TRAINING OF *SOFT SKILLS* TO THE STUDENTS THROUGH INQUIRY LEARNING MODEL ON SALT HYDROLYSIS OF MAIN MATERIAL XI GRADE AT SMAN 1 SIDOARJO

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Abstrak : Penelitian ini bertujuan untuk mengetahui keterlaksanaan model pembelajaran inkuiri yang berlangsung dalam kegiatan belajar mengajar dan *soft skills* siswa melalui model pembelajaran inkuiri pada materi pokok hidrolisis garam. Sasaran penelitian adalah siswa kelas XI di SMA Negeri 1Sidoarjo. Penelitian ini mengikuti rancangan "*One Group Pretest Posttest Design*" dimana sebelum pembelajaran, siswa diberi *pre-test* dan pada akhir pertemuan pembelajaran siswa diberi *post-test*. Metode pengumpulan data yang digunakan adalah metode observasi dengan menggunakan lembar pengamatan keterlaksanaan pembelajaran dan *soft skills* siswa, serta metode tes dengan menggunakan soal yang berupa pernyataan dalam bentuk pilihan ganda yang digunakan untuk mengetahui *soft skills* siswa sebelum dan sesudah pembelajaran melalui model pembelajaran inkuiri. Hasil penelitian menunjukkan bahwa keterlaksanaan pembelajaran melalui model pembelajaran inkuiri terhadap *soft skills* siswa pada materi pokok hidrolisis garam telah berhasil. Persentase kriteria penilaian dari pertemuan 1 ke pertemuan 2 mengalami peningkatan dari 80% menjadi 83%. *Soft skills* siswa yang meliputi kemampuan berkomunikasi, keterampilan berpikir dan menyelesaikan masalah, serta kerja dalam tim pada pelaksanaan kegiatan belajar mengajar dapat dikategorikan baik, karena rata-rata pada tiap aspek *soft skills* yang diamati mendapatkan persentase $\geq$ 51%. Selain itu, persentase *soft skills* siswa mengalami peningkatan setelah pelaksanaan pembelajaran melalui model pembelajaran inkuri yaitu kemampuan berkomunikasi dari 79,6% menjadi 89,2%; kemampuan berpikir dan menyelesaikan masalah dari 60% menjadi 63,7%; serta kerja dalam tim dari 60,7% menjadi 70%.

Kata kunci: Model pembelajaran inkuiri, *Soft skills*, Hidrolisis garam.

Abstract: The aims of this research are to find out the implementation of inquiry learning model in teaching learning process and soft skills of students through inquiry learning model on material of salt hydrolysis. The target of this research is student XI grade at SMAN 1 Sidoarjo. The design of this research is "One Group Pretest Posttest Design" in which the students are given pre-test before the learning process taking place and post-test at the end of the learning. Data collection methods are used observation method using the observation the implementation of inquiry lerning model and the students' soft skills, are used as the instrument. The other technique is testing in the form of statement in which multiple choice tests is as the instrument. This test is used to find out students' soft skills before and after learning using inquiry model.The result showed that implementation of learning thruogh inquiry lerning model to the students' soft skills on main material of salt hydrolysis have been successful. Percentage criteria value of meeting 1 to 2 meetings have increase from 80% to 83%. Students' soft skills included communication skills, critical thinking and problem solving skills, and working in teams on the implementation of teaching and lerning activities can be categorized good, because an average in every aspect of the observed soft skills to get the percentage of $\geq$

51%. In addition, the percentage of students' soft skills has increased after the implementation of learning through inquiry learning model is the ability to communicate skills from 79,6% to 89,2%; the ability to critical thinks and solve problems skills from 60% to 63,7%; as well as working in teams from 60,7% to 70%.

***Key words**: Inquiry learning model, Soft skills, Salt hydrolysis.*

INTRODUCTION

Chemistry is a science which is acquired and developed based on the experiment of finding answer of the question what, why, and how the natural phenomenon are, especially relating to the composition, structure, and the characteristic, transformation, dynamics, energetic of substance. Therefore, the subject of chemistry at senior high school is a study which learns everything including the composition, structure, and the characteristic, transformation, dynamics, energetic of substance involving the skill and the reasoning related to Lampiran SK Departemen Pendidikan Nasional tahun 2003 [1].

In the changeable society, education is ideally not only oriented to the past and the future, but it should be a process anticipating and discussing about the future. It should look far ahead and think what is faced by the students in the future. A good education is education which prepares the students not only to look for a job, but also to solve a problem faced in the daily life [2].

What the governments do to improve the education system in Indonesia is establishing a program of pioneering international school called as RSBI (Rintisan Sekolah Bertaraf Internasional). The establishing of this program is expected that education in Indonesia is able to follow the change of globalization era, so that it can raise the competent students in international community. At this RSBI School, the learning is held in *bilingual*. The curriculum used at RSBI is school-based curriculum called as KTSP (Kurikulum Tingkat Satuan Pendidikan) as the national curriculum which is combined with curriculum used in *Cambridge* called as *Cambridge International Examination (CIE)* as the international curriculum which still refers to the standard of national education called as BSNP (Badan Standar Nasional Pendidikan).

SMAN 1 Sidoarjo is one of pioneering international School (RSBI). Based on the result of the questionnaire of preliminary research spreaded on November 1, 2011 to the thirty students of Year XI of science 3 at SMAN 1 Sidoarjo, about 63% students like chemistry and about 87% students said that chemistry is the interesting subject to learn. In chemistry learning, there are materials which not only need memorizing, understanding the concept, and calculating the formula, but also making the experiment to prove the concept of the material directly.

One of the chemistry materials which need experiment directly is the material about salt hydrolysis. The basic competence which is expected from this material is determining the type of the salt sustaining hydrolysis in the water and pH of the solution. The basic competence has been adapted from the *Cambridge* curriculum.

Nevertheless, based on the result of the interview to the chemistry teacher, the learning of salt hydrolysis has never been conducted an experiment. Therefore, to achieve the learning indicator is implemented inquiry learning model. Inquiry learning is the learning involving the students actively through the activities which have scientific characteristics which are finding a problem, formulating

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hypothesis, setting experiment, collecting and analyzing data obtained and draw the conclusion from the problem in which the role of the teacher is as facilitator and dynamist [3]

According to Gulo [2], the main target in inquiry learning process is (1) the involvement of the students maximally in learning process; (2) the activity corresponds to the objective learning logically and systematically; and (3) developing students' confidence about what is found in inquiry learning process. Moreover, inquiry develops not only the students' intellectual ability, but also all of the potential they have, including emotional development.

The phases of inquiry learning models are *doing observation to find the problem*, *formulating problem*, *proposing the hyphotesis*, *doing plan the solution of problem through do experiment*, *doing experiment*, *doing observation and collection of data*, *analyzing data*, and *making conclusion* [4]

The learning model corresponding to the indicator is expected to be able to increase the result of the students' learning. The result of the learning process is divided into two kinds, those are *output* and *outcome*. *Output* is the skill mastered by the students, which can be found out immediately after joining a set of learning process. *Output* learning can be divided in to two kinds; *hard skills* and *soft skills*. However, most of the schools measure the result of the learning much more in *hard skills*. *Hard skilsl* is divided into two kinds; *academic skills* and *vocational skills*, while *soft skilss* is also divided into two kinds; *personal skills* and *social skills* [5]. However, most of the schools measure the result of the learning much more in *hard skills*

According to Sharma [5*)* *soft skills* is all of the aspects of *generic skills* included the cognitive elements which correlate to nonacademic skills. As for the element of *soft skilss* which is good to be had by the students is as the ability

of communicating, the skill of thinking and solving the problem, and the teamwork.

Based on the preliminary research, it is obtained that 35% of the students are able to communicate well and 65% of the students have not been able to communicate well; 31% of the students have the skill of thinking and solving the problem, and 69% of the students have not had the skill of thinking and solving the problem; 47% of the students are able to work in team and 53% of the students have not been able to work in team. Based on the result, it can be found out that students' *soft skills* are still low. Therefore, the students' *soft skills* is need training.

The aims of this research is training *soft skills* of the students through inquiry learning model. The *soft skills* are be trains are *communicative skills, critical thinking and problem solving skills, and team work.*

METHOD

The target of this research is student XI grade at SMAN 1 Sidoarjo by the number of students is 30 students. The selection of classes are conducted at random by SMAN 1Sidoarjo chemistry teacher.

This study follows the design of *"One Group Pretest Posttest Design"* where before learning, students are given *pre-test* and student learning at the end of the meeting given the *post-test.* This study classified as *Pre-Experimental Design* with patterns of *pre-test* and *post-test design* [7].

Based on the study design, the detailed procedure of this study consists of three stages of the implementation of learning activities is the preparation phase, the implementation of learning activities, and the data analysis phase. Activities undertaken in the preparation stage is to prepare the teaching (syllabi, lesson plans, and worksheet) and research instruments. Implementation of learning activities include initial

test *(pre-test)*, the implementation of the study, data collection observation, and the final test *(post-test)*. In the assessment of data analysis techniques *soft skills* of students through inquiry learning model were analyzed descriptively by calculating the average score, then show the results on the established criteria and quantitatively by calculating the scores obtained by adjusting the *soft skills* assessment rubric.

The research's instrument used are lerning implementation observation sheet, *soft skills* of students observation sheet, as well as about the form of a statement in the form of multiple choice is used to determine the *soft skilss* of students before and after learning through inquiry learning model.

Analysis the implementation of learning in the implementation of inquiry learning model, were analyzed using the Likert scale scores that shown in Table 1.

Table 1   Likert Scale Scores

Score	Notes
0	Doesn't done
1	Very bad
2	Bad
3	Enough
4	Good
5	Very good

Riduwan [8]

The results of the observer is used to determine the percentage of implementation inquiry learning using the formula:

% Implementation learning
$$= \frac{observer\ average\ score}{maximum\ score} x\ 100\%$$

Furthermore the percentage of the assessment criteria implementation of learning follow Table 2.

Table 2   Percentage of Assessment Learning Implementation Through Inquiry Learning Model

No	Percentage	Categorize
1	0 % - 20 %	Very bad
2	21 % - 40 %	Bad
3	41 % - 60 %	Enough
4	61 % - 80 %	Good
5	81 % - 100 %	Very good

Riduwan [8]

Soft skills of observation data students during the teaching learning process by descriptively analyzed quantitatively by using the following criteria::

1= least
2= less
3= good
4= very good

The data obtained can be calculated the percentage of feasibility using the formula:

% Component of *Soft skills*
$$= \frac{score\ can\ reach}{maximum\ score} x\ 100\%$$

Furthermore the percentage of the assessment criteria implementation of learning follow Table 3.

Table 3   Percentage of Students' *Soft Skills* Criteria

No	Percentage	Categorize
1	0 % - 25 %	Least
2	26 % - 50 %	Less
3	51 % - 75 %	Good
4	76 % - 100 %	Very good

Riduwan [8]

Meanwhile, to learn *soft skills* students before and after learning through inquiry learning model, given some statements about the form of multiple choice to use formula:

% *Individual Achievement*
$$= \frac{score\ can\ reach}{maximum\ score} x\ 100\%$$

RESULT AND DISSCUSSION

First, observation of learning implementation done using instrument of inquiry learning implementation sheet..

During the learning activities takes place, the observations are carried out by two observers.

The success of teachers in learning to implement inquiry in each meeting are presented in Table 4.

Table 4 Successful of Implementation Inquiry Learning in Meetings 1 and 2

Mee-Tings	Avera-ge Score	%	Success-Full
1	4,0	80	Success
2	4,1	82	Success

Based on Table 4 it can be seen that the teacher has succeeded in implementing the inquiry learning, the criteria assessment is good (80%) in the first meeting , and an increase in the second meeting with the assessment criteria are very good (82%)..

These are presented Table 5 learning through inquiry learning model at the meeting of 1 and 2 meetings.

Table 5 Data of Percentage Inquiry Learning in Meetings 1 and 2

No	Aspects	Percentage (%)	
		Mee-ting 1	Mee-ting 2
1	Intoduction (Gives motivation, tells the objective of lesson, divides students in group, and gives worksheet to students)	83	80
2	Phase 1 (*doing observation to find the problem*)	80	80
3	Phase 2 (*formulating problem*)	70	90
4	Phase 3 (*proposing the hyphotesis*)	90	85
5	Phase 4 (doing *plan the solution of problem through do experiment*)	80	80
6	Phase 5 (*doing experiment*)	80	90
7	Phase 6 (*doing observation and collection of data*)	75	80
8	Phase 7 (*analyzing data*)	70	80
9	Phase 8 (*making conclusion*)	80	80
10	Closing (*makes summari of lesson*)	80	80

Based on Table 5 it can note the overall implementation of inquiry learning, implementation of learning through inquiry learning was considered successful (criteria of good and very good) by two observers in each meeting. In the preliminary activities (gives motivation, tells the objective of lesson, divides students in group, and gives worksheet to students) also has done well, although it has decreased from a meeting (83%) to the meeting of 2 (80%). In the preliminary activities, *soft skills* students who observed the component the ability to *communicative skills* (to be good listeners) the percentage obtained also showed a decline from 83% to 75% shown in Table 6. This is the reason right at the

first meeting of the students do not know the model of learning through inquiry learning, so teachers give more motivation and the questions are easier for students to be able to follow the model of learning through inquiry learning. Therefore, at the confluence of the two teachers are not too many distinctions motivate the questions to the students because most students already understand.

Table 6 Percentage of Component Student's *Communicative Skills* in Meetings 1 and 2

No	*Communicative Skills*	Meeting 1		Meeting 2	
		%	Criteria	%	Criteria
1	to be good listeners	83	Very good	75	Good
2	giving opinion exactly	49	Less	66	Good
3	presenting of data based on the result of experiment	60	Good	73	Good

On core activities, in phase 1 (*doing observation to find the problem*) the percentage implementation of learning get the same percentage of 80% with both criteria, which the teacher provides guidance to students to be able to find the problem.%). In phase 1, the *soft skills* students who observed the component the ability to *communicative skills* (to be good listeners) the percentage obtained also showed a decline from 83% to 75% shown in Table 6.

Percentage obtained by the teacher in the implementation of learning to anticipate student inquiry in order to focus to find concept learning. Although student's *soft skills* in to be good listeners component are shown in Table 6 decreased from 83% to 75%, but teachers still provide guidance for students in finding the correct concept of learning.

Like as with Gulo opinion [2] that the main target of inquiry learning activity is the maximum student involvement in learning and directional activities in a logical and systematic in the learning objectives.

Phase 2 (*formulating problem*) the percentage of 1 to 2 meetings has increased from 70% to 90%. In phase 2, the students' *soft skills* who observed the communication skills component (giving opinion exactly). Percentage obtained by the teacher in the implementation of learning teacher inquiry conducted so that students can express their opinions. This is consistent with the *soft skills* component giving opinion in a manner which is shown in Table 6 at a meeting a criterion of less ($\leq$ 51%). So that the second meeting, more teachers motivate students to giving opinion. It results in students' *soft skills* giving opinion components to be increased by 66%.

This is in accordance with the opinion Sudirman [3] that one of the advantages of inquiry learning model can develop talents/skills of the individual.

Phase 3 (*proposing the hyphotesis*), a percentage valuation of fisrt meetings to second meetings has decreased (90% to 85%). In phase 3, the *soft skills* students who observed the component *critical thinking and problem solving skills* (giving hypothesis exactly) are shown in Table 7. Percentage obtained by the teacher in the implementation of learning to anticipate student inquiry in order to focus to find learning concepts are studied. This is supported by giving hypothesis exactly by the appropriate percentage shown in Table 7 that the percentage obtained in the first meeting and second meetings to get the same percentage that is equal to 66%. It is proven that students need guidance from the teacher to determine the hypothesis that right in learning concepts being studied.

Like as with Gulo opinion [2] that the main target of inquiry learning activity is the maximum student involvement in learning and directional activities in a logical and systematics in the learning objectives.

Table 7 Percentage of Component Student's *Critical Thinking and Problem Solving Skills* in Meetings 1 and 2

No	*Critical Thinking and Problem Solving Skills*	Meeting 1		Meeting 2	
		%	Crieria	%	Criteria
1	giving hypothesis exactly	66	Good	66	Good
2	discussing about the data of experiment	68	Good	75	Very good
3	analyzing the result of experiment in group	80	Very good	88	Very good

Phase 4 (doing *plan the solution of problem through do experiment*) to get the same percentage of 80% with both criteria. In phase 4, the *soft skills* observed students working component (requiring opinion from her/his friends). The percentages obtained are shown in Table 8 that the percentage has increased from 60% to 75%. Percentage obtained by the teacher in the implementation of learning inquiry conducted in which the teacher provides guidance to students in problem solving through experiment. In addition, for students to express their opinions in solving the problem and appreciate the opinions of friends who accepted. This is done by the teacher to student problem-solving plan properly and in accordance with the concept of learning to learn.

Table 8 Percentage of Component Student's *Team Works* in Meetings 1 and 2

No	*Team Works*	Meeting 1		Meeting 2	
		%	Criteria	%	Criteria
1	cooperating well in group	86	Very good	91	Very good
2	working actively based on her/his jobs in group	81	Very good	85	Very good
3	requiring opinion from her/his friends	60	Good	75	Good

The next phase 5 (*doing experiment*) the percentage obtained increased from 80% to 90%. In this phase, *soft skills* observed students working in teams component of (working actively based on her/his jobs in group). The percentages obtained are shown in Table 8, where the first meeting to the second meeting also increased from 81% to 85%. Percentage obtained by the teacher in the implementation of learning inquiry conducted in which the teacher provides guidance to students in conducting experiments in accordance with proper procedures.

Phase 6 (*doing observation and collection of data*), the percentage who obtained increased from 75% to 80%. In this phase, students' *soft skills* were observed there are 3 components: (1) team work component (cooperating well in group) obtained an increase in the percentage of 86% to 91% are shown in Table 8. (2) component of critical thinking and problem solving skills (discussing about the data of experiment) obtained an increase in the percentage of 68% to 75%. (3) communication skills components (presenting of data based on the result of experiment) found an increase in the percentage from 60% to 73%. Based on

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these data indicate that the inquiry learning students can work and solve problems encountered with the active guidance of the teacher.

This is in accordance with the opinion Sudirman [3] that through inquiry learning model of learning strategies that are being changed from the presentation of information by teachers to students, a teaching that emphasizes the information processing process where students are actively and cultivate their own information.

Phase 7 (analyzing data) the percentage of first meetings to second meetings has increased from 70% to 80%. In this phase, students' *soft skills* is observed critical thinking and problem solving skills component (analyzing the result of experiment in group) are shown in Table 7 have increased the intensity of first meeting (80%) to the second meeting (88%). Percentage obtained by teachers in implementation of inquiry learning conducted by teachers to anticipate students to focus find the concept of learning.

This is in accordance with the opinion Sudirman [3] that one of the shortage of inquiry learning model is a lot to give freedom to the students in learning, but that freedom does not guarantee that students learn best, in a sense to do it with diligence, full of activity and direction. Therefore, the teacher provides guidance to achieve keterarahan students find the concept of learning.

Phase 8 (*making conclusion*) get the same percentage of 80% with both criteria, which the teacher provides guidance to students to make conclusions. While students may requiring opinion from her/his friends about the conclusion of the lessons learned. This is done by teachers for students to revisit what they have learned with guidance from teachers.

At the closing consists of guiding the students summarize learning and asks students to return the equipment and learning materials an attempt to get a good criteria of 80% at 1 and 2 meetings.

Thus, it can be said that implementation of learning to implement learning through inquiry learning model has been well said, and can train and improve students' *soft skills*. This is evidenced by the criteria assessment given good both of observer of the good criteria. In addition, inquiry learning model to train students' *soft skills* who demonstrated at the meeting of two get a good criteria ($\geq$ 51%) of the observations by two observe.

Students' *soft skills* of before and after learning through inquiry learning model in XI grade at SMA Negeri 1 was measured by the form of a statement about students' *soft skills*. The individual components of students' *soft skills* consisted of three questions, so the number of the given problem statement amounted to about 9 points. The results of classical completeness students' *soft skills* before and after learning through inquiry learning model is presented in Tables 9 and 10.

Table 9 Data of Classical Achievement *Soft Skills* Before Implementation of Inquiry Learning Model

No.	*Soft skills*	Classical Achievement
1	*Communicative Skills*	79,6%
2	*Critical Thinking and Problem Solving Skills*	60%
3	*Team Works*	60,7%
Classical Achievement Average		66,8%

Table 10 Data of Classical Achievement *Soft Skills* After Implementation of Inquiry Learning Model

No.	*Soft skills*	**Classical Achievement**
1	*Communicative Skills*	89,2%
2	*Critical Thinking and Problem Solving Skills*	63,7%
3	*Team Works*	70%
Classical Achievement Average		74,3%

Based on classical achievement, each students' *soft skills* has increased. First, the ability to communicate from 79.6% to 89.2%. Second, critical thinking and problem solve skills from 60% to 63.7%. Third, work in teams from 60.7% to 70%. This is in accordance with the opinion Sudirman (1998) [3] that one of the advantages of inquiry learning model to develop talents/skills of the individual.

Thus it can be in the know that the students' *soft skills* have improved on learning through inquiry learning model.

CONCLUSION

Based on result and discussion can be conclude that that leraning in the application of inquiry learning model to the students' *soft skills* on main material of salt hydrolysis have been successful. Percentage of meeting the assessment criteria 1 to 2 meetings has increased from 80% to 83%. *Soft skills* of students which include *communication skills*, *critical thinking and problem solving skills*, and *working in teams* on the implementation of teaching and lerninf activities can be categorized either as an average in every aspect of the observed

soft skills to get the percentage of $\geq$ 51%. In addition, the percentage of students' *soft skills* has increased after the implementation of learning through inquiry learning model is the ability to *communicate skills* from 79,6% to 89,2%; the ability to *critical thinks and solve problems skills* from 60% to 63,7%; as well as *working in teams* from 60,7% to 70%.

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