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Development of Chemistry Teaching Modules Based on Integrated Differentiation of Socio-Emotional Learning on the Topic of Acids and Bases

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Abstract: Development Of Chemistry Teaching Modules Based On Integrated Differentiation Of Socio-Emotional Learning On The Topic Of Acids And Bases. This study aims to (1) Determine the feasibility of the Reading To Learn-based e-module on chemical bonding material. (2) Determine the increase in students' HOTS-Literacy abilities in chemical bonding material after using the Reading To Learn-based e-module. (1) Determine whether the chemistry teaching module based on integrated differentiation of social emotional learning on acid-base material developed is feasible for use by class XI-A students of SMA Perguruan Kebangsaan. (2) Determine whether the chemistry teaching module based on integrated differentiation of social emotional learning on acid-base material developed is effective for use by class XI-A students of SMA Perguruan Kebangsaan. (3) Determine whether the chemistry teaching module based on integrated differentiation of social emotional learning on acid-base material developed can improve the learning outcomes of class XI-A students of SMA Perguruan Kebangsaan. This research was conducted at SMA Perguruan Kebangsaan in the 2024/2025 academic year with all class XI students as the population and class XI-A as the experimental class and class XI-B as the control class. The sampling technique used was purposive sampling. The type of research used is Research and Development (R&D) with the ADDIE (Analysis, Design, Develop, Implementation, and Evaluation) development model. This research was conducted until the implementation stage or trial stage. The assessment to test the feasibility of the module involved two validators as material experts and media experts, while the trial stage involved 31 respondents of class XI-A students of SMA Perguruan Kebangsaan. The average results obtained from the two validators were 3.914 so that the experts stated that the learning device was categorized as valid or "Very Feasible". The level of effectiveness of the module is seen from the posttest scores of students who were declared complete because the student learning outcome scores reached the KKM value of 27 students with a classical completeness percentage of 87.1% so that it is included in the very effective criteria. The results of the N-Gain score test in the experimental class were 0.327 with moderate criteria and in the control class 0.484. So it can be concluded that the learning module teaching material based on integrated differentiation of social emotional is feasible to use because it can improve student learning outcomes in acid and base material.

Keywords: Module Development, Social Emotional, Improving Learning Outcomes. Acid Base.

Abstrak: Pengembangan modul ajar Kimia berbasis diferensiasi terintegrasi pembelajaran sosial emosional. *Penelitian ini bertujuan untuk (1) Mengetahui kelayakan e-modul berbasis Reading To Learn pada materi ikatan kimia. (2) Mengetahui peningkatan kemampuan HOTS-Literacy siswa pada materi ikatan kimia setelah menggunakan e-modul berbasis Reading To*

Learn. (1) Mengetahui apakah modul ajar kimia berbasis diferensiasi terintegrasi pembelajaran sosial emosional pada materi asam basa yang dikembangkan layak digunakan siswa kelas XI-A SMA Perguruan Kebangsaan. (2) Mengetahui apakah modul ajar kimia berbasis diferensiasi terintegrasi pembelajaran sosial emosional pada materi asam basa yang dikembangkan efektif digunakan siswa kelas XI-A SMA Perguruan Kebangsaan. (3) mengetahui apakah modul ajar kimia berbasis diferensiasi terintegrasi pembelajaran sosial emosional pada materi asam basa yang dikembangkan dapat meningkatkan hasil belajar siswa kelas XI-A SMA Perguruan Kebangsaan. Penelitian ini dilaksanakan di SMA Perguruan Kebangsaan T.A 2024/2025 dengan seluruh siswa kelas XI sebagai populasi dan kelas XI-A sebagai kelas ekperimen dan kelas XI-B sebagai kelas kontrol. Dengan pengambilan sampel menggunakan teknik purposive sampling. Jenis penelitian yang digunakan adalah Research and Development (R&D) dengan model pengembangan ADDIE (Analysis, Design, Develop, Implementation, dan Evaluation). Penelitian ini dilakukan sampai tahap implementasi atau tahap uji coba. Penilaian untuk menguji hasil kelayakan modul melibatkan dua validator sebagai ahli materi dan ahli media, sedangkan tahap uji coba melibatkan 31 responden siswa kelas XI-A SMA Perguruan Kebangsaan . Perolehan hasil rata-rata dari kedua validator sebesar 3,91 4 sehingga para ahli menyatakan perangkat pembelajaran tersebut dikategori valid atau "Sangat Layak". Tingkat keefektifitasan modul dilihat dari nilai posttest siswa yang dinyatakan tuntas karena skor hasil belajar siswa mencapai nilai KKM sebanyak 27 siswa dengan persentase ketuntutasan klasikal sebesar 87,1% sehingga termasuk kedalam kriteria sangat efektif. Hasil uji N-Gain score pada kelas eksperimen sebesar 0,327 dengan kriteria sedang dan pada kelas kontrol sebesar 0,484. Sehingga dapat disimpulkan bahwa bahan ajar Modul pembelajaran berbasis diferensiasi terintegrasi sosial emosional layak digunakan karena dapat meningkatkan hasil belajar siswa pada materi asam dan basa.

Kata kunci: *pengembangan modul, sosial emosional, peningkatan hasil belajar. Asam Basam*

▪ INTRODUCTION

Education is essentially a strategic tool to develop the potential of the nation, so that it can compete at the global level. Education also plays a role as an investment in improving individual abilities and the quality of community life. The main task of education is to develop human resources by guiding and meeting the needs of individuals, so that they can understand what is learned and contribute as members of society in achieving optimal welfare and happiness (Siswani, et al., 2024).

Based on the identification results, it was found that the current implementation of education has not shown much change. The learning system applied tends to assume that all students have the same abilities, without considering their diversity. Teachers often teach as if they are only for one student, even though in one class there are around 30-36 students, each of whom has different uniqueness, abilities, and learning experiences. Education should realize that every child is unique with different characteristics from one another. Therefore, unnecessary standardization in the learning process such as ignoring the interests, talents, learning readiness, learning profiles, and social and cultural conditions of each student needs to be considered and accommodated (Iskandar, 2021).

Differentiated learning is an approach used by teachers to meet the diverse needs of learners. According to Bayumi et al. (2021), differentiated learning design can accommodate the skills, interests, abilities, and potential of each student, allowing them to learn according to their abilities (Andini, 2016). In differentiated learning, teachers are expected to be able to apply various methods to meet the learning needs of each student (Bayumi et al., 2021).

Children's social and emotional development directly affects the learning process and requires more support from various parties. Social and emotional development are interrelated and inseparable. Positive social development and stable emotions make it easier for children to interact with others and be more effective in learning, as well as participating in activities in the community (Khoiruddin & Alwy, 2020). Children who do not have good social and emotional competence tend to show negative behavior, such as difficulty in adapting to school and friends, juvenile delinquency, and dropping out of school. This phenomenon often occurs in the current era, where the inability to manage emotions and socialize can worsen the crime rate among children. In the field, there is a fact that children lack caring, empathy, and helpful attitudes towards peers. In fact, at an early age, children should be able to develop social and emotional competence that will shape these positive attitudes (Putra et al., 2024).

Based on observations conducted on Monday, October 28, 2024 at SMA Perguruan Kebangsaan, researchers found problems related to students' social emotional development. Some children seemed to lack a sense of responsibility towards themselves and others, which resulted in a learning process that had not developed well. Students did not fully follow the activities given by the teacher and had difficulty understanding the explanation.

From initial observations at SMA Perguruan Kebangsaan, it can be concluded that students' social emotional development still needs to be improved. Differentiation-based learning has been implemented, but has not been integrated with social emotional learning. This indicates the need for the development of differentiation learning modules that are integrated with social emotional. In addition, the learning models used need to be more varied to avoid student boredom, especially in chemistry learning.

▪ METHOD

This research was conducted at SMA Perguruan Kebangsaan located at Jl. Perguruan Tinggi Swadaya No.3, Medan Tenggara, Medan Denai District, Medan City, North Sumatra Province. This research was conducted in the even semester of the 2024/2025 academic year. The implementation time of this research is planned in January 2025. The population in this study were all students of class XI-A and XI-B in the odd semester of the 2024/2025 academic year, totaling 3 classes. The sampling technique used in this study was random sampling, namely directly selecting two classes , namely XI-A and XI-B with the same number of 31 students. The type of research used is Research and Development . With apply design model development namely the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model. Research & Development is a process of developing educational tools which is carried out through a series of research using various methods in a cycle which goes through various stages (Khairunisa et al., 2024).

In the implementation stage, this study used a two-group *pretest-posttest design* (*Pretest-Posttest two Group Design*). In the implementation of learning, an e-module based on socio-scientific issues that have been developed (Silitonga, 2014) was used. This design was chosen because it only used two classes as samples and there was no control class as a comparison. In the implementation stage, the design chosen.

Then a pretest was conducted to students before entering the chemical bonding material, then the chemistry module based on integrated differentiation of social emotional learning that had been validated was given to students at each meeting as a substitute for apperception. The posttest was given to students at the end of the learning

as a final test. Then a student response questionnaire was given to see the students' responses to the developed module and. Data analysis in this study used the validity test of material experts and media experts, the validity test of the student response questionnaire, effectiveness, and the N-Gain test using Microsoft Excel.
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Research Design

The type of research used is Research and Development (R&D). The design chosen is ADDIE (Analysis, Design, Development, Implementation, and Evaluation).

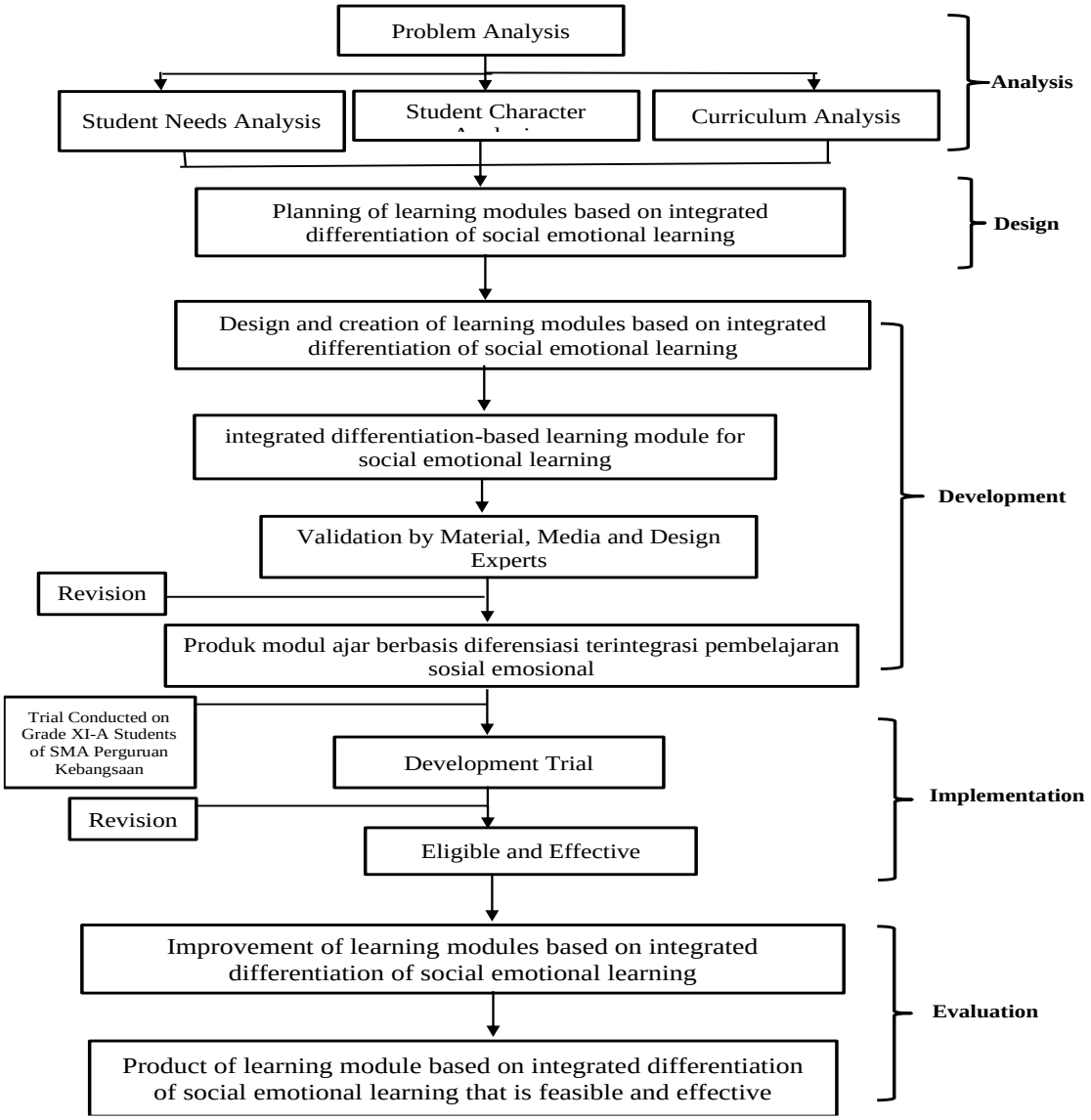


Figure 1. Prototype Prosedur Penelitian dan Pengembangan Modul ajar Berbasis Diferensiasi Terintegrasi Pembelajaran Sosial Emosional**.**

1. Analysis

analysis stage is the stage where researchers analyze the need for the development of learning modules and analyze the feasibility and requirements for development. The analysis stages carried out in this study include three things, namely student needs

analysis, student character analysis, and curriculum analysis. In general , the stages analysis s conducted in study This.

2. Design

The purpose of this stage is to design a student module so that *a prototype* (initial design of a student learning module) is obtained for the acid and base material. Activities at this stage are.

3. Development

Stage definition and design produce design beginning A teaching module called with *draft* I. The first phase in stages development is do validation *draft* I to experts and then conducted a trial field . Expert assessment covering validation contents that include all teaching modules that have been developed at the stage design *draft I,* so that produce *draft II* is worthy used . The results of expert validation used as base do revision and refinement teaching modules and instruments . Validated aspects includes : quality content and objectives , learning / instructional strategies , and design teaching module

In this step, the researcher submitted the initial module that the researcher had developed to material experts, media experts, and chemistry teachers to be tested for its feasibility using a questionnaire. The researcher conducted a validation test. The expert team's validation test was seen from the aspects of content suitability, presentation suitability, language suitability, contextual assessment aspects, and graphic suitability. The validation test of the expert team was seen from the aspects of content suitability, presentation suitability, language suitability, contextual assessment aspects, and graphic suitability, the suitability of which was assessed using a questionnaire based on a Likert scale, as seen in table 1.

Table 1. Scoring on the Questionnaire Based on the Likert Scale

No.	Answer Options	Score
1.	Very Good (VG)	5
2.	Good (G)	4
3.	Pretty Good (PG)	3
4.	Not Enough (NE)	2
5.	Not Good (NG)	1

(Dwi Yani et al., 2023)

The score is analyzed using the following calculation formula :

$$Eligibility\ percentage = \frac{Total\ scores\ obtained}{Maximum\ score}\ x\ 100\%$$

As a provision in giving meaning and decision making, the calculation results above can be interpreted with a range as in table 2 below :

Table 2. Classification of Learning Media Assessment

Percentage	Criteria
80,1% – 100%	Very Worth It
60,1% – 80%	Worthy

40,1% – 60%	Quite Decent
20,1% – 40%	Less Worthy
0,0% – 20%	Very Less Worthy

(Lastri, 2023)

4. Implementation

developed learning module has met the validity criteria (*draft II*), the research is continued to the implementation stage . The learning module in the form of *draft II* and all learning devices are tested at the research location, namely class XI-A and Class XI-B SMA Perguruan Kebangsaan Medan.

Table 3. Research Design Pretest- Posttest two Group Design

Class	Pretest	Treatment	Posttest
Experiment	A1	P	A3
Control	A2	P	A4

Information :

A1 : Giving Pretest to student class experiment

A2 : Provision Pretest to students in class control

A3 : Provision Posttest to student class experiment

A4 : Giving Posttest to students in class control

P : Giving learning to class experiment with Module based differentiation integrated learning social emotional

Activities carried out in the implementation stage are preparing classes, teachers and students. The sample used by researchers was 1 class as an experimental class. Before the trial use of the e-module, researchers conducted an initial identification of student abilities through pretest questions. Furthermore, the trial stage of the e-module that has been validated by an expert validator aims to collect data related to the assessment of improving students' critical thinking skills, and student responses to the use of e-modules based on R2L in the chemistry learning process on chemical bonding material. The research procedure for the distribution of the E-Module developed for further testing to the experimental class can be seen in the following picture :

5. Evaluation

Procedure for Implementation of Chemistry Learning Module Based on Integrated Differentiation of Social Emotional Learning on Acid-Base Bond Material At this stage, the teaching materials that have been created and tested for their feasibility will be applied to the target schools. The product that will be given is a Module containing "acid-base" material in accordance with the applicable curriculum and curriculum.

To determine the increase in HOTS-Literacy skills experienced by students before and after the implementation of the developed e-module, data analysis will be used with the normalized N-Gain formula.

$$N - Gain\ (g) = \frac{posttest\ score - pretest\ score}{maximum\ score - pretest\ score}\ x\ 100\%$$

The effectiveness of learning after using the product can be seen from the results of the student learning completion test. Teaching materials are said to be effective for use in learning if at least 80% of students are able to achieve the KKM value that was previously applied. Determination of student learning completion is done by calculating each student's score and analyzing it based on the KKM achievement set by the school, which is 75. The percentage of student learning completion can be calculated using the formula :

$$PKK = \frac{T}{Tt} x\ 100\%$$

Description:
PKK : Percentage of classical completion
T : Number of students who have completed learning
Tt : Total students

To identify deficiencies in the developed module, namely with a student response questionnaire. To obtain valid data, the questionnaire processing was used with a Likert scale (scoring on the questionnaire based on the Likert scale can be seen in table 1), then the data was analyzed using the following percentage formula :

$$Score = \frac{Score\ obtained}{Maximum\ score}\ 100\%$$

Table 4. Student Response Assessment Classification

Percentage	Criteria
80,1% – 100%	Very good
60,1% – 80%	Good
40,1% – 60%	Pretty good
20,1% – 40%	A Little Bit Good
0,0% – 20%	Not Good

(Hamid, 2022)

▪ RESULTS AND DISCUSSION

1. Pretest And Posttest Data

a) Pretest Data

Table 5. Student Pretest Score Data

Class	Average	Standard Deviation	The highest score	Lowest Value
Experimental Class (XI-A)	69.93	11.16	98	65
Control Class (XI-B)	64.32	6.96	77	43

Based on the table above, it shows that the pretest results of the experimental class students have an average value of 69.93 and a standard deviation of 1 1.16 with the highest value of 98 and the lowest value of 65. While in the control class, the average value is 64.32 and a standard deviation of 6.96 with the highest value of 77 and

the lowest value of 43.

b) Posttest Data

Posttest done with give question choice multiple as many as 25 questions , implementation posttest done together with eye teacher lesson chemistry as well as prohibition using mobile phone in class for students , things This aims to ensure that validity question posttest given . The question given relate with APBN material . Here results posttest student class experiments and classes control can seen in the table under This :

Table 6. Posttest Value Data Student

Based on the table above, it shows that the posttest results of the experimental class students have an average value of 83.61 and a standard deviation of 8.43 with the highest value of 100 and the lowest value of 65. While in the control class, it has an

Class	Average	Standard Deviation	The highest score	Lowest Value
Experimental Class (XI-A)	83.61	8.43	100	65
Control Class (XI-B)	76.00	7.50	87	62

average value of 76.00 and a standard deviation of 7.50 with the highest value of 87 and the lowest value of 62. From the table above, the highest average posttest value is in the experimental class, which is 83.61. From the data above, the average learning outcomes of students in the experimental class using the integrated social emotional differentiation module are higher, as evidenced by the posttest results in the experimental class with an average value of 83.61 compared to the posttest results of the control class that did not use the integrated social emotional differentiation module, which obtained an average value of 76.00 . So it can be concluded that students in the experimental class obtained higher learning outcomes compared to the control class.

2. Module Feasibility Test

The results of the feasibility test assessment on the first hypothesis were obtained from expert assessments and trials conducted on the social emotional integrated differentiation module . The results of the assessment can seen in the table under This :

Table 7. Feasibility Test Assessment Results

No	Category	Average Score Value	Criteria
1	Validation of teaching modules	3.91	Worthy
2	Validation of Interest and Talent Questionnaire	4.00	Worthy
3	Validation questionnaire social emotional	4.00	Worthy

Based on the feasibility test table above, it was obtained that the validation of the teaching module, validation of the interest and talent questionnaire, and validation of the social emotional questionnaire were categorized as "Feasible".

In this study, student learning completeness is reviewed from student learning outcomes that are tested using tests that have been developed in the form of multiple choices. Description of student learning outcomes is based on the formulation of the problem proposed in Chapter I and the data obtained by the study, it will be known whether the formulation of the problem proposed has been answered or not. The results of data analysis obtained from the results of the study indicate that: 1) The interactive learning module developed is feasible 2) The interactive learning module developed is effective; and 3) There is an increase in student learning outcomes by using the developed learning module;

a. Module Effectiveness

According to Hasratuddin (2018: 242), the indicator of learning effectiveness is based on the achievement of learning completion if > 80% of students have completed it, the time used in learning is efficient or does not exceed regular learning, and the student response to learning is positive.

Based on the research results, the developed learning module has met the effective category in terms of student learning outcomes. The results are that students who have completed the acid and base material are 27 students (87.1%) and those who have not completed are 4 students (12.9%). So it is concluded that learning using student modules is categorized as effective because the achievement of classical learning completion is achieved if at least 85% of students have completed it.

Table 8. Level of mastery of student learning outcomes

No	Value Interval	Learning outcomes		Information
		Number of Students	Percentage	
1	0 ≤ KKM < 55	0	0 %	Not enough
2	56 ≤ KKM < 75	3	9.6 %	Enough
3	76 ≤ KKM < 85	15	48.4 %	Good
4	86 ≤ KKM < 100	13	41.9 %	Very good

Based on Table 4.1 3 obtained results *pretest* that is , 0 students received category less (0 %), who get category Enough as much as 3 students (9.7 %), who obtained category Good as much as 15 students (48.4 %), who received category Very good as much as 13 students (41.9 %). For more to explain can seen in the diagram presented in Figure 4.2 following .

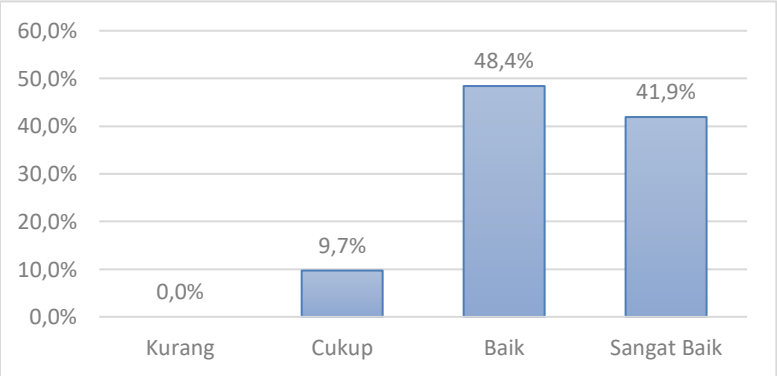


Figure 2. Student learning outcomes level

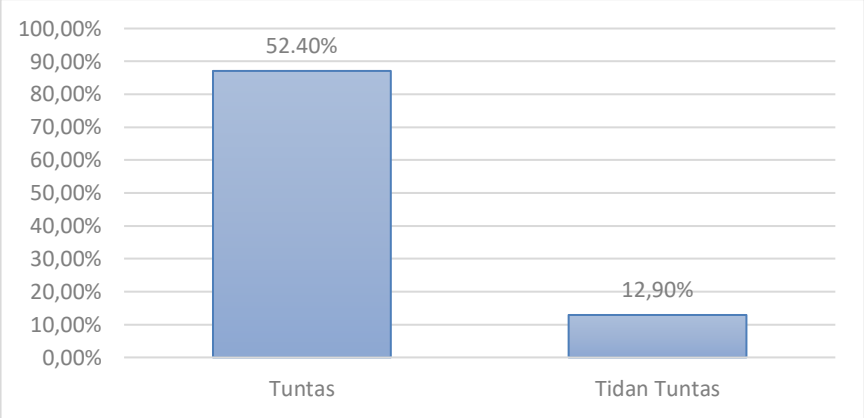
Based on Table 8 and based on Figure 2 obtained that , the level of student learning outcomes that dominates the most is category Good followed with category very good , and the last one sufficient and insufficient categories . Furthermore , the results completeness in a way classical student learning outcomes can seen in Table 9 :

Table 9. Classical Completion Level of Student Learning Outcomes

Category	***Posttest***	**Classical Completion Percentage**
	Number of Students	
Completed	28	87.1%
Not Completed	3	12.9%
Amount	31	100%

The following percentage of classical completion criteria for student learning outcomes is presented in Figure 3.

Figure 3. Percentage of student learning outcomes completion



From table 9 and figure 3 above, it can be obtained information that students who have completed the acid and base material are 27 students (87.1%) and those who have not completed are 4 students (12.9%). So it can be concluded that learning using student modules is categorized as effective because the achievement of classical learning completion is achieved if at least 85% of students have completed it.

To determine the increase in abilities experienced by students before and after the implementation of the developed module, data analysis will be used with the normalized N-Gain formula. The N-Gain results can be seen in Table 10 below:

Table 10. Average *Gain* Control

p	**pre test**	**post test**	**Post-pre**	**Ideal Value-pre**	**N Gain**
P1	57	76	19	43	0.442
P2	43	67	24	57	0.421
P3	65	76	11	35	0.314
P4	56	83	27	44	0.614
P5	57	65	8	43	0.186
P6	66	82	16	34	0.471
P7	67	76	9	33	0.273

P8	73	82	9	27	0.333
P9	71	75	4	29	0.138
P10	66	82	16	34	0.471
P11	66	76	10	34	0.294
P12	57	78	21	43	0.488
P13	58	67	9	42	0.214
P14	57	62	5	43	0.116
P15	66	76	10	34	0.294
P16	56	65	9	44	0.205
P17	66	87	21	34	0.618
P18	63	67	4	37	0.108
P19	65	66	1	35	0.029
P20	71	87	16	29	0.552
P21	66	78	12	34	0.353
P22	56	76	20	44	0.455
P23	65	78	13	35	0.371
P24	66	79	13	34	0.382
P25	67	67	0	33	0,000
P26	68	78	10	32	0.313
P27	73	87	14	27	0.519
P28	75	86	11	25	0.440
P29	67	65	-2	33	-0.061
P30	77	84	7	23	0.304
P31	68	83	15	32	0.469
Average					0.327

Based on Table 10, it can be said that the average *g* in the control class obtained is 0.4 27 or is in the " Medium " category ($0{,}3 < g \leq 0{,}7$).

Table 11. Average *Gain* experiment

	pre test	**post test**	**Post-pre**	**Ideal Value-pre**	**N Gain**
P1	57	88	31	43	0.721
P2	46	73	27	54	0.500
P3	66	85	19	34	0.559
P4	73	88	15	27	0.556
P5	55	66	11	45	0.244
P6	80	85	5	20	0.250
P7	95	100	5	5	1,000
P8	81	98	17	19	0.895
P9	59	82	23	41	0.561
P10	78	88	10	22	0.455
P11	63	81	18	37	0.486

P12	57	65	8	43	0.186
P13	58	74	16	42	0.381
P14	71	88	17	29	0.586
P15	65	79	14	35	0.400
P16	56	76	20	44	0.455
P17	75	79	4	25	0.160
P18	65	77	12	35	0.343
P19	64	78	14	36	0.389
P20	76	82	6	24	0.250
P21	76	83	7	24	0.292
P22	78	98	20	22	0.909
P23	76	77	1	24	0.042
P24	65	77	12	35	0.343
P25	66	86	20	34	0.588
P26	68	88	20	32	0.625
P27	98	100	2	2	1,000
P28	76	88	12	24	0.500
P29	70	89	19	30	0.633
P30	75	84	9	25	0.360
P31	80	87	7	20	0.350
Average					**0.484**

Based on Table 11, it can be said that the average g obtained is 0.484 or is in the " Moderate " category. ($0{,}3 < g \leq 0{,}7$). This score has met the research success criteria from the aspect of improving student learning outcomes. o based on the increase in the average value and the N-Gain Score value, it can be concluded that there was an increase in the learning outcomes of class XI-A students of SMA Perguruan Kebangsaan before using the chemistry teaching module based on integrated differentiation of social emotional learning on acid-base material and after using the teaching module.

The development of a Chemistry teaching module based on integrated differentiation of social emotional learning aims to improve student learning outcomes in acid-base material. The differentiated approach was chosen because it can be used by teachers to meet the needs of diverse students. In this process, students are given the opportunity to study the material according to their respective abilities, interests, and learning needs. This approach aims to prevent students from feeling frustrated or failing during learning activities. By using a teaching module based on differentiated learning, it can accommodate the skills, interests, abilities, and potential of each student, allowing them to learn according to their abilities. The main advantage of this Module is its ability to improve students' critical and analytical thinking skills through a deep understanding of chemical concepts. In addition, this module also supports independent learning, allowing students to learn at their own pace according to their individual needs and learning styles. The implementation results show that the use of a teaching module based on differentiated learning improves students' understanding of scientific texts and encourages them to be more active in developing solutions based on chemical concepts.

This is in accordance with the research conducted (Mufida et all, 2022). Which proves that the development of a module for chemistry learning can improve student learning outcomes and is proven by the high response given by students.

There are two important factors that determine the success of a learning process, namely the model and learning media (teaching materials). These two factors are interrelated and cannot be separated. This is related to research conducted by (Magdalena et all, 2020), the use of teaching materials such as modules has benefits obtained by teachers, namely teaching materials in accordance with curriculum guidelines, not dependent on textbooks and government assistance textbooks. While the benefits obtained by students are, creating interesting learning, fostering motivation, reducing dependency and getting ease in learning each indicator contained in the learning device.

▪ CONCLUSION

The conclusions that can be drawn from the results of the research and discussion are as follows: (1) The learning module based on integrated social emotional differentiation that was developed obtained that the interactive learning model was declared valid in terms of the validity results by experts who stated that the learning device consisted of: module validation results of 3.91; the results of the questionnaire validation of interests and talents of 4.00; the results of the average validation of the social emotional questionnaire of 3.97, where the total average value of all of them was at a value of $3 \leq Va < 4$ so that the experts stated that the learning device was categorized as valid and feasible with slight revisions. (2) The interactive learning model based on integrated social emotional differentiation that was developed has met the effectiveness criteria that were set in terms of students who completed the acid and base material, namely 27 students (87.1%) and 4 students (12.9%) who did not complete it. So it is concluded that learning using student modules is categorized as effective because the achievement of classical learning completeness is achieved if at least 85% of students have completed it. (3) Based on the normalized gain index, it was obtained that there was an increase in student learning outcomes. Based on the average normalized gain, it was obtained that in the control class with the criteria "moderate" with a score of 0.327 ($0.3 < g \leq 0.7$) and in the experimental class there was an increase in values with the criteria "moderate" with a score of 0.484 ($0.3 <$ N-Gain ≤ 0.7). So it can be concluded that the learning module using the integrated differentiation-based social emotional module developed can improve student learning outcomes.

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