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Profile of Students' Character in the Reading to Learn (R2L) Model in Improving Scientific Literacy Skills

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ABSTRACT

Reading to learn (R2L) is a new learning model that can improve students' literacy skills. This study aims to determine the character profile of students during learning with the R2L model to improve their scientific literacy skills. Furthermore, this research will determine whether the R2L model can support science learning based on observing students' characters in class during learning. This learning was carried out for 3 meetings on static electricity material. During the study, two observers made observations using an observation sheet containing the student's character. Aspects of student character observed in this study: curiosity, adaptability, soci0-cultural behaviour, and initiative. The students observed consisted of four classes. The total number of students involved was 64 students (n=64). Based on observations, the highest character that emerged from students during learning was the character of socio-cultural behaviour (52.95%), while the lowest character was curiosity (44.44 %). The high achievement of socio-cultural behaviour shows that during learning using the R2L model, students can actively participate in learning with other students. This has a positive impact because students can communicate and exchange opinions about the material being studied. However, this study only describes the character profiles of students during R2L learning in one science topic. Further research is needed to examine more deeply whether the students' characters that appear during this learning are eligible to be applied to science.

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1. INTRODUCTION

Based on data released by the Organization for Economic Co-operation and Development (OECD), the results of the assessment of Indonesian students on international assessments through the Program for International Student Assessment (PISA) still need to be improved. Reporting from Kompas.com daily, the PISA results achieved by Indonesia in 2018 in reading competence were ranked 72 out of 77 countries, mathematics competence was ranked 72 (out of 78 countries), and ranked 70th (out of 78 countries). On achievements in the field of science (Kasih, 2020). This low achievement needs to be used as a basis for improving the quality of education in Indonesia, especially in the field of literacy, to improve student competence in Indonesia.

One of the government's efforts to improve student competence is to map school students' competence by holding a National Assessment. Based on the explanation of the Minister of Education, Culture, Research, and Technology on the YouTube channel of the Indonesian Ministry of Education and Culture, Nadiem Makarim stated that in the National Assessment, evaluation is carried out on the education system no longer the individual achievements of each student. Furthermore, the evaluation of the education system aims to map the education system, including the Minimum Competency Assessment (AKM), character surveys, and learning environment surveys. Thus, to measure students' literacy and numeracy competencies, including mapping the students' literacy skills in Indonesia, the government held a Minimum Competency Assessment (AKM) program (Rohim, 2021).

The emergence of a National Assessment framework consisting of a Minimum Competency Assessment (AKM), a character survey, and a learning environment survey encourages teachers at the school level to adapt to current demands. The AKM is an assessment system aiming to improve the quality of learning and learning outcomes, especially students' literacy skills. The emergence of this challenge needs to be addressed with careful preparation and support from various parties. To improve the quality of education itself, various ways can be done, including encouraging students to think critically, making students participate in the learning process (Harjanto et al., 2017) and completing supporting teaching and learning activities such as facilities and infrastructure (Megasari, 2020). These efforts are expected to boost the quality of education in Indonesia.

The importance of the learning model as a medium to train students' skills needs to be paid attention to. In carrying out learning activities, the model was chosen to train students' literacy and competence must be following its objectives. Of the many learning models, one model that is usually trained to improve literacy competence is the Reading to Learn (R2L) model. Reading to Learn (R2L) is a set of strategies that teachers can apply by involving reading and writing activities to improve students' literacy competence (Rose, 2021). Thus, this model is expected to help students improve their literacy, in terms of reading, mathematics, and science.

Scientific literacy is important as students are stimulated to connect science concepts with other concepts to enrich their knowledge (Puskurbuk, 2017). The results of prior research revealed that reading activities can develop students' scientific literacy skills. A study showed that reading activity is one of the effective ways that can maintain students' epistemic insight, which is the core of scientific literacy (Kiang & Colanero, 2020). Furthermore, Kiang & Colanero (2020) revealed that the framework can make students more sensitive to different views on science. By training students with scientific literacy skills, it is expected that students can get used to always overcoming existing challenges and problems.

In the Reading to Learn (R2L) learning process to improve students' scientific literacy, one aspect that is also important is the student's character during learning. Characters demanded in the 21st century, some of which are curiosity, initiative, persistence, adaptability, leadership, and social and cultural awareness (Soffel, 2016). These characters can also be observed when learning is carried out to support students in achieving learning competencies. Scientific character is one of the important things in discovering scientific concepts (Kurniawati & Atmojo, 2017). Teachers who focus on character education will generate students with character because students will get used to it and make the

surrounding environment an example (Birhan et al., 2021). Character education in the learning process can be realized by training students to improve self-control and social skills (Jeynes, 2019).

Character during learning needs to be a concern because character has an important role in optimizing the application of R2L models in the classroom. To improve scientific literacy by using the R2L model that focuses on reading activities, students need to be familiar with reading activities (Muttaqiin & Sopandi, 2016). Therefore, student observations were carried out to determine students' character during learning that focuses on reading activities. Knowing students' character during learning is expected that the application of the R2L model in further studies will be more optimal. Based on this background, this study aims to describe the character profile of students during learning by using the Reading to Learn (R2L) model to improve their scientific literacy skills. Thus, the research question is, "How is the profile of the students' character during learning with the Reading to Learn (R2L) model to improve scientific literacy?"

2. METHODS

This research is a qualitative research conducted with observation activities in data collection (Gill et al., 2008). The number of samples from this study was 64 junior high school students in class IX in a school in West Sumatra, which consisted of 4 observation classes, namely Class A (n=16), Class B (n=16), Class C (n=16), and Class D (n=16). Research activities were carried out on integrated science learning on static electrical material. The instrument used to collect data is an observation sheet containing character indicators guided by students' must-have characters in the 21st century. The characters used as indicators are the characters demanded by the 21st century and are observed in science learning. These characters include curiosity, adaptability, socio-cultural behavior, and initiative (Soffel, 2016). Observations or direct observations were carried out for three meetings with two observers. Observations were made in four different classes, each consisting of two observers. Observations were carried out comprehensively from the beginning to the end of the meeting. Data analysis was done by tabulating the score on the observation sheet and then converted into a scale of 0-100 (%). Furthermore, the findings were analyzed in the form of tables and graphs using descriptive statistical calculations to find out the description and findings of the observations. Collecting data through observations that have been made and then described, in accordance with qualitative research methods. Conclusions are drawn inductively based on the findings obtained. An overview of this research method can be seen in Fig. 1.

Steps	2 observers	2 observers	2 observers	2 observers
First Observation Prepare Reading and Summary of The Text	Class A n=16	Class B n=16	Class C n=16	Class D n=16
Second Observation Detail Reading and Note Making	Class A n=16	Class B n=16	Class C n=16	Class D n=16
Third Observation Joint Construction	Class A n=16	Class B n=16	Class C n=16	Class D n=16

Fig. 1. Student Character Observation Class in Reading to Learn (R2L) Learning.

3. FINDINGS AND DISCUSSION

This research was carried out to examine the profile of character aspects possessed by class IX students of SMP when learning using Reading to Learn (R2L). Based on the observations presented in Fig. 2, it is known that the character aspect obtained by Class A during three meetings has the highest

achievement in the socio-cultural behavior aspect, which is 46.53%, and the lowest achievement in the curiosity aspect, which is 40.97%. Furthermore, the achievement of characters in Class B for three meetings had the highest achievement in the socio-cultural behavior aspect, namely 56.94%, and the lowest achievement in the curiosity aspect, which was 45.14%. Meanwhile, Class C obtained the highest achievement of 54.17% in the adaptability aspect and the lowest achievement of 43.06% in the initiative aspect. Class D has the highest achievement in socio-cultural behavior (56.94%) and the lowest in the initiative aspect (42.36%).

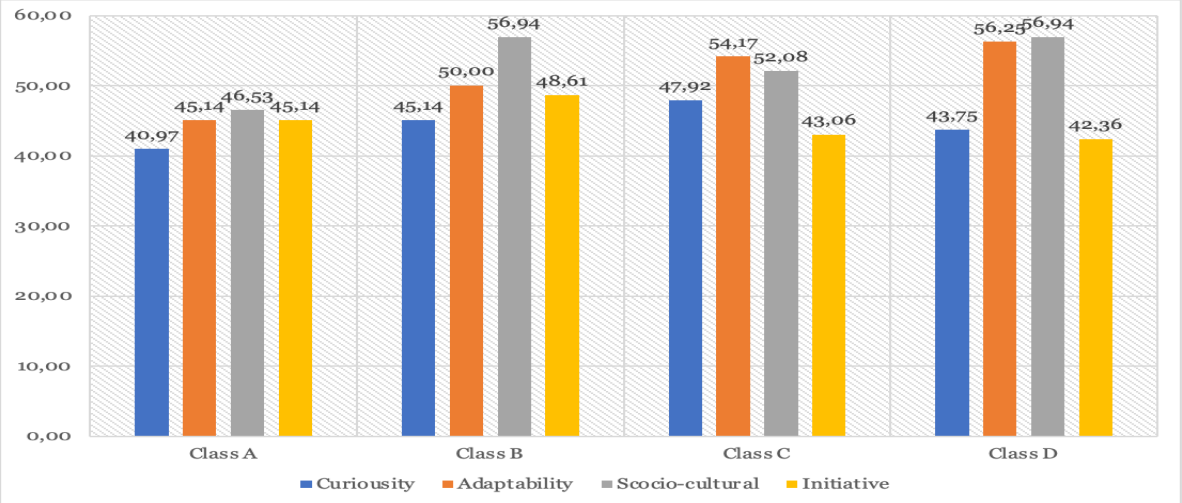

Fig. 2. Recapitulation of Average Character Achievements in All Classes

Profile of Students' Character during the Implementation of Reading to Learn (R2L) in Class A

A total of 16 students in Class A were observed for three consecutive meetings when the Reading to Learn (R2L) model was applied in the classroom. Based on the observations that can be seen in Table 1, the average character of students in Class A is 44.44%. From the aspect of curiosity, the character profile of students has increased from the first meeting to the final meeting. This is different from the achievement in other aspects of character, wherein the aspect of adaptability, socio-cultural behavior, and initiative, the highest student character achievement is at the second meeting. The highest achievement in class A is in the aspect of the character of socio-cultural behavior (46.53%). This behavioral character aspect is reflected in the student learning process, where students appear to have high motivation, focus on paying attention to the teacher when explaining learning and can respect the opinions of their friends when their friends express their opinions.

Meanwhile, the low curiosity aspect of students in class A (40.97%) is indicated by the lack of student activity (in asking questions and opinions). The low aspect of curiosity needs to be constantly improved because curiosity is vital for students (Salirawati, 2012). Overall, the character achievement that tends to increase at the second meeting of the R2L learning process (see Fig. 3) can be caused by activities in R2L, namely when students actively participate in class. Active learning is flexible to be applied (Hernández-de-Menéndez et al., 2019). Actively participating in learning is positive because an active learning approach works better than a passive approach (Michael, 2006).

Table 1. Achievement of the Character Aspects of Class A Students during Reading to Learn (R2L) Implementation

	Meeting	Character Aspect (%)				Averg. (%)	Std. Dev.
		Curiousity	Adaptability	Socio-cultural	Inisiative		
Class An=16	1	37,50	39,58	39,58	43,75	40,10	12,25
	2	41,67	58,33	60,42	50,00	52,60	9,96
	3	43,75	37,50	37,50	41,67	40,63	9,56
	Average	40,97	45,14	46,53	45,14	44,44	8,43

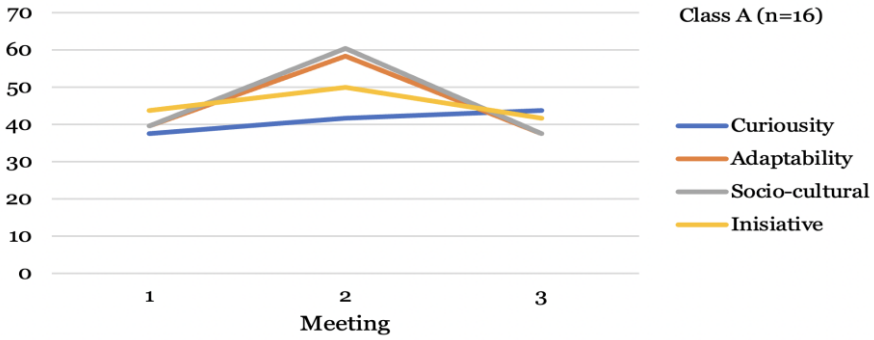

Fig. 3. Achievement of Character Aspects at Each Meeting in Class A

Profile of Students' Character during the Implementation of Reading to Learn (R2L) in Class B

Students' character during learning tends to fluctuate during the three meetings that have been carried out. All aspects of character in meeting 2 have higher scores than in other meetings (seen in Table 2). Overall, the average character value in Class B is 50.17%. Based on observations, the visible activity is that students listen to the teacher's explanation accompanied by opening books and writing important information conveyed by the teacher. Conventional teacher explanations will positively impact teachers because the material presented is presented systematically, and the teacher can emphasize important material so that material delivery becomes effective (Delisda & Sofyan, 2014).

Overall, the achievement of students' character in class during learning increased at the second meeting when learning fully involved students for discussion (see Fig. 4). At the second meeting, students were also asked to read the text in detail. Through reading activities while using the R2L model, students are required to have a comprehensive understanding of the text given. Thus, students will indirectly be directly involved in thinking and learning. Active learning is flexible and can be applied to many conditions (Hernández-de-Menéndez et al., 2019).

Table 2. Achievement of the Character Aspects of Class B Students during Reading to Learn (R2L) Implementation

	Meeting	Character Aspect (%)				Averg. (%)	Std. Dev.
		Curiousity	Adaptability	Socio-cultural	Inisiative		
Class B n =16	1	45,83	43,75	54,17	43,75	46,88	10,03
	2	47,92	60,42	56,25	54,17	54,69	8,59
	3	41,67	45,83	60,42	47,92	48,96	10,49
	Average	45,14	50,00	56,94	48,61	50,17	6,53

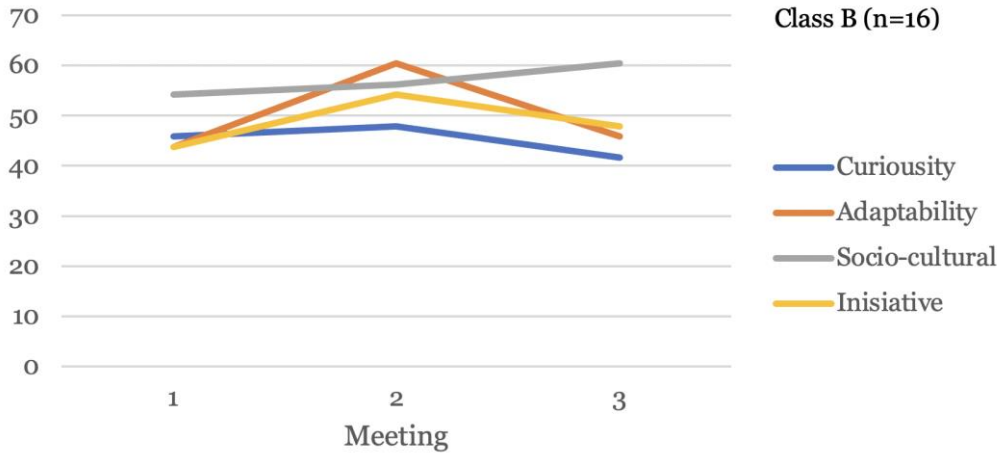

Fig 4. Achievement of Character Aspects at Each Meeting in Class B

Profile of Students' Character during the Implementation of Reading to Learn (R2L) in Class C

During the three meetings, the average grade C students' overall character score was 49.31% (seen in Table 3). The highest character value is in the adaptive character (54.17%). Based on observations, students actively participate and mingle with others in completing assignments during learning. Unfortunately, some students still have low self-confidence to express their opinions because they think their answers are incorrect, causing their initiative character values to be low compared to other aspects (43.06%). Thus, students need to improve the character of their initiative and self-regulation because students who have good self-regulation will positively affect their academic success (Witarsa, 2017).

Similar to the two classes discussed earlier, in class C, the highest achievement related to character during learning was at the second meeting (see Fig. 5). In class C, "detail reading" and "note-making" activities are also carried out. Detailed reading activities will deepen students' understanding of the text presented in learning. Activities in detail reading relate to the increasing volume of reading. There is evidence that reading volume has a role in reading skills (Allington & McGill-Franzen, 2021). With this more detailed reading activity, the findings show that students' character also has higher achievements compared to previous meetings that have not actively implemented student participation.

Table 3. Achievement of the Character Aspects of Class C Students during Reading to Learn (R2L) Implementation

	Meeting	Character Aspect (%)				Averg. (%)	Std. Dev.
		Curiousity	Adaptability	Socio-cultural	Inisiative		
Class C n=16	1	41,67	41,67	47,92	43,75	43,75	9,38
	2	52,08	60,42	58,33	43,75	53,65	10,08
	3	50,00	60,42	50,00	41,67	50,52	9,36
	Average	47,92	54,17	52,08	43,06	49,31	7,14

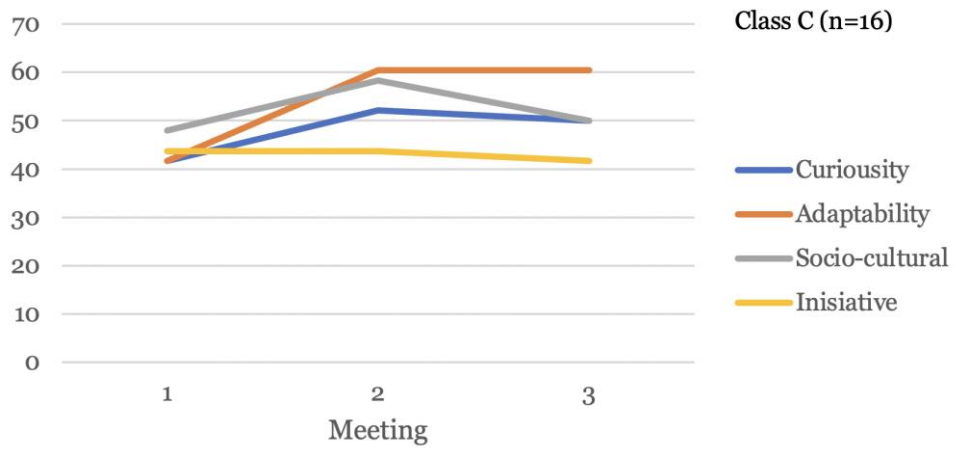

Fig. 5. Achievement of Character Aspects at Each Meeting in Class C

Profile of Students' Character during the Implementation of Reading to Learn (R2L) in Class D

The average value of the student's character in Class D during learning with the R2L model is 49.83% (Table 4). In the aspect of curiosity, the description of Class D's curiosity character is the same in every meeting. That is, there is no reduction or increase in curiosity during the learning activities. Meanwhile, on the aspects of adaptability, character, socio-cultural behavior, and initiative, the average character value of the second meeting was higher than the other meetings. Overall, the character achievement in class D is almost the same as in the three classes that have been discussed previously. The highest achievement of the character in class D is at the second meeting (see Fig. 6). By carrying out detailed reading activities during the learning process, it has been observed that student participation in class increased, as indicated by the increase in student character achievement during learning at the second meeting.

Table 4. Achievement of the Character Aspects of Class D Students during Reading to Learn (R2L) Implementation

	Meeting	Character Aspect (%)				Averg. (%)	Std. Dev.
		Curiousity	Adaptability	Socio-cultural	Inisiative		
Class D n=16	1	43,75	45,83	52,08	39,58	45,31	10,53
	2	43,75	62,50	62,50	45,83	53,65	9,11
	3	43,75	60,42	56,25	41,67	50,52	10,30
	Average	43,75	56,25	56,94	42,36	49,83	6,99

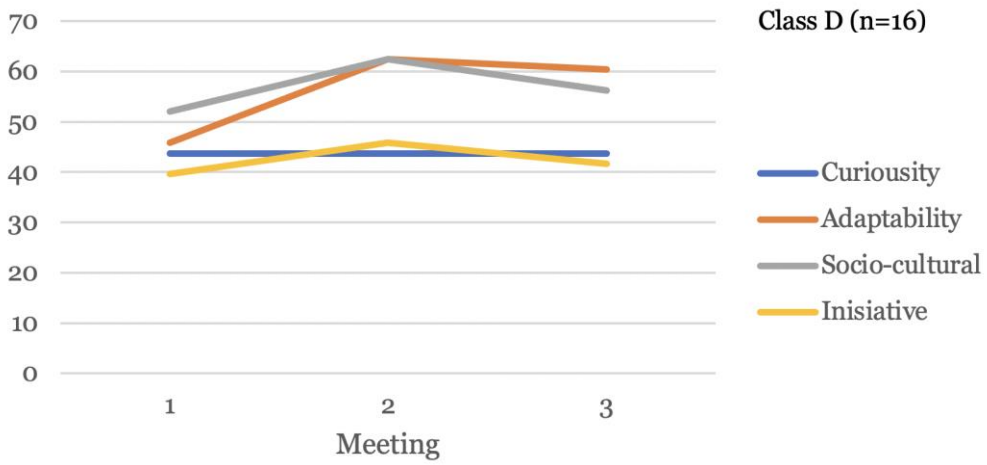

Fig. 6. Achievement of Character Aspects at Each Meeting in Class D

Based on observations from each class, it is known that the students' character at the second meeting in each class obtained the highest score compared to the first and third meetings. The increased participation of students can cause this during the learning process at the second meeting. Therefore, an approach, method, or learning model is one of the factors that cannot be avoided during learning. Some research results show that several approaches, methods, and learning models can increase student participation, such as the use of a scientific approach (Efendi et al., 2019), the use of a Think Pair Share type of cooperative learning model (Perawati et al., 2020), and implementation flipped classroom learning (Nurkhasanah, 2021). With the results of these studies, it turns out that the application of the R2L model to improve literacy skills also provides similar findings, namely increasing student participation in learning.

R2L learning activities at the second meeting, which were collaborated with a game in the form of competition in the note-making process (one of the stages of the R2L model), were predicted to be the main factor that caused this student's character to get the highest score compared to other meetings. In this game activity, students are asked to think independently and express their ideas, so that students could show their character. Thus, learning activities that involve students during the active learning process, such as this game activity, can be used as an alternative that can be applied in science learning, for example to improve students' scientific literacy because in the series of activities there are literacy activities such as reading and finding keywords in reading. Reading activities together in class is also one of the efforts that can be done to increase students' reading interest (Ilma & Ibrohim, 2020).

Comparison of Student Character Profiles during Reading to Learn (R2L) Implementation in All Classes

The character that students need to have is expected to be used as a provision to improve their skills in dealing with various situations that are in front of them. Therefore, the character achievement in each aspect observed in this study needs to be observed. Based on the observations' results, Figure 2 presents information related to the achievement of characters in each observation class. Based on data from the entire observation class, the class with the highest achievement of characters during the implementation of learning with the Reading to Learn (R2L) model was obtained by Class B, which was 50.17%, while the lowest achievement was obtained by class A, which was 44.44%. This difference is quite significant because, based on the standard error line in Figure 7, it is known that the range of standard error values in class B does not coincide with the standard error in class A.

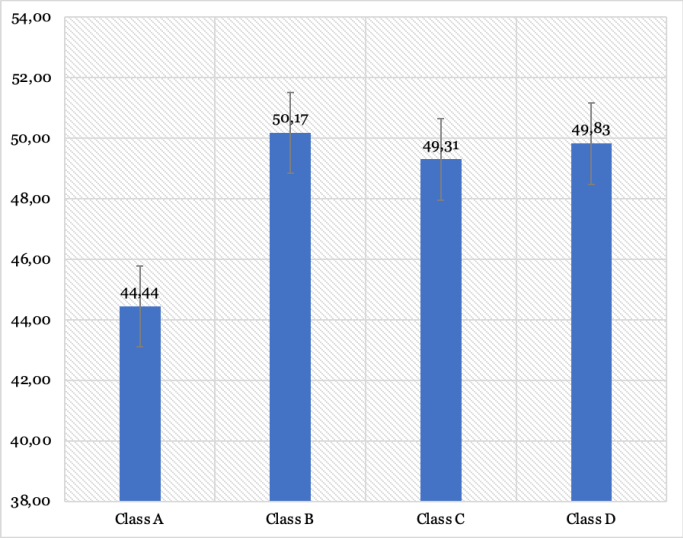

Fig. 7. Character Achievements during Reading to Learn (R2L) Learning

Character is an integral part of the process of teaching and learning activities in the classroom. Of the four practical classes, 3 have almost the same average, with standard errors in the same range. This shows that when learning Reading to Learn (R2L) in science learning to improve scientific literacy skills, students' character produces characters that are not much different from each other. Based on the data, the achievement of student's character when using the R2L learning model to improve scientific literacy skills is in the range of 50% (grades B, C, and D), which indicates that students' character still needs to be improved, both in terms of curiosity, adaptability, socio-cultural behavior, or initiative. Thus, character-based learning is fundamental to be integrated into science learning because it can make students more active during learning so that students can increase creativity and understand science concepts related to everyday life (Kurniawati & Atmojo, 2017).

Comparison of Student Character Profiles in Each Aspect during Reading to Learn (R2L) Implementation

Regarding the character aspect achieved during learning using the Reading to Learn (R2L) model in all classes, it was found that the character aspect with the highest value is the socio-cultural behavior aspect (52.95%). Meanwhile, the lowest achievement value was in the curiosity aspect, which was 44.44%, followed by the initial aspect, which had a value of 44.79% (see Fig. 8). Thus, the aspect that needs to be improved during the learning process with the Reading to Learn (R2L) model to improve scientific literacy is the knowledge aspect. The knowledge aspect is needed because with high curiosity, students will have motivation to know everything more deeply and broadly regarding what they are learning (Salirawati, 2012).

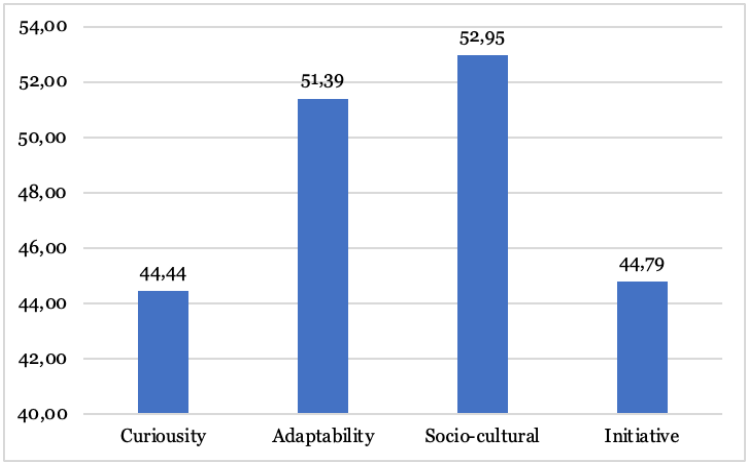

Fig. 8. Student Character Achievements in Every Aspect of Character in All Classes

The learning process using the Reading to Learn (R2L) model requires students to carry out in-depth reading activities. Activities that must be carried out are not just reading but just looking for words or terms considered foreign, then looking for further explanations related to these terms. The existence of activities to look for terms in the readings encourages students to work together and ask each other questions with friends. This is suspected to be the cause of the high value of the character of socio-cultural behavior because students will ask questions and listen to their friends' explanations with full responsibility. The character of responsibility is crucial because it familiarizes students to carry out the tasks and obligations that must be done, both to themselves and the surrounding environment (Ardila et al., 2017).

4. CONCLUSION

Character is one of the critical aspects demanded in the 21st century as part of the output that students must possess. Character is an essential thing because it can be a factor that influences students' success in learning and equips them to face the real world. This study intends to find out the description of the student's character during learning with the Reading to Learn (R2L) model implemented in learning. Based on the findings obtained, the profile of students' characters who stand out during learning using the Reading to Learn (R2L) model as an effort to improve scientific literacy skills in static electrical materials is on the character of socio-cultural behavior, whereby using this R2L model, students use social behavior characters more culture than the other characters observed. Furthermore, the findings show that the highest achievement of student character is at the second meeting, namely at the detailed reading and note-making stages. Thus, further research needs to accommodate the strategies that must be applied so that character achievement in meetings 1 and 3, namely at the stage of preparing reading, a summary of the text, and join construction, can also increase so that the application of the R2L model in the future will be more optimal. These findings have implications for science learning in improving scientific literacy, that the participation of students during learning plays a vital role in enhancing the student's character. The limitation of this study is the number of observers. For further research, the observers need to be put in every group in the classroom to optimize the quality of observation. Also, further research should not be limited to observation only but also do the depth-interview about their experience during R2L learning and give them guidance about improving students' characteristics through teacher intervention.

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