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The Development and Standardization of Senior High School Chemistry Textbook For Year XI at Semester I Rsbi Class Based on Contents Standard of KTSP

Dina Adreini Br Tarigan[1]*

[1]Jurusan Biologi, FMIPA, Universitas Dian Nusantara
Jl. Jamin Ginting No. 1 Km 12,5 Kelurahan Lau Cih Kecamatan Medan Tuntungan- Medan
**Corresponding authors: dinaadreini@gmail.com*

Abstract. *The aim of this research is (1) to analyze and develop of standard chemistry textbooks that proper to use in senior high school (shs) in class of XI at semester one RSBI class; (2) To know the subject matter that proper to be taught year XI shs at semester one RSBI class; (3) To get the standard chemistry textbooks that proper to use in shs year XI at semester one RSBI class; (4) To know what the teachers' responds for the standard chemistry textbook development of shs year XI at semester one RSBI class; (5) To know the effectiveness of standard chemistry textbook of shs for year XI at semester one RSBI class. The sample was that four chemistry textbook that used in second year class of RSBI class of shs 1 Medan, shs 1 Tebing Tinggi and shs 1 Berastagi, 2 of chemistry lecturers of state university of Medan and 11 of teachers of RSBI class of shs 1 Medan, shs 1 Tebing Tinggi and shs 1 Berastagi as respondents. The sample of students were selected by using purposive sampling, the selected samples in every class were grouped based on their achievement on chemistry in the first semester to make them in to two categories, the relative high achievement (HA) and relative low achievement (LA). Experimental class was taught by using innovated teaching using standard chemistry textbook as a learning media while the control class was taught without using standard chemistry textbook. It was found that student's achievement was increased when they were tough by using standard chemistry textbook than that of other textbooks . The effectiveness of standard chemistry textbook is obtained 50%. It is concluded that subject matter that are exact to be taught in year XI senior high school at first semester RSBI class are: quantum mechanics atomic theory, molecular shapes, thermochemistry, reaction rate, and chemistry equilibrium.*

Keywords*: contents standards of KTSP, effetiveness, standards chemistry textbook*

Abstrak. *Tujuan penelitian ini adalah: (1) menganalisa dan mengembangkan buku teks kimia yang sesuai digunakan di SMA kelas XI semester 1 RSBI, (2) mengetahui topik apa yang sesuai untuk diajarkan di SMA kelas XI semester 1 RSBI, (3) memperoleh buku teks kimia standar yang sesuai untuk diajarkan di SMA kelas XI semester 1 RSBI, (4) untuk mengetahui respon guru terhadap pengembangan buku teks kimia standar SMA kelas XI semester 1 RSBI, (5) mengetahui efektivitas buku teks kimia standar SMA kelas XI semester 1 RSBI. Sampel yang digunakan adalah buku teks kimia yang digunakan di semester 1, kelas XI SMA N 1 RSBI Tebing Tinggi, SMAN 1 RSBI Berastagi dan SMAN 1 RSBI Medan, dan masing-masing 2 guru kimia sebagai responden dari sekolah tersebut. Pengambilan sampel menggunakan purposive sampling, kemudian sampel dikelompokkan menjadi kelompok tinggi dan rendah. Kelas ekperimen diajar dengan pembelajaran terinovasi dengan buku teks kimia standar sebagai media pembelajaran sedangkan kelas kontrol tanpa menggunakan buku teks kimia standar. Hasil penelitian menunjukkan bahwa prestasi siswa meningkat ketika diajar dengan menggunakan buku teks kimia standar. Efektivitas buku teks kimia mencapai 50 %, materi yang sesuai untuk diajarkan di semester 1 kelas XI SMA adalah: teori mekanika kuantum, bentuk molekul, termokimia, laju reaksi, kesetimbangan kimia.*

Kata Kunci: *Standar isi KTSP, efektivitas, buku teks kimia standar*

BACKGROUND

The textbook and the teacher's manual are of primary teaching resources. Even in state school systems where teachers with a better level of training are employed, textbooks are often the major teaching resources used. In the survey of ESL teachers in secondary schools, the teachers reported that their primary teaching resources are textbooks, supplementary materials, and audio tapes. The primary

functions of the textbook are to provide practice activities, a structured language program for teachers to follow, language models, and information about the language. Most teachers reported that they do not rely on a single textbook, but many using a separate textbook for listening, reading practice, and writing (Apple, 1991). Further, Shannon (1987) reported that textbooks, because they package learning content effectively, are seen as an efficient way of achieving learning. Bybee also said that (1997) Textbooks determine 75-90 percent of the instructional content in schools nationwide.

However, process of teaching and learning activities between teachers and students will not be separated from the book, although teachers can explain the material clearly and completely. The need for the textbook in teaching learning still becomes an important priority. Textbooks on the market must be thoroughly tested quality as a source of learning media (Wibowo, 2005). Every textbook that will be used in schools as a resource and learning media must be through assessment process as a national standard of textbooks. But textbooks on the market still has many fundamental mistake, the subject matter offered in the books being used in Indonesia, left 50 years of the latest discoveries, from the aspect of presentation, the condition is no less concerned. The textbooks are too materialistic, dry and not arouse of student's affective awareness. Although the textbooks are for cognitive-oriented, but intellectually unable to move the critical power and curiosity of readers (teachers and students).

The problem of education is often stated in various meetings and mass media in Indonesia is the tendency of the low quality of education on several levels and units of education, especially primary and secondary education. Various efforts to increase the quality of education is done started from training to improve the quality of teachers, improving curriculum periodically, repair facilities and educational infrastructure, and improve the quality of school management. But indicators to quality of education still have not shown significant improvement (Mulisch, 2007). Improving the quality of education should be done continuously, conventionally or through innovation. Improving the quality of education is done by setting goals and standards of educational competence in order to anticipate future changes and demands that will face students as citizens, so they are able to think globally and act in accordance with local characteristics and potential.

One effort to improve the quality of education is by facilitating of qualified textbooks. Textbook should be able to present the material in accordance with the curriculum, following the development of science and technology, and includes the competencies that have been established (Jippes et al., 2009). The World Bank suggests that reforms be initiated in relation to textbooks in developing countries; textbooks being a "critical part of education, as necessary as classroom itself, as indispensable as the classroom teacher" (DeGuzman et al., 2000). Through qualified textbooks, children learn vocabulary that they may not necessarily encounter in daily conversations and learn about conventions of print and the syntactic structure of language. Children's decontextualized language skills have been shown to be related to conventional components of literacy, such as decoding, understanding story narratives, and print production.

In this post-modern world of technological advancement, rapidly changing markets and increasing competition, teachers are faced with new academic and pedagogical challenges. In order to prepare students, teachers must teach more challenging and extensive subject areas develop different instructional strategies and reach a wider range of students. Having a high-quality curriculum to guide instruction is an important part of meeting these challenges. Therefore, curriculum reforms need to take place in such a way that gaps between the curricular framework and the textbook are bridged and the needs of learners from diverse backgrounds are reflected in curricula and textbooks. Curricula and the textbooks should be more meaningful and relevant for the life experiences of the students and should prepare them for real life (Mohammad and Kumari, 2007).

Educational innovation is a plan or pattern that can be used to build the curriculum, designing instructional materials and as director of learning activities within or outside the classroom. Innovation in education is often associated with the renewal that comes from creative thinking, finding and modification that includes ideas and methods used to solve a problem of education (Riskin et al., 2006). Learning innovation by using textbook is necessary to do in increasing student's achievement so that impressions of learning take long remember by students (Tompkins et al., 2006). In order the innovation on teaching is succeed due to the purpose of learning so it is important to concern several things such as: theoretical rationale, the justification of learning, and the scope of the study. Innovative teaching can approved if it can be widely used in learning and proven effective in improving student learning outcomes (Douthwaite et al., 2009).

The curriculum is currently used in the system of education in Indonesia is the educational level curriculum (KTSP). KTSP are applied by the government since 2006. The educational level curriculum (KTSP) is a curriculum that oriented to the achievement of competencies, which extend the creative participation of teachers, school administrators, and students in the learning process based on basic competencies. Furthermore KTSP requires changes in the structure of matter, and orientation of learning and assessment. Suitability of the content of books and curricula must be properly addressed appropriate with the demands of curriculum based on standards of competence and basic competences in force. But in reality many textbooks available in the market gives the concept of a subject matter described differently with KTSP. The largest proportion of books that are traded when connected to the curriculum does not appropriate with knowledge. Research and interview data focus only on the marked text and vocabulary. Depth research to find most textbooks provides too many topics and poorly developed. All text later includes activities not relevant to the key ideas or do not help students relate to what they're doing with the basic idea (Ortlieb, 2010).

Textbook choices determine curricular themes such as science content, concepts, and processes, and how instruction was delivered textbooks are the most widely used reading materials in science classrooms (Alvermann and Xu, 2003). The survey that conducted by a team of researchers at several book stores in the city of Medan, and based on the type of chemistry books are used as textbooks in high school chemistry in mind that books are marketed and are commonly used chemistry textbook written and published outside of North Sumatra, namely: Jakarta (53.5%); Solo (17.9%); Klaten (10.7%), Bandung (7%), Bogor (3.6%) and Semarang (3.6%). Analysis of the book based on an assessment of the textbook contents according to KTSP is known that textbook is very slightly to have a local content of North Sumatra. If those textbooks used in schools only based on the textbook without the creativity of teachers in the learning achievement of the desired chemical materials based KTSP demands will not be realized because the curriculum and syllabus are described in textbooks without content to integrate local, namely the potential of North Sumatra. Thus one of the efforts to improve the quality of learning can begin to fix the quality of high school chemistry textbook, so that educational objectives set out in the curriculum can be realized is through the use of good quality textbooks that integrate local content.

Based on above descriptions the problems of this study are (1) Are the chemistry textbooks for year XI senior high school that use of RSBI class in north Sumatera appropriate with the content standard of KTSP?, (2) What subject matter that exact to be taught in year XI senior high school at semester one RSBI class?, (3) How the development of standard chemistry textbooks that proper to use in year XI senior high school at semester one of RSBI class?, (4) What the responds of the teachers about the product of chemistry textbook development of senior high school for year XI at semester one RSBI class? (5) How the effectiveness of standard chemistry textbook of senior high school for year XI at semester one RSBI class?

The objectives of this study are: (1) To analyze the chemistry textbooks of senior

high school for year XI at semester one of RSBI class which use in north Sumatera based on contents standard of KTSP, (2) To know the subject matter that proper to be taught for year XI senior high school at semester one RSBI class so that easy to understand by students, (3) To get the standard chemistry textbooks that proper to use in senior high school for year XI at semester one RSBI class, (4) To know what the teachers' responds for the standard chemistry textbook development of senior high school for year XI at semester one RSBI class, (5) To know the effectiveness of standard chemistry textbook of senior high school for year XI at semester one RSBI class.

METHOD

Population in this research are: (1) chemistry textbooks which used in RSBI schools in north Sumatra that analyzed based on content standards of KTSP, (2) all of chemistry professional teachers in north Sumatra, (3) all of chemistry's lecturer who expert in teaching and mastering basic chemistry in university that relevant with chemistry in high school, (4) students of RSBI class.

Sample in this research are (1) chemistry textbooks which is used in RSBI class in north Sumatra, (2) teachers of RSBI schools school as respondent who has taught experience 3 years minimize, in several district in north Sumatera that selected purposive sampling, (3) chemistry lecturer of state university of Medan which is selected purposively, based on competence in chemistry and teaching of relevant chemistry in senior high school, (4) students who is selected purposively from several school in north Sumatera based on student's achievement that seen in the last semester, that are grouping as high group for students who has higher achievement and low group for students who has lower achievement.

This research implementing research and development method (R&D), are combining of survery, explorative and experimental research. Survery research is conducted to evaluate and standardize of textbook using questioner, and also to know how the teacher's respond toward chemistry materials arrangement in a textbook appropriate with curriculum. Explorative research is done to see and explore the local potentials are located in the north Sumatra province which can be used as part of teaching materials that innovated and integrated in the textbook. Experimental research is done to know the effectiveness of innovated chemistry textbook as an instructional media to improve student's achievement in chemistry teaching. To know the influence of standard chemistry textbook toward the increasing of student's achievement is done teaching treatment by using standard and innovative textbook on several topics compare with control class without using standard chemistry textbook.

The implementation of research to obtain research data consists of: (1) analysis and evaluation of chemistry textbooks, (2) arrangement of standard chemistry textbook with local integration, (3) asking respondent, (4) obtain the product of standard chemistry textbook. Generally the procedural of research is illustrated as belows (Fig. 1).

The technique that uses for data collecting are: (1) the analysis of suitability the teaching materials in accordance with KTSP, the data that is obtained are survey result e.g. qualitative data, quantitative data and secondary data that created in table and graphic. (2) The research of standard textbook development include: the development of textbook are resulted standard chemistry textbook that qualified according to BSNP. The data that that expected from this research is the concept of year XI shs standard textbook that is rich in innovative material, easily understood by students. (3) For research of standard textbook were known the effectiveness of textbook to increase student's achievement by using evaluation.

Analyzing of second class senior high school chemistry textbook was done by grouping the textbooks to know the suitability of subject matter with competency standard (CS) and basic competency (BC) in each of textbook. The research of textbook development to obtain a standard and qualified textbook was conducted by integrating local potential of north Sumatera according to chemistry topics. All of potential local in north Sumatera are identified include agriculture, plantation,

oceanic, fishery, tourism, industries and environment were identified being standard data as a part of curricula in textbook in accordance with KTSP. The expected data are quality data that collected by researcher using instrument. Furthermore, the textbook was designed to fulfill qualified textbook according the criteria of BSNP were observed from the content of textbook, textbook design, illustration, and graphic, questions and the solution. The textbook conception is assessed by expert lecturers and teachers respondents by using instruments from BSNP.

Standardization of textbook was done by trial of textbook in learning. The data of student's achievement which is acquired from evaluation for experiment class by using teaching innovation based on standard chemistry textbook as learning media, and control class without using of learning media was processed statically using Microsoft excel and SPSS software. The determining and grouping of sample will be done by procedure of Situmorang (2000), and Situmorang and Sinaga (2009).

RESULT AND DISCUSSION

Analyze of chemistry textbooks are conducted as the first step before arranging and developing the standard chemistry textbook for year of XI at semester one. The chemistry textbooks that were analyzed are from four different publishers, e.g. Tiga serangkai, Esis, Yrama widya and Grafindo. Then, to calculate the percentage of the feasibility of chemistry textbook is using the equation of: P% = $\frac{\sum q}{\sum p}$ x 100 %. The differentiation of chemistry materials on year XI at semester one, show that the publisher of Tiga serangkai desribe the materials details, but less of the interest pictures that easier to understand the concept of materials. The chemistry textbook from Yrama widya publisher, describe the material with long winded, the presented materials are less interesting and difficult to understand. The chemistry textbook from Grafindo publisher describe the materials, short, dense and clear, interesting and easy to understand compared to the three other books. But there is still a matter described the cause misconceptions. The analyzed of chemistry textbook of Esis publisher describe the material more detail and complex but some of materials using the words that are difficult to understand it. Analyzes of the fourth chemistry textbooks year XI senior high school at semester one can be seen on Fig 2.

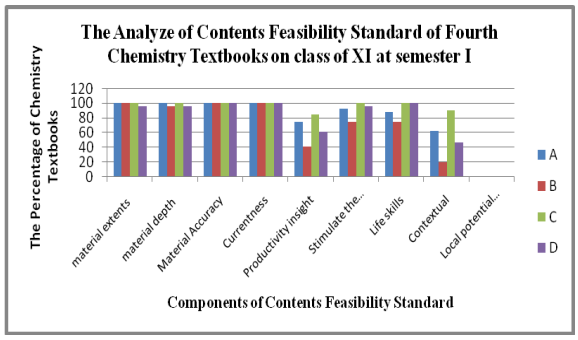

Fig 2. Analyzes of the fourth chemistry textbooks year XI senior high school at semester one

Among the four chemistry textbooks that were analyzed, the third book is the most feasible, because generally, all the material contained in the book is appropriate with the competency standards and basic competencies, description of the material in this textbook easy to understand and include pictures and explanation of the concept through image.

After analyzing of chemistry textbooks year XI senior high school at semester one , next step is the development of chemistry textbooks. Before conducting the development of chemistry textbooks year XI

senior high school at semester one , first is determination of material sequences based on result of chemistry textbooks analyzes. The determination of material sequences of chemistry textbooks for senior high school year XI at semester one is arranged with the sequences of competency standard and basics competencies. Then the sequences of material are responses by teachers as respondent from three regencies in north Sumatera. The sequences of materials was responded by 11 of respondents from three different RSBI schools in north Sumatra. The responds that are given as follows: 1= very disagree, 2 = disagree, 3 = agree, 4 = very agree.

The sequence of the proposed material are: quantum mechanics atomic theory, molecular shapes, thermochemistry, reaction rate, chemical equilibrium. Based on data result generally, teachers agree with the sequence of the proposed material of writer. The data of proposed materials are tabulated and obtained that the average of validity ranges is 3.40. The validity range is in category of (3.26 – 4.00, it means that the sequence of proposed material for year XI at semester one is valid and feasible for using in the development of chemistry textbook for year XI at semester one, and not be revised.

The development of chemistry textbook for year of XI at semester one

The standard chemistry textbook is developed according to competency standard and basics competencies, and add the local potential and existing local environment in north Sumatera and the materials are completed with materials of international general chemistry textbook such as general chemistry ninth edition by author Ebbing and Gammon (2009), and Essentials of Chemistry Extended Edition by author Rife (1992). The development standard chemistry textbook are consists of five chapters, including: quantum mechanics atomic theory, molecular shapes, thermochemistry, reaction rate, and chemistry equilibrium. These materials are presented with the examples of chemistry equilibrium in daily lives, also described with the illustration picture to help students easier understand of the materials. The arrangement of standard chemistry textbooks for year XI at semester one can be seen on Table 1.

The assessment of standard chemistry textbook for year XI at semester one

The assessment of standard chemistry textbook is responded by chemistry lectures and chemistry teachers. Total of respondents that involve in the assessment of chemistry standard textbook of year XI at semester one are thirteen respondents. Two of respondents are lectures of chemistry from state university of Medan, and eleven of respondents are teachers from three of RSBI schools in north Sumatera including teachers of RSBI 1 Medan, RSBI I Tebing Tinggi and RSBI 1 Berastagi. The assessment of chemistry textbook for year XI at semester one is using instruments from national educational standard (BSNP). The instruments of assessment of standard chemistry textbook consist of: feasibility contents, feasibility of language, and feasibility of presentation.

The first respondent of chemistry lecture was checked the items of feasibility instruments of standard chemistry textbook in number four and each of materials in number three. Then, the second respondent of chemistry lecture was given the assessment of standard chemistry textbook generally at number three and four. The responses of the second respondent was given checked in items of accuracy of fact and the written of accuracy of writing atomic symbol, molecules symbol and molecules structure, latest features (examples), presenting concrete examples of local environment, national, regional and international, and conformity of illustration with the message. Based the response of two respondents it can be concluded that overall the materials of standard chemistry textbook has good assessment in almost all of materials. But in category of material that checked in number two the writer revised that materials before conducted research to schools. Based the response of two respondents it can be concluded that overall the materials of standard chemistry textbook has good assessment in almost all of materials. But in category of material that checked in number two the writer revised

that materials before conducted research to schools.

The response of teachers towards scope of materials show that in material extents, 3 of respondents are agree and eight of respondents are strongly agree, the validity range is 3.63. In material depth the response of respondents are, four of respondents are strongly agree, 7 of respondents are agree, the validity range is 3.36. The validity range for scope of materials is 3.49, it shows that the respondents agree with the scope of material. Based on describe of the assessment of above contents feasibility standard, the validity range of each components are: scope of materials is 3.49, accuracy materials is 3.48, recency 3.54, insight productivity 3.32, stimulate the curiosity 3.31, develop the life skills 3.32, Develop Indonesian insight and contextual 3.36, relationship with local potential of north Sumatera 3.45. The total average of validity range of contents feasibility standard is 3.45, validity range in category of 3.26-4.00, it means that the standard chemistry textbook for year of XII at semester one is valid and not be revised.

Generally, the response of teachers towards appropriate with learners' development is checked in number three and number four in almost all of components. The validation range of language feasibility is obtained 3.34, from this value show that the feasibility of language is valid and not be revised. Furthermore, in feasibility of presentation which summarize in Table 4.8, is show that the validation range is obtained at 3.29. This value shows that the feasibility of presentation is valid and not be revised.

Table 1. The arrangement of standard chemistry textbooks for year XI at semester one

No	Materials	Page
1.	**Quantum Mechanics Atomic Theory**	1
	Bohr atomic theory	4
	Theory of quantum mechanics	5
	Orbital shape	7
	Electron configuration	8
	Electron configuration and periodic table	10
2.	**Molecular Shapes**	25
	Valence Shell Electron-Pair Repulsion Theory	28
	Hybridization	31
	Intermolecular Force	36
3.	**Thermochemistry**	49
	The Law Of Conservation Of Energy	52
	System and Surroundings	52
	Exothermic and Endothermic Reactions	52
	Enthalpy Change	54
	The determination of Enthalpy Change	56
4.	**Reaction Rate**	74
	Molarities	77
	Definition of reaction rate	81
	Concentration and Rate of Reaction/ The Rate equation	81
	The Rate Equation	82
	Order of reaction	83
	Factors Affecting Rate of a Reaction	85
	Collision Model	88
5.	**Chemistry Equilibrium**	104
	Chemical Equilibrium (a Dynamic Equilibrium)	107
	The Equilibrium Constant	108
	Heterogeneous Equilibrium; Solvents in Homogeneous Equilibrium	108
	Factors that Affect Equilibrium	110
	Calculating Equilibrium Concentrations and Kc	114
	Dissociation equilibrium	116
	The Equilibrium Constant of Kp	117
	Relationship between K_p And K_c	118
	The Application Chemistry Equilibrium Principal	118

The effectiveness of standard chemistry textbooks

The effectiveness of standard chemistry textbook is acquired based on data of research. The data that are obtained are students' achievement from questions in evaluation, data are grouped based on schools and groups. Then data is collected tabulated and analyzing by statistic method.

The students' achievement on chemistry before teaching treatment are obtained from the evaluation test that given to the students at beginning teaching process. The students' performance from pretest for both of experimental classes and control classes in a given group teaching treatment using standard chemistry book is presented in Table 2.

The result of data show that the students' achievement in chemistry are low performance, each class have low average achievement for group of teaching treatment using standard chemistry textbook as learning media and all samples are equals in their performance in chemistry in three schools.

The data of the post-test for high group in experimental and control class is show that there is effectiveness of standard chemistry book of year XI at semester one towards students' achievement on high group (HG) compare with conventional class without standard chemistry book of year XI at semester one in teaching of chemistry equilibrium. The data of post-test for low group in experiment and control class show that data are refusing Ho and accepting Ha. It means there is effectiveness of standard chemistry book of year XI at semester one towards students' achievement on lower group (LG) compare with conventional class without standard chemistry book of year XI at semester one in teaching of chemistry equilibrium.

Influence standard chemistry textbook on the teaching of chemistry

The influences of standard chemistry textbook towards student's achievement can be seen after an action has done by the evaluation post-test. The evaluation of the posttest have been done after finishing the teaching treatment, the results of evaluation post test that have been conducted after teaching procedures have been performed is presented in Table 3.

Table 2. The students' achievement based on pretest on an teaching using standard chemistry textbook as learning media, numbers in table are means and standard deviation.

Name of Schools	Group	Students' achievement	
		Pre-test	
		Experiment	Control
RSBI I Medan	HG	29.53±5.92	36.80±6.21
	LG	37.40±5.59	35.53±7.02
RSBI I Tebing	HG	38.33±7.96	31.00±6.60
	LG	37.00±6.15	31.20±6.82
RSBI I Berastagi	HG	35.66±7.48	29.33±5.85
	LG	34.66±7.56	30.20±6.73
Total	HG	34.50±7.12	32.37±6.22
	LG	36.35±6.43	32.31±6.85
	Total	35.42±6.77	32.34±6.53

Table 3. The students' achievement based on pretest on an teaching using standard chemistry textbook as learning media, numbers in table are means and standard deviation.

Name of Schools	Group	Students' achievement	
		Post-test	
		Experimental class	Control class
RSBI I Medan	HG	76.26±3.17	72.53±6.30
	LG	67.00±5.52	66.33±3.79
RSBI I Tebing	HG	71.53±3.88	61.26±6.45
	LG	64.40±4.71	53.20±9.01
RSBI I Berastagi	HG	72.40±5.31	69.40±6.20
	LG	62.60±7.79	65.60±4.91
Total	HG	72.53±5.33	66.08±9.12
	LG	65.66±5.06	60.51±8.88
Total		69.04±5.09	64.36±6.83

From the table above defined that the students' achievement from the post test have been increasing for experimental and control class, with total average value for experimental class is (69.04±5.09) while for control class its average value is 64.36±6.83. Further analysis showed that the average value in both of class shows that there is significance difference on students' achievement. For high and low group in each of class either experimental or control class defined that there is different averaging value of students' achievement. The students' achievement in high group on experimental class is obtained 72.53±5.33 that is higher than that in control class with 66.08±9.12, statistical analysis has shown that experimental class and control class is significane difference, where $t_{calculated} > t_{table}$ e.g. 4.088> 1.990. In low group on experimental class the averaging value is obtained at (65.66 ± 5.06) is also found higher than control class where the averaging value is obtained (60.51 ± 8.88), statistical analysis has shown that experimental class and control class is significance different, where $t_{calculated}$ 3.38> t_{table} > 1.990. Over all of the analysis of the posttest show that students' achievement on high and low group for experimental classes is higher that obtained than that in control classes. The result implies that the teaching using standard chemistry textbook as learning media is found effective in increasing the students' achievement in chemistry. The result of data analyze in three schools on post test showed that there is increasing influence of students' achievement after giving the teaching using standard chemistry textbook as learning media to the students in the teaching of chemistry equilibrium. It concluded that the teaching using standard chemistry textbook as learning media is effective to increase students' achievement on the teaching of chemistry subject.

Affectivity of the standard chemistry textbook

In this research, the effectiveness refers to measure the influence of standard chemistry textbook to student's achievement in teaching of chemistry equilibrium. The effectiveness percentage of standard chemistry textbook of year XI senior high school at semester one RSBI class is presented in Table 4.

Result of the effectiveness percentage using standard chemistry textbook is higher than without using standard chemistry textbook either on low or high group.

Based on percentage of effectiveness above is concluded that the standard chemistry textbook has been found effective in increasing student's achievement in teaching of chemistry equilibrium. The result of averaging value in experimental class on high and low groups is above minimal standard of completeness where every school have minimal standard of completeness about 60 – 65, thereby standard chemistry textbook is suitable to do

in teaching of chemistry equilibrium to increase student's achievement. Overall of the result of effectiveness percentage showed that standard chemistry textbook able to motivate student's learning so students mastering the subject matter effectively

The using standard chemistry textbook as learning media in this research is found effective because student understand the subject of chemistry equilibrium with the presentation in standard chemistry textbook. The presentation of standard chemistry textbook especially on chemistry equilibrium are presented with examples, solution, exercise, and concept with interest pictures, and also completed with local potential of north Sumatra, thus make students easier to understand of chemistry equilibrium.

Table 4. The effectiveness percentage of standard chemistry textbook of year XI senior high school at semester one RSBI class

Name of Schools	Group	Students' achievement					
		Experimental class			Control class		
		Pretest	Posttest	Effectivity (%)	Pre-test	Posttest	Effectivity (%)
RSBI I Medan	HG	29.53±5.92	76.26±3.17	61.27	36.80±6.21	72.53±6.30	49.26
	LG	37.40±5.59	67.00±5.52	44.17	35.53±7.02	66.33±3.79	46.43
RSBI I Tebing	HG	38.33±7.96	71.53±3.88	46.41	31.00±6.60	61.26±6.45	49.39
	LG	37.00±6.15	64.40±4.71	42.54	31.20±6.82	53.20±9.01	41.35
RSBI I B.Tagi	HG	35.66±7.48	72.40±5.31	50.74	29.33±5.85	69.40±6.20	57.73
	LG	34.66±7.56	62.60±7.79	44.63	30.20±6.73	65.60±4.91	53.96
Total	HG	34.50±7.12	72.53±5.33	52.43	32.37±6.22	66.08±9.12	51.01
	LG	36.35±6.43	65.66±5.06	41.98	32.31±6.85	60.51±8.88	46.60
Total		35.42±6.77	69.04±5.09	50	32.34±6.53	64.36±6.83	48

CONCLUTION

The conclusions of the research are: (1) The competency standard and basics competencies of fourth chemistry textbooks of senior high school year XI at semester one RSBI class generally, appropriate with the competency standard and basics competencies of KTSP. (2) The subject matter that exact to be taught in year XI senior high school at semester one RSBI class are: quantum mechanics atomic theory, molecular shapes, thermochemistry, reaction rate, and chemistry equilibrium. (3) The teachers respond for the standard chemistry textbook development of senior high school in year XI at semester one RSBI class, showed that it is proper to be used as learning media in teaching learning process. (4) The using of standard chemistry textbook as learning media in teaching of chemistry equilibrium is find effective to increase students' achievement in chemistry.

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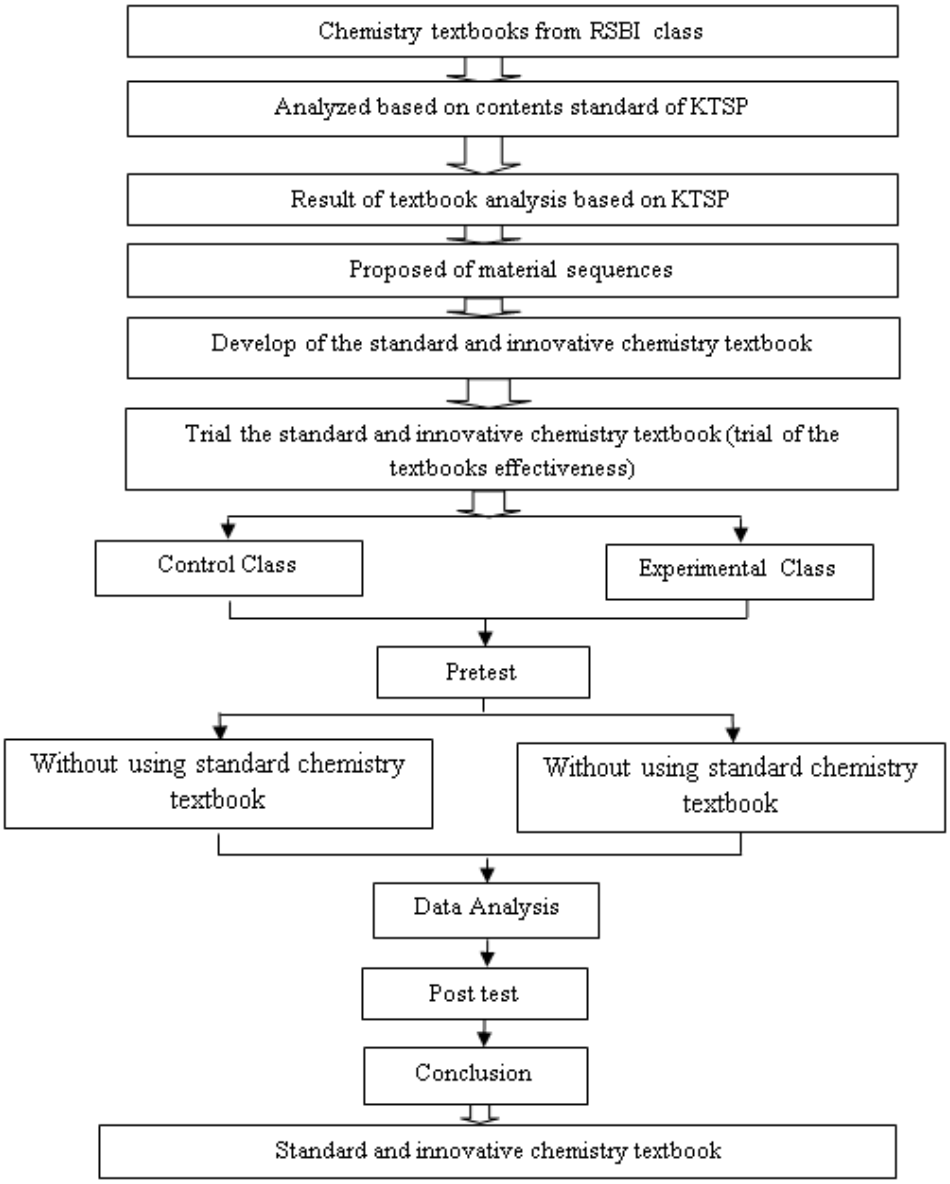

Fig 1. The procedure and step of research to develop standard chemistry textbook of the second class RSBI schools by innovation of teaching material of north Sumatera local potential based on KTSP.