.44	97.44
	Male VIII C	19		100.21
	Sig.		0.414	0.269

Based on Table 10 which was carried out through the Tukey HSDa test, it can be seen that the female gender in subset 1 did not have a significant difference in the average perception of female students in grades VIII C and VIII B. Then in subset 2 the average perception of female students in class VIII B and VIII A did not have a significant difference. So that the difference in the average perception of female students that differs significantly is in grades VIII A and VIII C. Meanwhile, for the male gender in subset 1, the average perception of male students in grades VIII B and VIII A does not have a significant difference. Then in subset 2 the average perception of male students in class VIII A and VIII C did not have a significant difference. So that the difference in the average perception of male students who are significantly different is found in grades VIII B and VIII C.

Discussion

The results of the perceptions of students in grades VIII A, VIII B, and VIII C at SMPN 6 Batanghari indicate that students' perceptions of the implementation of web-based character assessment in science learning can be analyzed based on gender differences. There is a difference in the average value of female students' perceptions in class VIII A of 100.50, class VIII B of 97.61 and class VIII C of 96.76. Class VIII A female students who have the highest average perception scores will produce a significant difference in perception with the average perception scores of VIII C female students who have the lowest average perceptions. Because the biggest difference occurred in female students in grades VIII A and VIII C, the two classes had significantly different mean scores of female students' perceptions. In addition, the post hoc test in both classes supports these results with the value of Sig. resulting < 0.05. Thus, gender has a significant effect on the difference in the average perception of female students in class VIII A and VIII C. Meanwhile, for students with male gender, there is a difference in the average value of students' perceptions in class VIII A of 97.44, class VIII B is 95.18 and class VIII C is 100.21. Male students in class VIII B have the lowest average perception value compared to other classes, which will cause a significant difference in perception with the average perception of male students in class VIII C who has the highest average value. Significant differences in student perceptions occurred in the class that had the largest difference in average scores. Therefore, grades VIII B and VIII C will produce significantly different mean scores of male students' perceptions. This is also supported by the results of the post hoc test in both classes which resulted in a Sig value < 0.05. Thus, gender has a significant effect on the difference in the average perception of male students in grades VIII B and VIII C.

Comparison of the perceptions of female and male students was reviewing the results of the one way anova test produced. Results of Sig. female students' perceptions of 0.034 while the results of Sig. the perception of male students is 0.020 where Ha is accepted because the value of Sig. < 0.05. Value of Sig. the perception of male students is smaller than the value of Sig. the perception of female students, it shows that male students have a more positive perception than female students. The perception of male students towards the implementation of web-based character assessment in science learning is considered more positive than the perception of female students towards the implementation of web-based character assessment in science learning. Positive perceptions arise because of the influence of motivational support from both parents so that students accept, face and conquer all challenges (Anggoro, 2016). Differences in perception between male students and female students usually occur because of perceptions of certain subjects that are considered to be inclined to a certain gender, where teachers must respond properly so that there is no difference in attention that results in learning outcomes (Sandora, 2018). The fact is that there are physical differences between females and males when viewed functionally, such as males having better vision distance and deeper perception than females, so males are able to solve things related to spatial, namely the ability to visualize (Narpila, 2019). The perception that males are superior to females is supported by three things, namely the opinion of experts, societal stereotypes and the theory of inferior parietal lobule in the human brain (Fedi, 2016).

Electronic assessment or web-based assessment is a very important form of assessment to be used today. examining e-assessment to measure student motivation in high school physics subjects shows that e-assessment assessment is very important to use because it makes it easier for students and teachers to make assessments. This is supported by research conducted to studied e-assessment to assess interest in learning physics showed that students gave a good response and were happy to use e-assessment so that student interest in e-assessment needed to be developed on a large scale (Maison et al., 2020). In line with other research, it is shown that students' basic science process skills can be improved through the use of e-modules and e-assessments (Astalini, Darmaji, et al., 2019). The studies on e-assessment that have been carried out measure students' learning motivation, interest in learning, and science process skills. Electronic assessments to measure student character have not been widely carried out.

The use of electronic assessments in the form of web-based assessments shows good results in supporting the assessment process. The quality of small group discussions improved after online assessment training and further improved after web-based peer assessment (Liu et al., 2017). Research conducted by previous researcher shows that a web-based performance appraisal system can be used to improve and evaluate students' understanding of scientific experiment procedures (Wang, 2018). Then study by previous study website-based assessment instrument model can be used as a student assessment tool that is easily accessible and authentic beside of that web-based learning media is feasible to use to increase teacher creativity (Munajah & Setiawan, 2020). In line with previous study which showed that students experienced a better and significant improvement in misconceptions and learning achievement through the implementation of web-based dynamic assessment (Lin. & Wang, 2017). These studies on the use of web-based assessments examine the quality of group discussions, scientific understanding procedures, teacher creativity, misconceptions and learning achievement.

This research has implications for the science learning process, especially in the assessment process. Assessment is an important thing in the learning process so it must be done carefully. A good assessment process will result in quality science learning. Therefore, this research has an impact on increasing students' ability to operate laptops in the learning process so as to facilitate the learning process itself. Web-based character assessment also makes it easier for teachers because there is no need to manually correct students' answers, so the assessment process is much more effective and efficient. Teachers are expected to be able to deal with technological developments by using technology-based assessments so that they are more effective and efficient to use. So that this research is expected to be used as a basis for developing a technology-based assessment process to support the implementation of a better learning process.

4. CONCLUSION

Students' perceptions of learning can show different results, one of the causes is gender differences. Therefore, this study aims to analyse and compare students' perceptions of the application of web-based character assessment in science learning based on gender differences. The results showed that male students' perceptions showed more positive results than female students' perceptions of the application of web-based character assessment in science learning. Based on the results obtained, this research has a real impact to help teachers and schools in observing, measuring, and developing students' character. The results of male students' perceptions which are more positive than female students' perceptions make teachers and schools have to strengthen the character of female students. Therefore, this research can be used as a reference for teachers and schools in making decisions regarding students at school.

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