E-Assessment: Character of Students in Elementary School

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Abstract—This study aims to determine the teacher's response to the use of e-assessment of character in elementary school students; knowing the results of the assessment of the character of love for the homeland, tolerance, and discipline; comparing the results of character assessment in three schools, knowing the validity and feasibility of e-character assessment. This research is a research & development research using quantitative data and qualitative data. The research sample consisted of 55 elementary school students obtained by purposive sampling technique. The data collection technique uses a love of the homeland, tolerance, and discipline questionnaire. Analysis of quantitative data using descriptive statistics and inferential statistics in the form of one-way ANOVA test, post-hoc further test in the form of Tukey HSD test and qualitative data using the Miles and Huberman technique. The results showed that teachers have a very good response to the use of e-assessment. The developed e-assessment product is in the very good category so it is feasible to use.

Keywords—e-assessment, characters, primary school

1 Introduction

At this time, human daily life cannot be separated from the rapid development of digital technology. The rapid development of digital technology has also penetrated into the realm of education [1-2]. The advent of digital technology has become a formidable challenge for the realm of education [3-5]. To overcome these challenges, the education sector must begin to adjust educational strategies to the rapid development of digital technology at this time [6-7]. The rapid development of digital technology today has had a lot of influence on the realm of education [8-10]. The influence given by digital technology is not only positive, but also negative [11-12]. With this influence, educators must be ready to assist students in utilizing digital technology [13-15]. Digital technology does not only allow the transfer of knowledge. Digital technology also facilitates collaborative learning. Collaborative to help create and provide ease of understanding between teachers and students [16-18]. With digital technology, it will make it easier for all human activities to access all information [19-21]. The digital technology that can be used in the re2alm of education is e-assessment.

Currently, teachers are in an era of digitalization that is so sophisticated and rapidly developing. All educational activities are inseparable from the use of digital technology [22-23]. In the teaching and learning process in schools, the very important thing to do is assessment [24-25]. At this time there are still many teachers who use the conventional assessment system. Assessment with the conventional system is arguably less effective in its use [26-27]. There is a need for updating the assessment system that utilizes digital technology in the process [28-29]. The existence of a digital assessment system will create a more accurate and time efficient assessment system [30-32]. The digital technology that teachers can use in conducting the assessment is using e-assessment technology [33-34]. E-assessment is a digital technology that refers to the assessment process [35-37]. This e-assessment technology is a forum for learning and assessment process activities [38-39]. The existence of e-assessment technology will facilitate the work of teachers in conducting assessments [40-42]. Digital e-assessment technology will greatly help teachers in the realm of education. This is supported by the rapid development of digital technology at this time [43-44]. E-assessment technology can also provide feedback quickly and accurately [45-47]. That way, teachers will be able to save time in conducting assessments, and students will get their results in real time [48-49]. Therefore, digital e-assessment technology can be used as a technology that can be used by teachers in conducting the assessment process in schools.

In the realm of education, the main component that supports all activities in the educational process is assessment. Assessment using digital e-assessment technology provides its own benefits in supporting all learning activities [50-52]. With the e-assessment, it will support and facilitate teachers in assessing student character [53-55]. Character assessment using e-assessment provides so many benefits [56-57]. One of the benefits of using this e-assessment is that it can save time and avoid excessive paper wastage [58-60]. Then the use of e-assessment makes students and teachers interact with each other without having to meet [61-63]. Furthermore, e-assessment technology will be able to store data automatically and permanently [64-65]. That way, teachers don't have to worry if student data will be lost [66-67]. So, it can be said that the application of digital e-assessment technology provides a lot of convenience and helps teachers in conducting character assessments in the process of learning activities.

Character is an embodiment of controlled behavior; with this it is necessary to know how the competence of the embodiment of the character is. The character values possessed by students are the character of love for the homeland, tolerance, and discipline [68-71]. In order for the character of love for the homeland, tolerance, and discipline to be manifested, a character assessment in the form of e-assessment is needed [72-75]. Using e-assessment will help teachers in assessing the character of patriotism, tolerance, and student discipline. With that, it will create the character of love for the homeland, tolerance, and discipline of students in the process of learning activities [76-79]. From the explanation above, it can be said that with the existence of digital e-assessment technology, it is very necessary in the realm of education [80-83]. E-assessment can be used as an assessment of the character of love for the homeland, tolerance, and student discipline and can also be used as a place to find out how

the character of love for the homeland, tolerance, and discipline possessed by students during the learning process takes place.

The development of character assessment using digital e-assessment technology has been widely used in various studies. The research shows that character education is emphasized on values that need to be understood and applied by students which include a sense of responsibility and discipline [84]. Then, the research conducted where his research showed that by using e-assessment in conducting character assessments, the results of the student character test showed a good response [85]. Furthermore, explains that the character possessed by students can affect the activities of the learning process in schools [86]. Furthermore, where in his research an assessment of student character was carried out using e-assessment as a forum for assessing the character possessed by students [87].

Apart from Indonesia, character assessment has been widely studied in various countries. Research explains that students in India are instilled character values but due to the lack of teacher knowledge in identifying the character values possessed by students, there are still students who have minimal character values [88]. Then, the showed that the character assessment of students in New York still uses the conventional method, where in this case the teacher has difficulty in assessing the character possessed by students [89]. Furthermore, shows that there are still many students in Africa who experience minimal character values due to the difficulty of teachers in conducting these character assessments [90].

From previous research that has discussed character to the use of digital e-assessment technology, it can be seen that there are still a lot of studies that use conventional methods in conducting character assessments. Yet at this time, digital technology has developed very rapidly. With this, it is necessary to evaluate the assessment system in schools in assessing the character of love for the homeland, tolerance, and discipline possessed by students. During the teaching and learning process at school. E-assessment technology will greatly assist teachers in assessing the character of love for the homeland, tolerance, and discipline possessed by students at school.

2 Method

In this research, the type of research used is development research. The development carried out is to make an electronic assessment in the form of an e-assessment. The research design used in this development is R&D (Research and Development) using the ADDIE model. The ADDIE development model is a development model that can make products in the education sector more systematic [91-93]. The ADDIE development model consists of 5 main stages, namely: Analysis, Design, Development, Implementation and Evaluation [94-96]. The ADDIE model is an implementation of an approach that can be used in a more effective and efficient assessment and teaching design process [97-99]. ADDIE consists of 5 stages, namely Analysis, Design, Development, Implementation and Evaluation [100-101]. The method used in this research is to use the explanatory mix method, where this method prioritizes quantitative and qualitative data to support the results of quantitative data.

In this e-assessment development research, the product to be developed only reaches the implementation stage. This is because at the implementation stage the objectives of this development research have been met. The initial stage in this research is to conduct a needs analysis first by conducting literature analysis and interviews. For the second stage, namely the design stage, where the researcher designs how the product will be developed according to the needs of the product itself. In the product development stage, an expert validation test is carried out to test the product validity. After the product is valid, it then enters the implementation stage where the product is applied to students and at this stage an assessment of the character of love for the homeland, tolerance, and student discipline is carried out using digital e-assessment technology.

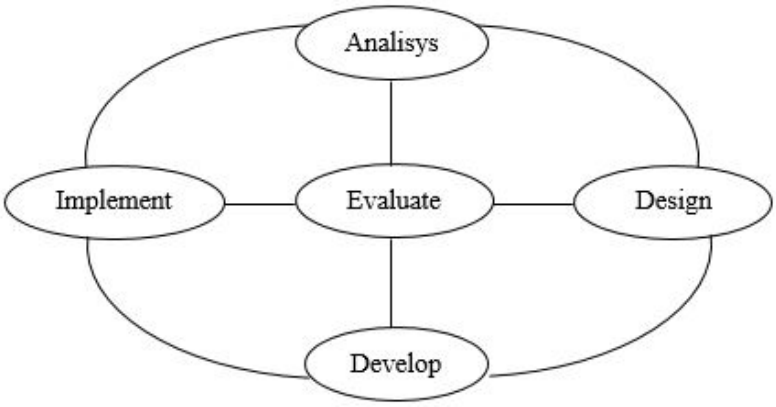

Fig. 1. Stages ADDIE

This study also uses quantitative data and qualitative data. Quantitative data comes from character assessment and validation of media experts, while qualitative data comes from user responses. The instrument used in this study aims to determine how the results of the assessment of the character of love for the homeland, tolerance, and discipline of students towards e-assessment-based character assessment in schools. The questionnaire grid for the character of love for the homeland, tolerance, and discipline is shown in the Table 1.

Table 1. Character questionnaire grid

Variable	Sub Variable	Items
Love the homeland	Loyalty to the country	1, 2, 3, 4
	Deep feeling towards the ground blood spilled	5, 6, 7, 8
	Awareness of a calling for country	9, 10
	Open	11, 12
	Feeling as one nation	13, 14
	Loyalty to the country	15, 16
	Recognizing diversity	17, 18

	Agreement to live together	19
	The same hope in the past will come	20
	Feeling in the same boat	21
Tolerance	Care	1, 2, 3
	Fearlessness	4, 5
	Love	6, 7, 8
	Respect each other	9, 10
	Appreciate the differences of others	11
	Appreciate yourself	12, 13
	Appreciate the kindness of others	14, 15
	Open	16
	Receptive	17
	Comfort and life	18, 19
	Comfort with others	20, 21
Discipline	Time discipline	1, 2, 3, 4, 5, 6, 7
	Discipline enforces the rules	8, 9, 10, 11, 12
	Attitude discipline	13, 14, 15, 17
	Discipline of worship	18, 19, 20, 21

As for validating the product, a media expert validation questionnaire was used, where the media expert validation questionnaire was adapted from the research of which contained 35 statements with 5 Likert scales [102], while the grid from the media expert validation questionnaire can be seen in Table 2.

Table 2. Media expert grid

Variable	Indicator	Items
Functionality	1. Suitability 2. Accuracy 3. Fulfillment	3, 7, 8, 9 4, 5, 6 1, 2
Reliability	1. Maturity 2. Fault Tolerance 3. Recovery	15, 16 10, 11, 12 13, 14
Usability	1. Ability to understand 2. Ability to learn 3. Operation	18, 19, 20, 23 26, 27 17, 21, 22, 24, 25
Efficiency	1. Time 2. Real Time 3. Resource	28, 29 31, 32, 34 30, 33, 35

After the expert validation questionnaire is collected, the results from the validator for media validation will be obtained according to the variables that have been in accordance with the grid. Then, qualitative data were obtained from interviews with teachers as users of the developed e-assessment.

The population in this study were all students at SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I Muara Bulian. The sample in the study consisted of high grades, namely grades four, five, and six at SD Negeri 034/I Teratai as

many as 55 students, at SD Negeri 045I Sridadi 58 students, and at SD Negeri 064/I Muara Bulian as many as 61 students obtained using purposive sampling technique. For the selection of samples using purposive sampling, namely a sampling technique that goes through certain stages of consideration and then selected through the consideration of researchers that the sample is a source that provides quality information. By using purposive sampling technique, researchers will get data that is suitable for research purposes. Interviews were conducted with teachers as e-assessment users in the three elementary schools in Muara Bulian. The interview used is a structured interview using open-ended questions. The researcher proposed several questions to see how the teacher responded regarding the application of e-assessment-based student discipline character assessment. The results of the interviews are intended to strengthen the results of the responses provided by the users which were collected based on the questionnaire.

After obtaining the results of the questionnaire, then the results of the questionnaire were analyzed using descriptive and inferential data. Descriptive data is a way to collect data and has a relationship about decomposing and providing information about data. With this, descriptive can serve to explain the state of the data, descriptive itself consists of the mean, median, mode, maximum, and minimum frequencies. Frequency is a series of numerical data based on their quantity and quality which are arranged sequentially [103]. The mean is the average value of the data to see how the overall data lies [104-105]. The median is the middle value of the data after the data is sorted and the average when viewed from its location in the data sequence [106-107]. The mode is the value that occurs most often [108]. The maximum value is the highest value while the minimum value is the lowest value from the data that has been obtained [109-110].

Inferential data management techniques consist of hypothesis testing. Before carrying out the hypothesis, the data that has been obtained should be tested for requirements by testing for normality and homogeneity. After testing the data prerequisites, the next step is to test the hypothesis using the ANOVA test. After that, qualitative data was collected through interviews which were used to complement and strengthen the quantitative data. The data that has been obtained from the results of interviews and literature studies are then analyzed using the Miles & Huberman model analysis technique.

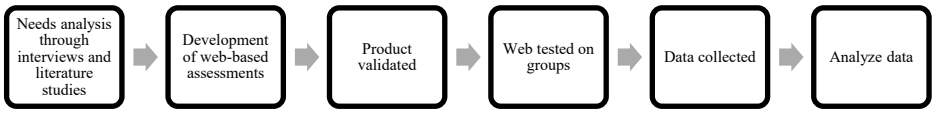

Fig. 2. Data collection procedure

3 Result

E-assessment was developed to measure character specifically for the character of love for the homeland, tolerance, and discipline has been tested in three different elementary schools. Data analysis of the research conducted examined the results of student character assessment when using e-assessment using descriptive statistics. The description of students' love for the homeland when using e-assessment is shown in Table 3.

Table 3. Description of the character of love for the homeland

School	Category	f	%	Mean	Median	Mode	Min	Max
SD Negeri 034/I Teratai	Very Bad	0	0	89.11	90	91	76	101
	Bad	0	0					
	Enough	0	0					
	Good	20	36.4					
	Very Good	35	63.6					
SD Negeri 045I Sridadi	Very Bad	0	0	87.22	88	89	73	95
	Bad	0	0					
	Enough	0	0					
	Good	30	51.7					
	Very Good	28	48.3					
SD Negeri 064/I Muara Bulian	Very Bad	0	0	86.28	87	86	73	92
	Bad	0	0					
	Enough	0	0					
	Good	43	70.5					
	Very Good	18	29.5					

Table 3 shows the character of love for the homeland when using e-assessment in three elementary schools. SD Negeri 034/I Teratai got as many as 35 students with a percentage of 63.6% in the very good category and as many as 20 students with a percentage of 36.4% in the good category. Then the mean is 89.11, the median is 90, the mode is 91, the minimum score is 76, and the maximum score is 101. Furthermore, SD Negeri 045I Sridadi got 30 students with a percentage of 51.7% in the good category and 28 students with a percentage of 48.3% are in the very good category. Then the mean is 87.22, the median is 88, the mode is 89, the minimum score is 73, and the maximum score is 95.

Furthermore, SD Negeri 064/I Muara Bulian got 43 students with a percentage of 70.5% in the good category and 18 students with a percentage of 29.5% in the very good category. Then the mean is 86.28, the median is 87, the mode is 86, the minimum score is 73, and the maximum score is 92. The description of students' tolerance character when using e-assessment is shown in Table 4.

Table 4. Description of tolerance character

School	Category	f	%	Mean	Median	Mode	Min	Max
SD Negeri 034/I Teratai	Very Bad	0	0	87.15	87	86	75	100
	Bad	0	0					
	Enough	0	0					
	Good	37	67.3					
	Very Good	18	32.7					
SD Negeri 045I Sridadi	Very Bad	0	0	88.41	89	89	74	95
	Bad	0	0					
	Enough	0	0					
	Good	21	36.2					
	Very Good	37	63.8					
SD Negeri 064/I Muara Bulian	Very Bad	0	0	86.05	87	88	70	93
	Bad	0	0					
	Enough	2	3.3					
	Good	41	67.2					
	Very Good	18	29.5					

Table 4 shows the character of tolerance when using e-assessment in three elementary schools. SD Negeri 034/I Teratai got 37 students with a percentage of 67.3% in the good category and 18 students with a percentage of 32.7% in the very good category. Then the mean is 87.15, the median is 87, the mode is 86, the minimum score is 75, and the maximum score is 100. Furthermore, SD Negeri 045I Sridadi got 37 students with a percentage of 63.8% in the very good category and 21 students with a percentage of 36.2% are in the good category. Then the mean is 88.41, the median is 89, the mode is 89, the minimum score is 74, and the maximum score is 95.

Furthermore, SD Negeri 064/I Muara Bulian got 41 students with a percentage of 67.2% in the good category, 18 students with a percentage of 29.5% in the very good category, and 2 students with a percentage of 3.3% in the sufficient category. Then the mean is 86.05, the median is 87, the mode is 88, the minimum score is 70, and the maximum score is 93. The description of students' discipline character when using e-assessment is shown in Table 5.

Table 5. Discipline character description

School	Category	f	%	Mean	Median	Mode	Min	Max
SD Negeri 034/I Teratai	Very Bad	0	0	87.60	87	86	76	102
	Bad	0	0					
	Enough	0	0					
	Good	36	65.5					
	Very Good	19	34.5					
SD Negeri 045I Sridadi	Very Bad	0	0	85.88	86	85	71	95
	Bad	0	0					
	Enough	1	1.7					

	Good	36	62.1					
	Very Good	21	36.2					
SD Negeri 064/I Muara Bulian	Very Bad	0	0	89.20	89	88	70	97
	Bad	0	0					
	Enough	1	1.6					
	Good	29	47.5					
	Very Good	31	50.8					

Table 5 shows the character of discipline when using e-assessment in three elementary schools. SD Negeri 034/I Teratai got as many as 36 students with a percentage of 65.5% in the good category and as many as 19 students with a percentage of 34.5% in the very good category. Then the mean is 87.60, the median is 87, the mode is 86, the minimum score is 76, and the maximum score is 102. Furthermore, SD Negeri 045I Sridadi got 36 students with a percentage of 62.1% in the good category and 21 students with a percentage of 36.2% are in the very good category. Then the mean is 85.88, the median is 86, the mode is 85, the minimum score is 71, and the maximum score is 95.

Furthermore, SD Negeri 064/I Muara Bulian got as many as 31 students with a percentage of 50.8% in the very good category, as many as 29 students with a percentage of 47.5% in the good category, and 1 student with a percentage of 1.6% in the sufficient category. Then, the mean is 89.20, the median is 89, the mode is 88, the minimum score is 70, and the maximum score is 97. Then, the researchers conducted prerequisite tests in the form of a normality test (to determine whether the data is normally distributed or not) and a homogeneity test (to determine whether the data is normally distributed or not). some populations have the same variance or not). Normality test and homogeneity test are prerequisite tests to be able to perform the ANOVA test. The results of the normality test are shown in Table 6.

Table 6. Normality test results

Character	School	Statistic	df	Sig.
Love the homeland	SD Negeri 034/I Teratai	.102	55	.103
	SD Negeri 045I Sridadi	.106	58	.091
	SD Negeri 064/I Muara Bulian	.109	61	.081
Tolerance	SD Negeri 034/I Teratai	.112	55	.079
	SD Negeri 045I Sridadi	.104	58	.098
	SD Negeri 064/I Muara Bulian	.107	61	.088
Discipline	SD Negeri 034/I Teratai	.105	55	.093
	SD Negeri 045I Sridadi	.108	58	.083
	SD Negeri 064/I Muara Bulian	.096	61	.200

Based on the analysis of the data in Table 6, it can be seen that the data are normally distributed in all characters and all elementary schools which are the research locations with the basis for making decisions, namely the significance value > 0.05. Then, the results of the homogeneity test are shown in Table 7.

Table 7. Homogeneity test results

Character	Levene Statistic	df1	df2	Sig.
Love the homeland	1.767	2	171	.174
Tolerance	1.013	2	171	.197
Discipline	1.173	2	171	.181

Based on the analysis of the data in Table 7, it can be seen that the significance value (Sig.) of the love for the homeland character in SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I Muara Bulian is 0.174. Because the value of Sig 0.174 > 0.05, as the basis for decision making in the homogeneity test, it can be concluded that the variance of the data on the character of love for the homeland in the three schools is the same or homogeneous. Then, the significance value (Sig.) of the tolerance character at SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I Muara Bulian is 0.197. Because the value of Sig 0.197 > 0.05, as the basis for decision making in the homogeneity test, it can be concluded that the variance of the tolerance character data in the three schools is the same or homogeneous.

The significance value (Sig.) of the discipline character at SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I Muara Bulian is 0.181. Because the value of Sig 0.181 > 0.05, as the basis for decision making in the homogeneity test, it can be concluded that the variance of the data on the character of discipline in the three schools is the same or homogeneous. After the data is normally distributed and homogeneous, a hypothesis test is carried out, namely the ANOVA test. The results of the ANOVA test can be observed in Table 8.

Table 8. One way ANOVA test results

Character		Sum of Squares	Df	Mean Square	F	Sig.
Homeland love	Between Groups	237.783	2	118.892	5.119	.007
	Within Groups	3971.694	171	23.226		
	Total	4209.477	173			
Tolerance	Between Groups	166.357	2	83.179	3.461	.034
	Within Groups	4109.758	171	24.034		
	Total	4276.115	173			
Discipline	Between Groups	327.212	2	163.606	6.660	.002
	Within Groups	4200.995	171	24.567		
	Total	1528.207	173			

Table 8 shows the results of the oneway ANOVA test for the characters of love for the homeland, tolerance and discipline. On the character of love for the homeland, obtained a significance value (Sig.) of 0.007. Because the value of Sig 0.007 < 0.05, as the basis for decision making in the one way ANOVA test, it can be concluded that the average results of the character of love for the homeland at SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, and SD Negeri 064/I Muara Bulian are significantly different significant. On the character of tolerance, obtained a significance value

(Sig.) of 0.034. Because the Sig value is 0.034 < 0.05, as the basis for decision making in the one way ANOVA test, it can be concluded that the average results of tolerance characters at SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, and SD Negeri 064/I Muara Bulian are significantly different.

On the character of discipline, obtained a significance value (Sig.) of 0.0027. Because the value of Sig 0.002 < 0.05, as the basis for decision making in the one way ANOVA test, it can be concluded that the average results of discipline characters at SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, and SD Negeri 064/I Muara Bulian are significantly different. Furthermore, to find out which schools have a significant average difference in the use of e-assessment to measure character, further testing is needed. Further testing can be done by post hoc test with Tukey HSD test. The results of the Tukey HSD love for the homeland character are shown in Table 9.

Table 9. Tukey HSD test results homeland love character

Multiple Comparisons						
Tukey HSD						
(I) School	**(J) Scholl**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	***Upper Bound***
SDN 034/I Teratai	SDN 045I Sridadi	1.885	.907	.097	-.26	4.03
	SDN 064/I Muara Bulian	2.830*	.896	.005	.71	4.95
SDN 045I Sridadi	SDN 034/I Teratai	-1.885	.907	.097	-4.03	.26
	SDN 064/I Muara Bulian	.945	.884	.534	-1.14	3.04
SDN 064/I Muara Bulian	SDN 034/I Teratai	-2.830*	.896	.005	-4.95	-.71
	SDN 045I Sridadi	-.945	.884	.534	-3.04	1.14

Table 9 shows the results of the post hoc follow-up test for the character of love for the homeland which was carried out through the Tukey HSD test. Based on the table above, the average difference in the character of love for the homeland is between SD Negeri 034/I Teratai and SD Negara 064/I Muara Bulian. This is indicated by the average difference of 2,830. Then, the significance value (Sig.) of the two elementary schools is 0.005 < 0.05. So, it can be concluded that the average difference in the character of love for the homeland when using e-assessment is found in SD Negeri 034/I Teratai and SD Negara 064/I Muara Bulian are significantly different. In addition, the asterisk in the results of the average difference also indicates that the two have a significant average difference. Furthermore, the results of the Tukey HSD tolerance character test are shown in Table 10.

Table 10. Tukey HSD test results tolerance character

Multiple Comparisons						
Tukey HSD						
(I) School	**(J) Scholl**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	***Upper Bound***
SDN 034/I Teratai	SDN 045I Sridadi	-1.268	.923	.356	-3.45	.91
	SDN 064/I Muara Bulian	1.096	.912	.456	-1.06	3.25
SDN 045I Sridadi	SDN 034/I Teratai	1.268	.923	.356	-.91	3.45
	SDN 064/I Muara Bulian	2.365*	.899	.025	-.24	4.49
SDN 064/I Muara Bulian	SDN 034/I Teratai	-1.096	.912	.453	-3.25	1.06
	SDN 045I Sridadi	-2.365*	.899	.025	-4.49	-.24

Table 10 shows the results of the post hoc follow-up test for tolerance characters carried out through the Tukey HSD test. Based on the table above, there are differences in the average tolerance character between SDN 045I Sridadi and SD Negara 064/I Muara Bulian. This is indicated by the average difference of 2.365. Then, the significance value (Sig.) of the two elementary schools is 0.025 < 0.05. So, it can be concluded that the difference in the average tolerance character when using e-assessment is significantly different at SDN 045I Sridadi and SD Negara 064/I Muara Bulian. In addition, the asterisk in the results of the average difference also indicates that the two have a significant average difference. Furthermore, the results of the Tukey HSD disciplinary character test are shown in Table 11.

Table 11. Tukey HSD test results character discipline

Multiple Comparisons						
Tukey HSD						
(I) School	**(J) Scholl**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	***Upper Bound***
SDN 034/I Teratai	SDN 045I Sridadi	1.721	.933	.158	-.48	3.93
	SDN 064/I Muara Bulian	-1.597	.922	.196	-3.78	.58
SDN 045I Sridadi	SDN 034/I Teratai	-1.721	.933	.158	-3.93	.48
	SDN 064/I Muara Bulian	-3.317*	.909	.001	-5.47	-1.17
SDN 064/I Muara Bulian	SDN 034/I Teratai	1.597	.922	.196	-.58	3.78
	SDN 045I Sridadi	3.317*	.909	.001	1.17	5.47

Table 11 shows the results of the post hoc follow-up test for disciplined characters carried out through the Tukey HSD test. Based on the table above, there are differences in the average disciplinary character between SDN 045I Sridadi and SD Negara 064/I Muara Bulian. This is indicated by the average difference of 3,317. Then, the significance value (Sig.) of the two elementary schools is 0.001 < 0.05. So, it can be

concluded that the difference in the average discipline character when using e-assessment at SD Negeri 034/I Teratai and SD Negara 064/I Muara Bulian is significantly different. In addition, the asterisk in the results of the average difference also indicates that the two have a significant average difference.

Furthermore, to determine the validity of the developed character e-assessment, it is necessary to do a product validation test. Product validation tests are carried out by experts to assess the products developed so that later the product is ready for use. The product validation test results are shown in Table 12.

Table 12. Product validation test results

No.	Assessment Aspect	Validators I			Validators II		
		Mean	***Percentage***	***Category***	***Mean***	***Percentage***	***Category***
1.	Functionality	3.44	86%	Very Good	3.33	83.33%	Very Good
2.	Reliability	3.33	83.33%	Very Good	3.14	78.57%	Good
3.	Usability	3.28	82%	Very Good	3.40	85%	Very Good
4.	Efficiency	3.20	80%	Good	3.33	83.33%	Very Good
Overall average		3.31	82.90%	Very Good	3.30	82.56%	Very Good

Table 12 shows the results of product validation by validator I and validator II. It is known that the results of the assessment by validator I obtained an overall average score of 3.31 or 82.90% which is in the very good category so that the product is declared valid. The aspect of assessment with the highest score is the aspect of functionality with an average score of 3.44 or 86%, then followed by the aspect of reliability with an average score of 3.33 or 83.33%. The usability aspect gets an average score of 3.28 or 82% and the usability aspect gets an average score of 3.20 or 80%. Based on the average score of each aspect, three of the four aspects of the assessment are in the very good category.

Furthermore, it is known that the results of the assessment by validator II the overall average score is 3.30 or 82.56% which is in the very good category so that the product is declared valid. The aspect of the assessment with the highest score is the usability aspect with an average score of 3.40 or 85%, then followed by the efficiency aspect and the functionality aspect with an average score of 3.33 or 83.33%. The reliability aspect obtained an average score of 3.14 or 78.57%. Based on the average score of each aspect, three of the four aspects of the assessment are in the very good category. The results of the e-assessment product to measure the character of elementary school students are shown in Table 13 [111-112].

Table 13. Student character assessment results

No.	Name	NIS	Religious		Honest		Tolerance	
			Score	***Category***	***Score***	***Category***	***Score***	***Category***
1.	Amelia	1111	4.34	Very good	4.71	Good	4.28	Good
2.	Ardi	1112	3.93	Good	4.5	Very good	4.33	Very good
3.	Dilla	1113	4.59	Very good	4.5	Very good	4.74	Very good

Descriptive tests that have been carried out on data on the character of love for the homeland, tolerance, and discipline at SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I Muara Bulian were analyzed by comparing the percentages obtained by students based on predetermined criteria so that they can a conclusion is drawn. The description of the character of love for the homeland in SD Negeri 034/I Teratai found that 63.6% or as many as 35 students were in the very good category. At SD Negeri 045I Sridadi obtained a percentage of 51.7% or as many as 30 students were in the good category. In SD Negeri 064/I Muara Bulian, the percentage of 70.5% or 43 students is in the good category. Then, SD Negeri 034/I Teratai obtained the highest love for the country with an average of 89.11, SD Negeri 045I Sridadi was in second place with an average of 87.22, and SD Negeri 064/I Muara Bulian got third place with an average - an average of 86.28.

Description of the character of tolerance in SD Negeri 034/I Teratai obtained that 67.3% or as many as 37 students are in the good category. At SD Negeri 045I Sridadi obtained a percentage of 63.8% or as many as 37 students were in the very good category. In SD Negeri 064/I Muara Bulian, the percentage is 67.2% or 41 students are in the good category. Then, SD Negeri 045I Sridadi obtained the highest tolerance character results with an average of 88.41, SD Negeri 034/I Teratai was in second place with an average of 87.15, and SD Negeri 064/I Muara Bulian got third place with an average of 86.05. The description of the character of discipline in SD Negeri 034/I Teratai found that 65.5% or as many as 36 students were in the good category. At SD Negeri 045I Sridadi obtained a percentage of 62.1% or as many as 36 students were in the good category. In SD Negeri 064/I Muara Bulian, the percentage of 50.8% or as many as 31 students is in the very good category. Then, SD Negeri 064/I Muara Bulian obtained the highest discipline character results with an average of 89.20, SD Negeri 034/I Teratai was in second place with an average of 87.60, and SD Negeri 045I Sridadi was ranked third with an average of 85.88.

Prerequisite tests were also carried out in this study, namely normality test and homogeneity test. The normality test carried out on the character of love for the homeland showed that SD Negeri 034/I Teratai obtained a Sig. of 0.103, SD Negeri 045I Sridadi obtained a Sig. of 0.091, and SD Negeri 064/I Muara Bulian obtained a Sig. of 0.081. So, the character of love for the homeland in the three schools is normally distributed with a significance value of > 0.05. The normality test carried out on the tolerance character showed that SD Negeri 034/I Teratai obtained a Sig. of 0.079, SD Negeri 045I Sridadi obtained a Sig. of 0.098, and SD Negeri 064/I Muara Bulian obtained a Sig. of 0.088. So, the tolerance character in the three schools is normally distributed with a significance value > 0.05. Then, the normality test conducted on the discipline character showed that SD Negeri 034/I Teratai obtained a Sig. of 0.093, SD Negeri 045I Sridadi obtained a Sig. of 0.083, and SD Negeri 064/I Muara Bulian obtained a Sig. of 0.200. So, the character of love for the homeland in the three schools is normally distributed with a significance value of > 0.05.

In addition, the data in this study also went through a homogeneity test. Homogeneity test on the character of love for the homeland shows the value of Sig. of 0.174. Because the value of Sig. > 0.05 then the variance of data on the character of love for the homeland at SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I

Muara Bulian is the same or homogeneous. Furthermore, the tolerance character shows the value of Sig. of 0.197. Because the value of Sig. > 0.05 then the variance of tolerance character data at SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I Muara Bulian is the same or homogeneous. Discipline character shows the value of Sig. of 0.181. Because the value of Sig. > 0.05 then the variance of the discipline character data at SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I Muara Bulian is the same or homogeneous. Furthermore, because the two prerequisite tests have been met, a hypothesis test will be carried out, namely the ANOVA test.

The ANOVA test in this study was conducted with the aim of comparing the average values for the character variables of love for the homeland, tolerance, and discipline in the three schools that were the research locations, namely SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I. Bulian Estuary. On the character of love for the homeland obtained a significance value (Sig.) of 0.007. Because the value of Sig. < 0.05 then the average result of patriotism in SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I Muara Bulian has a significant difference. On the character of tolerance obtained a significance value (Sig.) of 0.034. Because the value of Sig. < 0.05 then the average result of tolerance character in SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I Muara Bulian has a significant difference. In the discipline character, the significance value (Sig.) is 0.002. Because the value of Sig. < 0.05 then the average result of discipline character in SD Negeri 034/I Teratai, SD Negeri 045I Sridadi, SD Negeri 064/I Muara Bulian has a significant difference. The significant mean differences between the three schools in the characteristics of love for the homeland, tolerance, and discipline can be analyzed in more detail. A more detailed analysis aims to find out which schools have significantly different averages. This significant difference can be observed in more detail through a post hoc follow-up test in the form of the Tukey HSD test.

The Tukey HSD test that was carried out showed that the average difference in the results of the love for the homeland character when using e-assessment was found in SD Negeri 034/I Teratai and SD Negara 064/I Muara Bulian. This is indicated by the acquisition of a significance value (Sig.) of 0.005 < 0.05. The average difference obtained is 2,830. Based on the average results of the love for the homeland character, SD Negeri 034/I Teratai obtained an average of 89.11 which is the highest average. Meanwhile, SD Negeri 064/I Muara Bulian obtained an average of 86.28 which is the lowest average of the three schools that were the research locations. The highest and lowest average gains are the determining factors for the two schools to have a significant average difference.

The character of students' tolerance when using e-assessment was found at SD Negeri 045I Sridadi and SD Negara 064/I Muara Bulian. This is indicated by the acquisition of a significance value (Sig.) of 0.025 < 0.05. The average difference obtained is 2,365. Based on the average results of the love for the homeland character, SD Negeri 045I Sridadi obtained an average of 88.41 which is the highest average. Meanwhile, SD Negeri 064/I Muara Bulian obtained an average of 86.05 which is the lowest average of the three schools that became the research location. The highest and lowest average gains are the determining factors for the two schools to have a signifi-

cant average difference. The discipline character of students when using e-assessment was found at SD Negeri 045I Sridadi and SD Negara 064/I Muara Bulian. This is indicated by the acquisition of a significance value (Sig.) of 0.001 < 0.05. The average difference obtained is 3,317. Based on the average results of the love for the homeland character, SD Negeri 064/I Muara Bulian obtained an average of 89.20 which is the highest average. While SD Negeri 045I Sridadi obtained an average of 85.88 which is the lowest average of the three schools that were the research location. The highest and lowest average gains are the determining factors for the two schools to have a significant average difference.

The e-assessment developed to measure the character of love for the homeland must go through a product validation test before it can be used in the assessment process. The product validation test was carried out by two media expert validators. The results of the assessment by validator I obtained an overall average score of 3.31 with a percentage of 82.90% which was in the very good category so that the e-assessment product of the love for the homeland character that was developed could be declared valid. Aspects of the assessment of functionality obtained an average score of 3.44 with a percentage of 86%. The reliability aspect obtained an average score of 3.33 with a percentage of 83.33%. The usability aspect obtained an average score of 3.28 with a percentage of 82%. The efficiency aspect obtained an average score of 3.20 with a percentage of 80%. Based on the average score for each of these aspects, three of the four aspects of the assessment are in the very good category. Thus, the results of product validation by validator I get very good results.

The results of the assessment by validator II obtained an overall average score of 3.30 with a percentage of 82.56% which was in the very good category so that the e-assessment product of the love for the homeland character developed was declared valid. The functionality aspect got an average score of 3.33 with a percentage of 83.33%. The reliability aspect obtained an average score of 3.14 with a percentage of 78.57%. The usability aspect obtained an average score of 3.40 with a percentage of 85%. The efficiency aspect obtained an average score of 3.33 with a percentage of 83.33%. Based on the average score for each of these aspects, three of the four aspects of the assessment are in the very good category. Thus, the results of product validation by validator I and validator II get very good results so that the e-assessment product for the love of the homeland character can already be used for the process of assessing the love of the homeland character in schools.

The use of e-assessment to measure the character of love for the homeland, tolerance, and discipline will bring up the teacher's response as the user of the e-assessment. The teacher gave a positive response regarding the application of e-assessment in assessing the character of patriotism, tolerance, and discipline. Through interviews conducted, the results of the interviews are shown as follows.

- “I really like the appearance of the developed e-assessment because it is very attractive when used.”
- “The use of e-assessment made me interested in filling out questionnaires and made it very easy for me to enter student character data.
- “The features available in the e-assessment are very easy to use.”

- "This e-assessment is better than conventional assessments that use paper because there is no need to print an assessment sheet each time you make an assessment."
- "There is a guide to using the e-assessment either in pdf or video form, making it easier for me to learn how to use the e-assessment."
- "The application of e-assessment which is used to measure the character of love for the homeland, tolerance, and discipline is very helpful for teachers in making assessments because it provides very detailed and real time data processing results."

Many researches on character assessment have been carried out, which explains the development of character assessment instruments with the aim of developing students' character in biology subjects [113]. Furthermore explains the importance of prospective teachers to be able to implement character education in schools because character education will be able to lift and improve the morale of the nation's successors so it is very necessary to implement character education [114]. Explains the effectiveness of authentic assessment in evaluating the character of students at the elementary school level where with this assessment the teacher will be able to improve the character of students [115]. Which explains that student achievement at school is related to the character of the students themselves besides that character will also affect the daily behavior of a student and is more related than the character of high school students [116]. Examined the character of a high school student can be measured using a web assessment and in using this website is also influenced by the student's own response with the aim of the website being to facilitate teachers in assessing the character of high school students [117].

4 Conclusion

In this study, research was conducted to find out how the teacher's response to the use of character e-assessment was for elementary school students; knowing the results of the assessment of the character of love for the homeland, tolerance, and discipline; knowing the comparison of the results of the character assessment in three schools, knowing the validity and feasibility of the character e-assessment. Users (teachers) have a very good response to the application of e-assessment which is used to measure the character of love for the homeland, tolerance, and discipline in elementary schools. In the data for the character of love for the homeland, the highest average score is at SD Negeri 034/I Teratai, which is 89.11. On the character of tolerance, the highest average score was at SD Negeri 045I Sridadi at 88.41. On the character of discipline, the highest average score was at SD Negeri 064/I Muara Bulian at 89.20. Schools that have differences in the average results of patriotism when using e-assessment are found in SD Negeri 034/I Teratai and SD Negara 064/I Muara Bulian. Schools that have differences in the average results of tolerance characters when using e-assessment are found at SDN 045I Sridadi and SD Negara 064/I Muara Bulian. Schools that have differences in the average results of disciplined characters when using e-assessment are found in SD Negeri 034/I Teratai and SD Negara 064/I Muara Bulian.

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