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Abstract. The ability of chemical literacy of junior high school students needs to get better attention so that they can easily understand chemistry lessons at the next level. Teachers and parents should be involved in guiding students to learn so that their understanding structures are well organized and clear. This research was quantitative descriptive study that aims to find out the chemical literacy ability, form of teacher and parent guidance, correlation between teacher and parent guidance on literacy chemical of student of grade VIII on atomic, ionic, and molecular topic. The research sample of 234 students was taken by simple random for four schools at South Sulawesi. The design of this study is a survey research with the study population was all grade VIII junior high school students in South Sulawesi. The ability of chemical literacy tested consists of the ability to understand the question methods that lead to scientific knowledge and the ability to organize, analyze and interpret quantitative data and scientific information with a total of 10 indicators. The instruments used included a questionnaire, and multiple choices test forms of 10 items that had been tested for validity and reliability. The provision of questionnaires aims to determine the role of teachers in the learning process at school and the role of parents in guiding students at home. The test is used to determine the literacy ability of students. Data were analyzed using descriptive quantitative statistics. The results of the data analysis found that average of the chemical literacy ability of junior high school students in South Sulawesi is in the category. The average correlation between teacher guidance with students were high category, and the average correlation between parent guidance with students were enough category.

Keyword: Literacy chemistry, teacher, parent, correlation, students junior high school

1. Introduction

Indonesian students have participated in the international arena to compete for quality Indonesia in the field of education. Even though students from Indonesia were still in the ranks under the PISA and TIMSS studies, but have tried their best so that the results of the Ministry of Education and Development Assessment and Education Centre Head of Education have recently stated emphatically that it has happened increased sampling in the PISA Test for students in Indonesia, ie starting in 2003 the achievement of students was only 46%, in 2006 it reached 53%, in 2012 to 63.4% and in 2015 it increased again to 68.2% [1]. For the PISA Exam system, it is determined directly by the OECD. This

test is assessed on three competencies, namely reading, mathematics and science. Science competency achieves the biggest results according to data from 2012-2015 obtained from 382 points up to 403 points (position up 6 ranks). However, the achievement of scientific literacy was still very far from developed countries.

One of the factors causing the ability of Indonesian scientific literacy is still low is the teacher's guidance during the learning process such as classroom management, direct involvement of students, use of learning models and methods, conformity with the characteristics of teaching materials, discipline, and direct individual guidance. Teacher and parent guidance is needed and this support is very beneficial for students, especially in the form of teacher guidance that reaches out to all students in the classroom. Including parents support in the form of intensive guidance to their children at home such as helping with work or homework, helping to solve problems faced by students. Effective teachers teach well as the results of the study, it found a positive correlation between teacher efficacy and learning outcomes with sufficient categories (56.27%) [2]. Teachers who gave efficacy support to students also gave a positive correlation rxy = 0.414 and p = 0,000, high teacher guidance made students' affective efficacy contributions (17.2%). Learning teachers need to work on various types of motivation so that students achieve good learning outcomes, according to him different motivations affect learning outcomes to be good [3]. The most dominant in influencing the success of learners is the teacher. They find good, fair, the flexible of teacher behaviour, have interesting strategies for each learning, and have a clear list of activities.

The guidance factor of parents (father and mother) to guide students at home in completing homework or when studying is one of the factors that needs serious attention and is carried out routinely with high quality time. Parental support for academic achievement and self-concept for students has a positive effect. Through the support of teachers and parents in learning allows students to be able to improve the ability of chemical literacy [4]. So far, students who take part in scientific literacy are still very few, so this situation can affect globally the number of students and the achievement of PISA literacy for Indonesia is still ranked sixth to eighth below. However, comparing the conditions of Indonesian scientific literacy with countries that are members of the Organization for Economic Cooperation and Development (OECD) is considered inappropriate by Mulyani Sri [5]. Countries with comparative results under the OECD mean don't mean the quality of education is poor [6].

junior high schools in South Sulawesi in March 2019, showed there were difficulties in junior high school students understanding scientific literacy at various levels and components. For example in atomic, ionic and molecular matter, the ability of students to communicate definitions or meanings with their own sentences is very difficult. Likewise in interpreting images and graphics that require association of concepts with understanding in drawing conclusions, it is very difficult. This is in accordance with the results of the study which states that the difficulty of scientific literacy of students is nominal, conceptual and dimensional literacy for lower strata students, whereas students at upper strata, have difficulty in functional literacy (limited to concept understanding). Other research results on the implementation of the 2015 PISA framework literacy competency through lesson study [7].

The results of research on the literacy ability of chemical science on atomic, ionic and molecular materials also need to be disclosed because this material is including basic material that is sufficient to help students understand chemistry lessons at the next level. Chemical material is filled with symbolic letters that have special rules in reading it and need guidance to understand it. Understanding requires guidance from teachers and parents effectively and continuously both at school and at home, so students are more interested in learning chemistry because they understand it well [8] states that chemistry lessons are indeed very difficult, but participants students who learn before learning begins at school apparently provide an understanding of the concepts of chemistry and core chemistry material. The behaviour of students towards chemistry is very good one of which is due to significant support factors at home and teachers in learning chemistry [9].

Based on several references to the results of the research above is the fact that the guidance of teachers and parents in learning chemistry can have a good impact on the ability of scientific literacy for students..This research try to raise a similar problem but in the topic of atomic, ionic and molecular

chemistry as the topic of basic material for chemical studies. More clearly this study is organized under the heading "Chemical literacy ability of junior high school students on atomic, ionic and molecular matter". Furthermore, the formulation of the problem is; 1) how the chemical ability of literacy students?, 2) is there a correlation between teacher guidance and the literacy ability of junior high school students in South Sulawesi, 3) is there a correlation between parent guidance with literacy skills of junior high school students in South Sulawesi.

2. Methods

2.1. Research Subjetcs

Research subject. The population in this study were all students of class VIII at SMP Negeri 6 in Makassar City, SMP Negeri 26 Makassar City, SMP Negeri 2 Maros, and SMP Negeri 4 Sinjai for the 2019/2010 academic year. The sample in this study amounted to 224 students taken by simple random sampling.

2.2. Methods

Research procedure. This research was preceded by observing. Next prepare the data collection instrument in the form of interviews, questionnaires for students and questionnaires for teachers and test sheets in the form of atomic, ionic and molecular matter in the form of multiple choices of 10 items. The data obtained were analyzed descriptively for data on the type of teacher and parent guidance presented in a tabular form. Data for literacy ability includes the number of samples, the highest and lowest chemical literacy ability values, then analyzed quantitatively knowing the correlation between teacher guidance and parents using the Sperman Rank correlation formula. The results of this study, then presented in the form of graphs, tables to facilitate the discussion and drawing conclusions.

Data collection technique. Data in this study were collected through open interview techniques, questionnaires and multiple choices tests. Interviews were conducted to all science teachers in four schools of 22 teachers to gather information related to the ability of chemical literacy in atomic, ionic, and molecular materials. Questionnaires were distributed to 224 students to capture data on parental profiles including data on parental guidance, and questionnaires for teachers to collect data on teacher profiles related to qualifications and strategies, models used in learning in schools. The multiple choices test instrument consists of 10 items containing atomic, ionic and molecular matter. The question has been validated and tested reliably. Allocation of time is used at the collection of data for two days. The test used was qualified to know the ability of chemical science literacy.

The data analysis technique used in this study was quantitative descriptive statistics. Descriptive statistical analysis aims to provide an overview of the achievement of chemical literacy ability test results used Table 1 [10] and the correlation between teacher and parent guidance with the chemical literacy ability of secondary school students in South Sulawesi by Guilfard [11] used Table 2.

Table 1. Interpretation of Students' Chemical Literacy Ability

No	Kemampuan Literasi	Kategoti
1	80 - 100	Baik Sekali
2	66 - 79	Baik
3	56 - 65	Cukup
4	40 - 55	Rendah
5	<40	Gagal

Table 2. Interpretation value of r.

Correlation Coeffisient (r)	Interpretation
0.80 – 1,00	Very High
0,60 – 0,80	High
0,40 – 0,60	Enough
0,20 – 0,40	Low
0,00 – 0,20	Lower

The correlation formula used is:

$$r_s = (rho) = 1 - 6. \sum Di^2 / N (N^2-1)$$

In this case

r_s = Koefisien korelasi spearman

$\sum Di^2$ = Jumlah kuadrat selisih rangking antara Xi dan Yi

3. Results and Discussions

The results of the descriptive analysis that have been found are answering the first question about students' chemical literacy abilities in the form of tabulations as Table 3.

Table 3. Descriptive analysis of students' chemical literacy abilities

Descriptive Statistic	SMP 6 MKS		SMP 26 MKS		SMP2MAROS		SMP 4 SINJAI		
	D	E	3	4	B	D	B	D	E
Number sample (*n*)	31	31	23	30	29	31	19	20	20
The highest score	20	60	40	40	40	50	40	50	70
The Lower Score	0	30	0	0	0	0	10	10	10
The Average(mean)	5,16	47,81	22,2	25	20,69	27,21	24,2	29	45
Deviation Standard	6,77	7,507	12,40	9,38	12,8	18,07	9,61	9,11	14,7

Table 3 shows that the highest value is 70, the lowest value is 0, with standard deviations varying from SD = 6.768 to SD = 18.068. Of the four schools, nine classes were sampled, showing that the price of elementary schools was quite long. These SD prices indicate that the sample taken has an average distance of very different observational data. This can occur because the subject under study is a human who can experience the development of different abilities based on their individual potential. The highest literacy ability is in the VIIIE grade of junior high school in Sinjai district. The lowest grade point average occurs in five classes spread over three schools. Furthermore, by categorizing literacy achievement, it is intended to find out the distribution of literacy ability categories of students in the number and percentage of achievement. This information can be seen in Table 4.

Table 4. Categories of Students' Chemical Literacy Achievemen

Interval	Categoris	Junior high school (SMP N)									Number of Students	Percentage %
		6 Makassar		26 Makassar		2 Maros		4 Sinjai				
		D	E	3	4	A	B	B	D	E		
80-100	V. good	0	0	0	0	0	0	0	0	0	0	0,00
66-79	Good	0	0	0	0	0	0	0	0	1	1	0,43
56-65	Enough	0	5	0	0	0	0	0	0	2	7	2,99
40-55	Less	0	25	4	5	5	13	2	3	13	70	29,91
>39	Failed	31	1	19	25	24	18	17	17	4	156	66,67
Total		31	31	23	30	29	31	19	20	20	234	

Based on the data in Table 4, it can be seen that only one student attained the good category, namely VIIIE grade students coming from the first high school in Sinjai Regency. Achievement of literacy skills of students is in the category of failure very much. Thus, that the ability of literacy of grade VIII junior high school students in South Sulawesi is in the failed category.

Table 5. Frequency and percentage of achievement of chemical literacy ability indicators

NO	INDIKATOR	SMP 6 MAKASSAR				SMP 26 MAKASSAR				SMP 2 MAROS				SMP 4 SINJAI						Rerata/indikator
		VIII.D		VIII.E		VIII.3		VIII.4		VIII.B		VIII.D		VIII.B		VIII.D		VIII.E		
		F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	%
1	Mengidentifikasi pendapat ilmiah yang valid tentang atom.	2	6,5	7	22,6	5	21,7	24	80	8	27,6	4	12,9	1	5,26	10	50	17	85	34,61
2	Melakukan penelusuran literatur yang efektif	0	0	1	3,23	4	17,4	6	20	5	17,2	11	35,5	2	10,5	1	5	3	15	13,76
3	Mengevaluasi penggunaan dan penyalahgunaan informasi ilmiah	0	0	25	80,6	5	21,7	0	0	3	10,3	4	12,9	6	31,6	9	45	1	5	24,31
4	memahami unsur-unsur dalam senyawa	5	16,1	0	0	4	17,4	12	40	12	41,4	19	61,3	3	15,8	1	5	17	85	31,33
5	membuat grafik secara tepat dari data	0	0	28	90,3	5	21,7	16	53,3	11	37,9	10	32,3	13	68,4	5	25	3	15	38,23
6	membaca/interpretasi grafik dengan tepat	1	3,2	4	12,9	7	30,4	1	3,3	4	13,8	5	16,1	2	10,5	2	10	2	10	12,25
7	memecahkan masalah dengan keterampilan kuantitatif dan kualitatif	0	0	30	96,8	4	17,4	2	6,7	12	41,4	7	22,6	13	68,4	1	5	14	70	36,47
8	memahami dan menginplementasikan atom dan ion dalam membentuk suatu molekul	0	0	1	3,23	6	26,1	5	16,7	2	6,9	8	25,8	5	26,3	2	10	1	5	13,34
9	melakukan inferensi prediksi dan penarikan kesimpulan berdasarkan data	7	22,6	28	90,3	4	17,4	6	20	1	3,5	7	22,6	0	0	10	50	16	80	34,04
10	menarik kesimpulan atas data dari grafik	1	3,2	29	93,5	7	30,4	3	10	2	6,9	10	32,3	1	5,26	17	85	16	80	38,51

In Table 5 it can be seen that the highest indicator of chemical literacy ability is indicator 7, 10,5,9, and 3 obtained by students of SMP Negeri 6 Makassar. The highest indicators for numbers 1, 4 9, 10, and 7 are obtained by students of class VIIIE Sinjai. The highest indicator for Sinjai VIIID grade students is only one, which is number 10. The highest indicator of chemical literacy ability in both schools has fulfilled 7 indicators. Only indicators number 2, 6 and 8 are still difficult so there are no students who can do it. If the percentage of students who reach the highest score is only 27% (63 out of 234 samples), this is classified as very low.

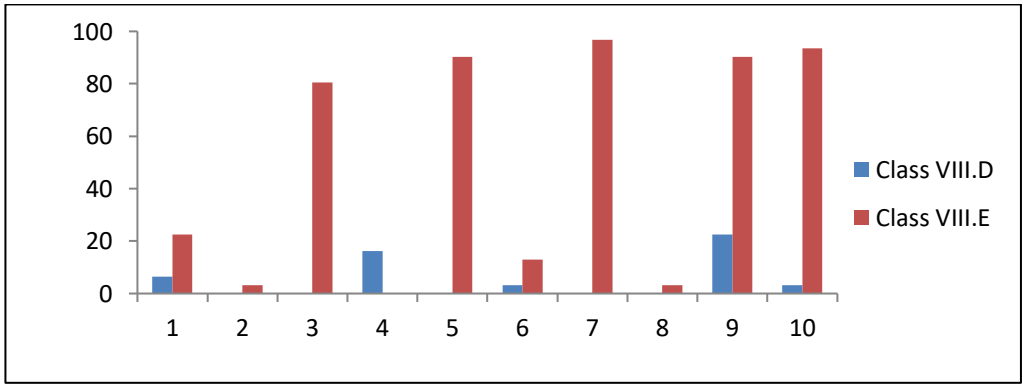

Figure 1. Achievement Graphs for each Literacy Ability Indicator for Makassar 6 Public Middle School Students

In Figure 1 above, it can be seen that for the chemical literacy ability of SMP Negeri 6 Makassar, the highest achievement in a row starts at the item indicator number 7 about solving the problem quantitatively, indicator item number 5 about making a graph of the data precisely, the item indicator number 10 about drawing conclusions from data from the graph, item indicator number 9 about making inference predictions and drawing conclusions based on quantitative data, and item indicator number 3,

about evaluating the use and misuse of scientific information. If you look at the indicator of item problems that have increased this is associated with the character of scientific literacy questions and the level of cognitive abilities of students, then it can be said that their literacy abilities are good enough and their abilities are at the cognitive level of evaluation and synthesis.

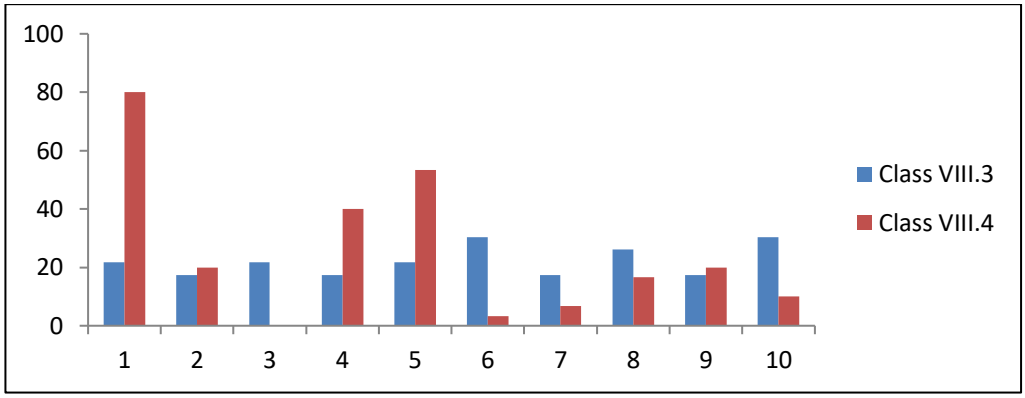

Figure 2. Achievement Graphs for each Literacy Ability Indicator for Makassar 26 Public Middle School Students

As in Figure 2, the highest indicator achievement in class VIII4 in a row is the highest in indicator 1 about identifying valid scientific opinions. Next indicator 5 with moderate achievements for indicators to graph precisely from the data, and the third indicator in the category is enough about understanding the elements of compound preparation. As for class VIII3, the achievement of indicators is still very low.

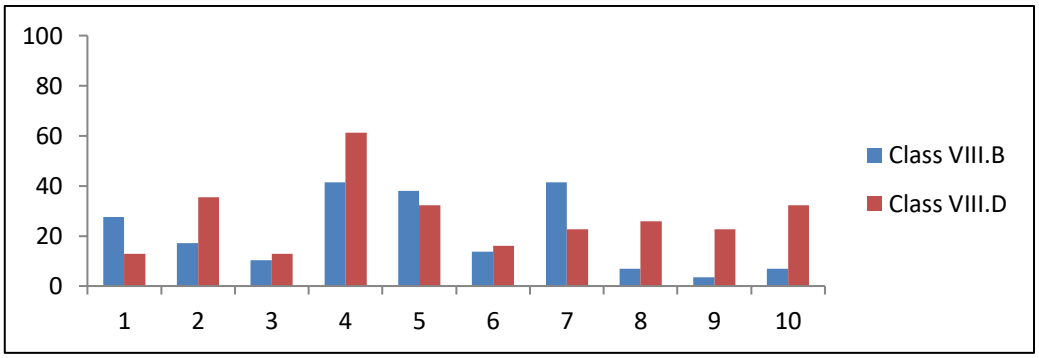

Figure 3. Achievement Graphs for each Literacy Ability Indicator for Maros 2 Public Middle School Students

Based on Figure 3, the two classes VIIIB and the highest class VIIIB in the sufficient category, indicate the literacy ability of students of these two classes still need simultaneous guidance by teachers and parents at home.

Figure 4 shows the literacy ability of students in class VIIIE has the highest literacy ability and more indicators of item problems mastered, respectively from the highest ability namely item items number 1, 4,9,10, and 7 which all fall into the good category. Whereas class VIIID has the highest literacy ability in questions number 10, 1 and 9, it belongs to the sufficient and good category. Whereas in class VIIIB, the highest literacy ability of students was only on item items number 5 and number 7 with enough categories.

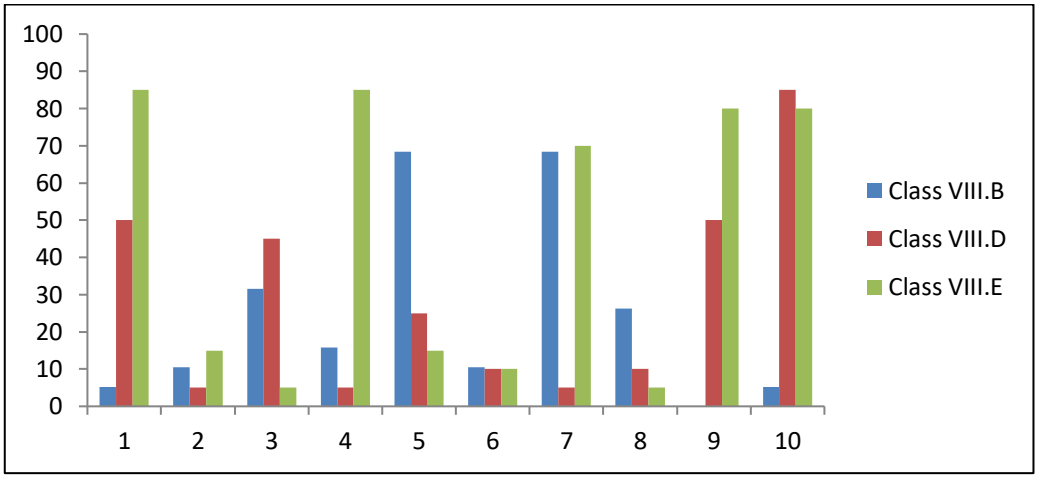

Figure 4. Achievement Graphs for each Literacy Ability Indicator for Sinjai 4 Public Middle School Students

Table 6. Analysis of teacher and Parents Guidance

School	Teacher Guidance And categories		Parent Guidance and categories	
SMP Negeri 6 Makassar				
Class VIIID	2,03	Low	2,40	Low
Class VIIIE	2,55	medium	2,50	Medium
SMP Negeri 26 Makassar				
Class VIII-3	2,17	Low	2,43	Low
ClassVIII-4	2,02	Low	2,31	Low
SMP Negeri 2 Maros				
Class VIII A	2,40	Low	2,30	Low
Class VIII B	2,70	High	3.00	High
SMP Negeri 4 Sinjai				
Class VIII B	2,6	High	2,45	Low
Class VIIID	2,5	Medium	2,40	Low
ClassVIIIE	2,7	High	2,45	Low

Table 6 shows that the provision of teacher and parent guidance in order to help students' chemical literacy abilities is still in the medium category, even though there is one school that gives a high category. This indicates that the involvement of teachers and parents in guiding students to understand chemistry lessons is still very much needed and expected.

In Table 7, On average it is seen that the correlation between teacher guidance in schools with overall literacy skills of students is 0.62 which is included in the high category. While the correlation between parental guidance and literacy ability of students is 0.42, which is included in the sufficient category. In general, the two levels of the category can be said to be still in a reasonable stage. More intensive guidance by both parties needs to be increased.

Table 7. Correlation Between Chemical Literation Ability with Teacher Guidance and Parent

School / Correlation *r*	SMPN 6 MAKASSAR		SMPN 26 MAKASSAR		SMPN 2 MAROS		SMPN 4 4 SINJAI			Average of *r* (%)
	VIII D	VIII E	VIII 3	VIII 4	VIII B	VIII D	VIII B	VIII D	VIII E	
Teacher Guidance	0.70	0, 50	0,67	0,36	0,69	0,83	0,59	0,62	0,66	0,62
Parent Guidance	0.53	0,37	0,33	0,65	0,51	0,40	0,23	0,16	0,66	0,42

This research focuses on the role of teachers and parents in guiding students to study chemical science while at school and at home. Components of the role of teachers in schools include guiding homework assignments, giving daily tests and giving project assignments. Teacher guidance is done by giving feedback on the work of students and always provide reinforcement and motivation. The highest literacy ability in the SMP Negeri 6 Makassar and SMP Negeri 4 Sinjai classes, there is a correlation between teacher guidance and literacy skills at the school. Teacher guidance is a guidance that helps students in constructing their learning experience. Children will learn better if they construct their knowledge and understanding. This statement is supported by Asyhari's by his research results that students who are given treatment as a scientific approach can improve students' competence and knowledge on environmental pollution material. At SMP Negeri 2 Maros, the highest correlation between teacher guidance and the literacy ability of the students was seen, but in fact the literacy ability of the students was still in the sufficient category. Thus, the correlation is negative. Teacher guidance at schools that do not meet the good literacy ability of their students such as Makassar State 26 Junior High School and Maros Public Middle School, may be caused by the teacher guidance representation that is less proportional during assignment, such as student services not according to needs, wrong classification, class placement which is not quite right [12].

While coaching parents at home in the form of accompanying children to learn, help do homework and provide instructions or advice when viewed from the level of correlation with the literacy ability of students into the category of sufficient. Although the correlation is sufficient, at this stage, there are still opportunities for parents through cooperation with the teacher so that parents pay more attention to children's learning at home. The effort that can be done by a school or teacher is to send a notification letter to parents about the actions that will be taken in a technical manner to produce a change in children's learning behavior. Discovery-oriented chemistry learning increases student literacy abilities.

4. Conclusion

The results of this study found that the literacy ability of grade VIII students of Junior high school in Makassar was still in the sufficient category. There are 10 items that have been validated according to the literacy questions analyzed and related to students' understanding. Furthermore, an analysis of the role of teacher guidance in schools in the form of feedback on homework assignments, feedback on the results of daily tests, and feedback from the results of project assignments, overall has a high correlation with the literacy ability of students. Parental guidance in the form of accompanying children to learn, helping with homework and giving instructions or advice to always learn has a correlation that is categorized as sufficient with the literacy ability of VIII grade students in Makassar. In other words the guidance of both parties from teachers and parents of students still needs to be improved by encouraging a variety of ways, especially in paying attention to the shortcomings and needs of students in understanding lessons such as learning models that lead students to construct knowledge and understanding, feedback on test results and home assignments, parents more time to guide their children at home and give attention or motivation to study harder. Finally, this research is useful in contributing

to the expectation of future researchers relating to literacy ability to consider researching about the role of the teacher guiding and directing learners to learn meaningfully and constructively in school and the role of parents at home in guiding children to learn so that participants' knowledge better students. Overall it can be concluded that the ability of chemical literacy of junior high school students in South Sulawesi is low. Correlation of teacher guidance at school and guidance of parents at home with the ability of chemical literacy of students of class VIII SMP in Makassar, including good and sufficient categories

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