

The Influence of Giving Direct *Corrective Feddback* on Big Task toward Student's Learning Result

Sri Nurhayati and Intan Aris Tanti

Department of Chemistry, Semarang State University, Semarang, Indonesia

E-mail: srinurhayati.budi@gmail.com

Abstract. This experimental study aimed to determine the influence of direct corrective feedback on the big task toward the students' learning outcomes. The sampling technique used is cluster random sampling technique. Methods of data collection are by tests, they are pretest and posttest, the documentation to determine the amount of population, observation to determine the learning outcomes of psychomotor aspect, and a questionnaire to determine the affective aspects of learning outcomes. Hypothesis test used are differential test of two average, the analysis of the influence between variables and the coefficient of determination. The results of differential test of two average on posttest shows $t_{\text{value}}4.294$ was higher than $t_{\text{table}}1.995$ with 68 degrees of freedom and a significance level of 5%, which means that an average of learning outcomes in experimental group was better than the control class. Analysis of influence between variable which resulted biserial correlation value of 0.884. Calculation of the coefficient of determination showed that the direct corrective feedback on the big task contributed about 78.15% of the student learning outcomes. Observation and questionnaire results showed that the average student learning outcomes of psychomotor and affective aspects of the experimental group was higher than the control class. Based on the findings, it is concluded that giving direct corrective feedback on the big task shows a positive effect on students' learning outcomes of buffer solution and hydrolysis material.

1. Introduction

Education is a conscious effort and aims to develop human qualities as an activity that is aware of the purpose. One of the factors that affect the quality of education students are teachers. Hamalik [1] states how good the curriculum, administration, and facilities supplies if they are not matched with an increase of the teachers' quality, they will not bring the expected learning outcomes. The role of teachers' guidance in each of the learning process is considered very as an important efforts to provide the reinforcement to motivate the students to achieve the learning objectives. Therefore, it is important for the teacher to select appropriate learning strategies with the material they teaches, thus it will facilitates students to receive lessons given.

Based on observations at several high schools, test results and student assignments will only get the sign of right or wrong without any improvement about the right answer. This is also reflected in the SMA 12 Semarang. The observations on SMA Negeri 12 Semarang indicate that teachers ever gave a kind of big task. Giving big task is conducted at the end of learning materials. Teachers rarely provide a response result of the students' work, thus the students do not know where their mistakes are that cause them eventually work on the problems and not knowing what it should be. This will result in the student who are not care about the results of homework given and tend to forget the homework, especially if the lesson has changed [2]. The results of interviews with one chemistry teacher at SMA Negeri 12 Semarang, it is known that students had difficulty in learning chemistry, especially on the buffer solution and hydrolysis material. The difficulty lies in the calculation of the students, the students still have difficulties in using formulas and determine whether the type of questions are presented is the issue of the buffer solution or hydrolysis. This obstacle causes the average Semester Final Exam value of the academic year of 2014/2015 on the XI grade still under KKM (minimum completeness criteria) as determined by the school on 75.

Based on the issues above, then we need a learning process that can provide feedback, thus it can indicate the location of the error corrections of students work which accompanied by the correct

answer. Feedback typewhich is commonly used in the classroom is corrective feedback that is giving a sign that indicating the mistakes made by the students accompanied by an explanation to provide more information for students [3]. According to Suzuki [4] corrective feedback is pedagogical techniques teachers can use to attract students' attention on the location of their mistakes and provide a solution. While direct feedback is giving immediate feedback on their mistakes [5]. Proper type of learning is by giving the direct corrective feedback which is providing feedback by giving a wrong sign and also give the correct answer explanations [6].

Giving of feedback aims to enable students to know where the problem is, so that in the end the students can work on similar matters in accordance with the instructions given by teacher [7]. Giving direct corrective feedback on this research will be focused on thebig task which is a huge task that will be provided by the teacher at least after the learning process reached a basic competence (KD). Sabriani[8] stated that the task can involve students to participate in learning, but if only done once, it can be said that it is not quite good so it needs to be given structurally. The discussion on a set of tasks (big task), students are expected to be familiar with the buffer solution and hydrolysis material, thus the direct corrective feedback can provide a positive influence on student learning outcomes.

The purpose of this study are (1) to determine whether there is an influence of givingdirect corrective feedback on the big task of the student learning outcomes of buffer solution and hydrolysis material; (2) to determine how much influence of giving direct corrective feedback on the big task of the student learning outcomes of buffer solution and hydrolysis material.

2. Materials and Methods

This research is an experimental research conducted in SMA Negeri 12 Semarang. The research was conducted on February 17 to April 12, 2016 the second semester of the academic year 2015/2016 focused on the buffer solution and hydrolysis material KD 4.3, 4.4 and 4.5 on KTSP syllabus. The population of this study were all students of XI IPA classeswhich consist of five classes. The sampling technique were using cluster random sampling technique which is taking a sample of randomized groups with members of the population that is divided into its homogeneity and similarity that have the same variance. Samples are XI IPA 1 as an experimental group and XI IPA 2 as the control group. Variable research is an attribute or the nature or value of a person, object or activity which may have certain variations defined by the researchers to learn and then drawn conclusions (Sugiyono, 2010: 61). The variables in this study were (1) the independent variable in the experimental group is learning by giving direct corrective feedback on the big task, while the independent variable in control group is learning without giving the direct corrective feedback on the big task; (2) the dependent variable in this study is the result of studying chemistry in the class of XI IPA at SMAN 12 Semarang on the buffer solution and hydrolysis material; (3) the control variables arethe teachers, the number of lessons, competencies related to the lesson, and students as the research object that is in the same class.

The design used in this study was a pretest-posttest control group design. In this design, there are two groups were selected randomly, then either the experimental and the control group were treated pretest and posttest. This study design can be presented in Table 1.

Table 1. Draft of Pretest-Posttest Control Group Design

Group	Pretest	Treatment	Posttest
I	O ₁	X ₁	O ₂
II	O ₃	X ₂	O ₄

Information:

I = Experimental group

II = Control group

O₁ = Pretest result of the experimental group before being treated

O₂ = Posttest result of the experimental group after being treated

O₃ = Pretest result of the control group before being treated

O₄ = Posttest result of control group after being treated

X_1 = Treatment on experimental group learning by giving direct corrective feedback on the big task
 X_2 = Treatment on control group by giving the same learning methods and model with experimental group, but not being treated by direct corrective feedback on the big task

Methods of data collection is the way used by researchers to collect the data [9]. Data collection method used is the method of documentation which used to get data on a list of students members' names of the population, the test methods are pretest and posttest which are needed to measure cognitive achievement of students, observational methods used to determine learning outcomes of psychomotor aspect in the lab then the questionnaire are to determine affective aspects of each student. The instrument used in this study was the test instrument in the form of pretest and posttest question. Before using the instrument, a try out has conducted to determine the validity, different power, level of difficulty and reliability. Instruments of observation sheets and questionnaires has been validated by expert lecturers. Instruments of the research implementation include: syllabus, lesson plans, the big task questionare, student worksheet, questionnaire of affective, psychomotor aspect observation sheets and observations cognitive aspects sheets.

Data analysis technique conducted in two stages, they are analysis of early stage which is the stage of matching the sample consisted of normality test, homogeneity test, and the equality test of average initial state population (ANAVA test). Final data analysis consists of a test of normality and variance equality test and also hypotheses test which is needed to test the hypothesis of the study that consisted of two different test average, influence analysis test between variables and the coefficient of determination. Then, descriptive data analysis are to determine the learning outcomes of affective and psychomotor aspects, as well as the questionnaire responses of students toward the learning process.

3. Results and Discussion

The final results of data analysis were obtained by the average test scores of students cognitive aspects such as the data presented in Table 2.

Table 2. Data Result of Pretest-Posttest Control and Experimental Group

Source Variance	Experimental Group		Control Group	
	Pretest	Posttest	Pretest	Posttest
Average	35.80	83.71	31.66	75
Variance	61.54	56.26	62.87	87.88
The highest score	53	100	50	100
Lowest rated	23	67	17	50
Range	30	33	33	50

Data analysis was performed to determine the sample of pretest initial conditions in both the experimental and control group. It is meant for both the experimental and the control group to have almost the same level of understanding on the buffer solution and hydrolysis material. Based on statistical analysis of the pretest normality test using the chi square test was obtained X^2_{value} was 5.68 for the experimental group and X^2_{value} was 5.64 for the control group. X^2_{value} obtained is smaller than the X^2_{table} on the degrees of freedom (df) = 4 and the significant level (α) = 5% was 7.81, which means data distributed normally. Equality Test of two variances toward pretest result obtained F_{value} was 1.02 is smaller than F_{table} of 1.98 which means that both classes have the same variance, thus differential test of two average should use the t-test formula.

Data analysis posttest result aims to answer the hypothesis that has been stated before. Analysis of posttest normality test obtained that X^2_{value} was 3.44 for experimental group and X^2_{value} was 5.68 for the control group. X^2_{value} obtained was smaller than the X^2_{table} at df = 4 and (α) = 5% was 7,81 which means both groups data were distributed normally. Equality test of two variances obtained F_{value} = 1.56 is smaller than F_{table} = 1.98 which means that both classes have the same variance, thus the differential test of two averages should use t-test formula. Normality test results and the equality of two variances are presented in Table 3 and Table 4.

Table 3. Normality Test

Class	Data	X^2_{value}	X^2_{table}	Criteria
Experimental	Pretest	5.68	7.81	normal distribution
Control	Pretest	5.64	7.81	normal distribution
Experimental	Posttest	3.44	7.81	normal distribution
Control	Posttest	5.68	7.81	normal distribution

Table 4. Test Results Similarity Two Variances

Data	F_{value}	$F_{0.025}$	Criteria
Pretest	1.021636	1.981119	Both classes have the same variance
Posttest	1.561828	1.981119	Both classes have the same variance

Hypothesis test consists of two different average test, influence test between the variables and the coefficient test of determination. Pretest result of differential test of two average was 1.914 which less than $t_{\text{table}} = 1.995$. It can be concluded that there was no difference in average of pretest in experimental and control group. Then posttest result of differential test of two average was of 4.29 which was higher than $t_{\text{table}} = 1.995$. It can be concluded that the average result score of the experimental group in learning was better than the average result of learning in the control group. The data results of *pretest* and *posttest* of differential test of two average are presented in Table 5 and Table 6.

Table 5. *Pretest* Results of differential test of two average

Class	Average	N	dk	t_{value}	t_{table}	Criteria
Experimental	35.80	35	68	1.914	1.995	Ho accepted
Control	31.66	35				

Table 6. *Posttest* Results of differential test of two average

Class	Average	N	dk	t_{value}	t_{table}	Criteria
Experimental	83.71	35	68	4.294	1.995	Ha accepted
Control	75	35				

Analysis of influence between the variables declared with biserial coefficients (rb), based on data analysis obtained that rb was 0.884. Based on the guidelines to make interpretations toward biserial coefficients (rb), it can be concluded that the direct corrective feedback on the big task has a very high impact on student learning outcomes. Based on the results obtained by the correlation biserial calculations that the amount of biserial correlation coefficient learning outcomes (rb) was 0.884 thus the coefficient of determination was 78.15%. It means that the contribution effect of giving the direct corrective feedback on the big task of the student learning outcomes in buffer solution and hydrolysis material was 78.15%.

Descriptive data analysis of psychomotoric result aimed to determine the value of psychomotor aspect of students in both experimental and control group. Based on descriptive data analysis of students psychomotoric learning outcomes are presented in Table 7. In the practicum of buffer solution and hydrolysis, the observation of the three observers generate data that are relatively the same. The number of students who got good and excellent criteria in the experimental group was higher than the control group. Psychomotoric aspect result of experimental group was higher than the control group, it because the attitude of responsibility, self-discipline and curiosity on each student which is formed during the learning activity by giving direct corrective feedback on the big task. Thus when students faced an activity of group work, each student will be responsible for carrying out the task group.

Table 7. Observations Observer Psychomotor Practical Aspects

Type Practicum	Class	Observer 1		Observer 2		Observer 3	
		∑criteria of students		∑criteria of students		∑criteria of students	
		SB	B	SB	B	SB	B
Buffer solution	Experimental	25	10	21	14	24	11
	Control	5	29	6	28	11	22
Hydrolysis	Experimental	30	5	21	14	28	7
	Control	9	26	10	25	14	21

Information:

SB = very good

B = good

Descriptive analysis assessment questionnaire used to determine the affective aspects of students self attitude on themselves among others (1) honesty; (2) responsibility; (3) discipline; (4) independence; (5) teamwork; (6) curiosity; (7) attention in following lessons; (8) activeness of students in asking questions; (9) activeness of students in answering questions; (10) the ability to respect the opinion of friends. Experimental and control groups students group were given the same affective assessment questionnaire, thus students could assess the attitude of themselves by giving a check mark in the column indicators which in line with the condition of the students. The affective analysis questionnaire results of student are presented in Table 8.

Table 8. Analysis of Affective Assessment Questionnaire

Affective aspects	Class			
	Experiment		Control	
	Achievement of every aspect (%)	Criteria	Achievement of every aspect (%)	Criteria
1	84.28	Very good	68.57	Good
2	86.42	Very good	80.71	Good
3	89.28	Very good	82.85	Very good
4	83.57	Very good	72.14	Good
5	87.14	Very good	85.71	Very good
6	77.14	Good	74.28	Good
7	77.85	Good	74.28	Good
8	80.00	Good	74.28	Good
9	77.85	Good	74.28	Good
10	93.57	Very good	93.57	Very good

From the table above, we can conclude that every aspect of affective achievement in experimental group was higher than the achievement of every aspect in the control group. Criteria for each affective aspect in experimental group gained a good and very good criterion which is higher than the control group. Value of every affective aspect in experimental group is higher than the control group, it is because the experimental group student are already accustomed in terms of performing tasks independently, honest and candid in accordance with the understanding of each student which was intended that giving direct corrective feedback on the big task could provide an optimum results on each students. Students were required to do the work according to his own understanding, thus when the teacher showed their mistakes and gave a correction, students truly understood the mistake. It also makes students pay more attention to follow the lesson and be more active in asking things which they do not know. In terms of cooperation within the group, the experimental group also produced a criterion value that is higher than the control group as the experimental group is accustomed with an

attitude of responsibility, independence and curiosity. Thus each student can be more actively participate in group discussions.

Learning process in the experimental and the control group was basically the same by using the same methods and model, the matter is learning process in the experimental group was facilitated by giving the direct corrective feedback on the big task while the control group was only given the same the big task without being facilitated with direct corrective feedback. Learning was conducted over 12 meetings, learning began with a *pretest* activities in the experimental and control group at the 1st meeting. On the 2nd until the 9th meeting, teaching and learning activities was held in the classroom. On the 10th and 11th meeting, practicum of buffer and hydrolysis were conducted. Then on the 12th meeting, *posttest* was held to measure the learning outcomes of two groups after being given a different treatment. The results of the *posttest* obtained an average value of *posttest* in experimental group was 83.71 while the average value of control group was 75. *Posttest* data, then, were tested in order to know the difference between two average and obtained $t_{\text{value}} = 4.294$ is bigger than $t_{\text{table}} 1.995$ for t_{value} is in the area of H_0 rejection, it can be concluded that the average value of experimental group *posttest* is better than the control group.

Posttest data result, then, being tested by using correlation test biserial and obtained r_b value of 0.884 with a very high influence criteria. With the r_b value of 0.884, it obtained determination coefficient value of 78.15%. Therefore we can conclude that the magnitude of the effect of direct corrective feedback on the big task in the student learning outcomes was 78.15%.

The big difference in the average of learning outcomes between the experimental and control group showed that learning by giving direct corrective feedback on the big task was able to provide a positive influence on cognitive aspects of student learning outcomes compared to learning without giving the direct corrective feedback on a big task. This is supported by Hattie [10] in the form of 800 meta-analysis of the learning outcome which is concluded that the feedback from the teachers have the most influence compared to other influences that exist in the learning process.

Direct corrective feedback can provide high impact on student learning outcomes due to direct corrective feedback has several advantages, among others:

- (1) While giving an correction answer to the big task, teacher gave the sign in the wrong answer and directly provide the correction, thus students will immediately know where the problem is and also know how to answer properly.
- (2) Corrections answers are provided with rightwork steps, thus students do not have to find out for themselves how to correct the answer. It because most of students did not care about the correct answer when the teacher only gave them the sign of wrong and right.
- (3) Give the direct corrective feedback as soon as possible by the teacher when students are already collecting big task, the teacher should immediately correct it and return to the students before the next learning material, thus the students are still remember clearly about the material on the big task.

Big task with direct corrective feedback also has some advantages, such as:

- (1) Fostering students' learning habits
- (2) Students understand all the concepts or materials of big task.
- (3) Students become more confident in doing the task and not being afraid of making mistakes, because when students made a mistake, the teacher is immediately give signs and give the correct corrections.
- (4) Fostering independent attitude, responsibility and discipline of students in doing their jobs. Teachers lead students to work on the big task independently, does not need to cheat to a friend. Big task is answered with an answer of his own mind, because later it will be given a sign when the student made a mistake and will be given the right corrections. It aims to direct corrective feedback on a big task giving an optimal results for each student, students are guided to the appropriate work on the big task on their own understanding.

Based on the survey results revealed that giving the direct corrective feedback on the big task of buffer solution and hydrolysis material can give the effect by 78.15% of the student learning outcomes. The results are consistent along with Bitchener [11] research which is concluded that direct corrective feedback can improve student learning outcomes by 88%. Andriani [12] stated that

providing feedback in the form of corrections about the mirror material in VIII class of SMP Negeri 1 Sungai Raya can improve learning outcomes with an *effect size* of 1.66. Kurniawati [2] stated that giving direct corrective feedback on homework have a positive effect in changing the misconceptions of students. Hamidi [13] also stated that giving the corrections answers with explanations to remediate students' mistakes can give the effect of 29.48%.

4. Conclusion

Based on the results of research and hypothesis testing, it can be concluded that giving the direct corrective feedback on the big task have a positive effect on student learning outcomes on buffer solution and hydrolysis material. The magnitude of direct corrective feedback effect on student learning outcomes of cognitive aspects was 78.15%. Achievement of the classical and the criteria for each aspect of affective and psychomotoric aspects on the experimental group is higher than the control group.

References

- [1] Hamalik O 2011 *Kurikulum dan Pembelajaran*: Bumi Aksara, Jakarta)
- [2] Kurniawati R, Djudin T and Arsyid S B 2014 Pengaruh Pemberian Corrective Feedback pada Pekerjaan Rumah terhadap Perubahan Miskonsepsi Siswa *Jurnal Pendidikan dan Pembelajaran* **3**
- [3] Truscott J 2007 The effect of error correction on learners' ability to write accurately *Journal of second language Writing* **16** 255-72
- [4] Lee E J E 2013 Corrective feedback preferences and learner repair among advanced ESL students *System* **41** 217-30
- [5] Hosseiny M 2014 The Role of Direct and Indirect Written Corrective Feedback in Improving Iranian EFL Students' Writing Skill *Procedia-Social and Behavioral Sciences* **98** 668-74
- [6] Van Beuningen C, De Jong N and Kuiken F 2008 The effect of direct and indirect corrective feedback on L2 learners' written accuracy *ITL International Journal of Applied Linguistics* **156** 279-96
- [7] Susatyo E B M, N Raminah 2007 Peningkatan Hasil Belajar Kimia Siswa Kelas XI SMA N 3 Pernalang dengan Metode Pembelajaran PROBEX (Predict-Observer-Explain) Melalui Umpan Balik Kuis *Jurnal Inovasi Pendidikan Kimia* **1** 153-61
- [8] Sabriani S 2013 Penerapan Pemberian Tugas Terstruktur disertai Umpan Balik pada Pembelajaran Langsung untuk Meningkatkan Motivasi dan Hasil Belajar Siswa (Studi Pada Materi Pokok Struktur Atom Kelas X6 SMA Negeri 3 Watampone) *CHEMICA* **13** 39-46
- [9] Kunto S A 2002 *Prosedur Penelitian Suatu Pendekatan Praktek*. Jakarta: Rineka Cipta)
- [10] Hattie J 2008 *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*: Routledge)
- [11] Bitchener J, Young S and Cameron D 2005 The effect of different types of corrective feedback on ESL student writing *Journal of second language writing* **14** 191-205
- [12] Andriani D 2009 Efektivitas remediasi dengan pemberian feedback berupa koreksian jawaban untuk mengatasi kesalahan siswa kelas VIII SMP Negeri 1 Sungai raya dalam menyelesaikan soal – soal tentang cermin *Jurnal Pendidikan Fisika* **3**
- [13] Hamidi M, Djudin T and Oktaviany E 2014 Pemberian Koreksian Jawaban Disertai Penjelasan untuk Meremediasi Kesalahan Siswa pada Pemantulan Cahaya di SMP *Jurnal Pendidikan dan Pembelajaran* **3**