The Influence of Rubrics and Peer Assessment on Students' Works via Google Platform

Anggara Jatu Kusumawati

Universitas Islam Indonesia, Yogyakarta, Indonesia

Abstracts. This study examines how rubrics and peer assessment can be successfully applied in a classroom to maximize learning outcome. Students find obstacles in assessing the quality of their works. Furthermore, the lecturer is not able to facilitate all students' working process. Online platform is also used to cut the complex procedure which affects teaching and learning effectiveness. Data were collected through the result score of students' works and questionnaires which were analyzed using T-Test SPSS software. The students submitted the work twice on the first work submission and the revision. After getting peer assessment, students revised the work and submitted the work. The finding revealed that rubrics and peer assessment help students to maximize their work. There are some significant progress from the two version of works. However, it needs preliminaries process and learning environmental readiness which limit them to be used in wider context.

A. INTRODUCTION

An application of *Student Centered Learning* (SCL) in classroom requires students to be autonomous (McCabe & O'Connor, 2014). This learning process provides students with authentic, require based instructions, cooperative and collaborative learning through an active, democratic and child friendly approach (Singh, 2011). However, the learning process needs help and supervision to maximize the learning outcome. Lecturers as facilitators should be able to provide more space for students by providing facilities in the form of guidance and monitoring, but not limiting their space.

Likewise, assessment has an important role in teaching and learning process. It is used to measure students' learning ability in both cognitive, affective and psychomotor domains. Cognitive domain to measure students' ability, affective sphere to measure student attitudes in teaching and learning activities and psychomotor domain to measure students' skills in teaching and learning activities (Munroe, 2017).

Classrooms nowadays require to use online platform to facilitate online learning. Unlimited internet access at home university supports online learning in which lessen the use of traditional media such as paper and delay feedback in assessing SS's work. Google classroom is one of virtual classes that can help students to explore knowledge differently. This is a solution for creating, sharing and classifying paperless assignments (Mersand, 2014).

This digital classroom provides flexibility for teacher, students, and peers to communicate (Phan, 2015). Teacher can give direct feedback on the assignment uploaded by the students. Students promptly see notifications and respond to teacher's feedback. Moreover, students can upload files on classroom board where peers are able to access and post comment.

Google Forms is one of Google Docs that is free for organizing numerous files such as text documents, spreadsheets, and presentations. Teacher can create questions, questionnaire through email and sharing link. Form of questions can be varied: text, paragraph, multiple-choice, lists, check boxes, scale, and grid. Responses are open (free-form text) or close (multiple choice, scale). This Google form responses instantly once students hand in the assignment.

B. LITERATURE REVIEW

1. Rubrics

A rubric is a chart that describes the criteria used to evaluate or assess students' performance. Rubric is a tool that helps in assessing student learning (Stevens & Levi, 2005). Rubrics break down the criteria of assignment into parts completed with description that is used to assess the level of performance. This can be used to assess assignments/tasks. Rubrics consist of criteria which is standard measured, definition of criteria, and level of success (Daip & Monceaux, 2014). The function of rubrics in the beginning of assignment is building content or skill knowledge.

2. Peer Assessment

An assessment which prioritizes students' autonomy in learning is peer assessment. Involving students in the process develops a greater understanding of what is essential. Besides, it is used as a means to increase students' self-evaluation. To give more space to students, online platform becomes an alternative. Main media used in this study is *Google classroom* in which students can assess the work of colleagues with rubrics in the form of *Google form*. Based on the result of assessment students can improve their work.

Peer assessment involves others who have the same level of status (students in the same grade) to monitor the learning process and to give feedback to achieve the stated purpose (Falchikov, 2001). It affects the decision making, course and educational programs (Nitko & Brookhart, 2007). Peer assessment determines what part of knowledge and skills students have mastered. It also analyzes the weak and strong point of teaching style.

3. Google Platform (Google classroom and Google

Nowadays, it is required to use online platform in classrooms to facilitate online learning. Unlimited internet access at home university supports online learning in which lessen the use of traditional media such as paper and delay feedback in assessing SS's work. Google classroom is one of virtual classes that can help students to explore knowledge differently. This is a solution for creating, sharing and classifying paperless assignments (Mersand, 2014).

This digital classroom provides flexibility for teacher, students, and peers to communicate (Phan, 2015). Teacher can give direct feedback on the assignment uploaded by the students. Students promptly see notifications and respond to teacher's feedback. Besides, students can upload files on classroom board where peers are able to access and post comment.

Google Forms is one of Google Docs that is free for organizing numerous files such as text documents, spreadsheets, and presentations. Teacher can create questions, questionnaire through email and sharing link. Form of questions can be varied: text, paragraph, multiple-choice, lists, check boxes, scale, and grid. Responses are open (free-form text) or close (multiple choice, scale). This Google form responses instantly once students hand in the assignment.

C. METHOD

1. Research Context and Design

The aim of this research is to know the score improvement of students' assignment before and after revision and the survey result about the use of rubrics and peer assessment. Those scores and the survey result were analyzed quantitatively using SPSS (Statistical Package for Social Sciences) IBM version 22 (IBM Corp., 2013).

2. Participant & Procedure

The participants of this study were 125 students of Mechanical Engineering Department joining Bahasa Indonesia Class. This class has many targeted learning outcomes with many assignments. There were five assignments that were assessed in this study. Each of these students should submit two submissions on each assignment. In the first submission students did the assignment based on the instruction and rubrics and in the next submission they revised the assignment based on peer assessment and feedback. Additionally, a questionnaire was given to know the students' perception on the use of rubrics and peer assessment in improving their work.

3. Data Collection and Analysis

Google classroom (GC) in which lecturer gave rubrics and structured assignments was the main media to collect the data. There were some stages in collecting data, first, working on assignment draft. After material delivery, lecturer gave a customized rubric as the parameter of students' work. Then students uploaded the assignment to Google classroom. There were 5 kinds of assignments (research proposal, PPT design, free essay, summary, and summary development). To ease the peer assessment, students should make a Google form depicted from the rubrics. This form then uploaded in GC together with the assignment draft. In the following

meeting, students read and assess other students' work. Second, students revised the work based on the feedback or others' recommendations. The assignment that had complete stages (1 and 2) was taken as research data. Also, there was a survey aiming to analyze the effectiveness of rubrics and peer assessment in improving students' work. Then, SPSS was used to calculate all of assignments given. The process of data collection cycle can be seen from figure 1 below.
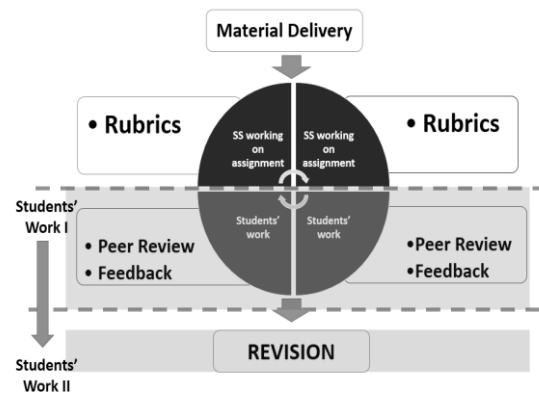

Figure 1. Data collection cycle.

D. FINDINGS AND DISCUSSION

Two main findings found in this study are, first, the improvement of students' work after using rubrics and peer assessment, second, the students' perception toward the use of rubrics and peer assessment. Detail can be seen as follows.

1. The Improvement of Students' Work

There were five assignments chosen as data in this study and the detail will be described the following section.

- Assignment 1

Assignment 1 given to the students was a research proposal. Research proposal assignment was designed into 3 meetings. First meeting, teacher delivered the material, examples and rubrics to

students. Students were asked to write research proposal related with their study with the given rubrics. For research proposal the criteria of rubrics consist of background, source of citation, sentence structure, coherence, problems, objective of the research, advantage of the research and proposal format. These rubrics range from 1 for minimum and 4 for maximum score.

In the following meeting they uploaded their draft in GC board and the link of Google form containing rubrics in which peers could assess the draft directly. Every student should read, assess, and give feedback on others' work. The next step, students opened the result of peer assessment in Google drive by clicking the responses button. Teacher monitored the process of revising and students uploaded the revision in assignment board.

The data of this assignment can be seen in the table 1 below. After being assessed, the mean of students' work before and after revision is 64, 7 and 78,1 respectively. There were 12 points difference. Further data showed in the following table, table 2 that Sig. (2-tailed) is 0,000 which is less than 0,05. It means that there is significant difference between before and after revision.

Table 1. Research proposal assignment (a)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before Revision	64.7395	119	4.23757	.38846
	After Revision	78.1849	119	5.54178	.50801

Table 2. Research proposal assignment (b)

Paired Differences

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper	t	df	Sig. (2-tailed)
Pair 1	Before Revision - After Revision	-13,44538	5,37839	,49304	-14,42172	-12,46903	-27,271	118	,000

Note: If Sig. (2-tailed) < 0,05, there is a statistically significant different between the condition.

Basically students had clear instruction from given material, example and rubrics. It is seen from the score of

submitted draft before revision that is 64,7. After revising the draft based on peer assessment and feedback from peers, each student fixed the necessary part. Overall, it raises significantly to 78,1.

- Assignment 2

Assignment 2 was PPT design. PPT design was assign only in 2 meetings. Firstly, teacher delivered the material, examples and rubrics to students. Students were asked to design PPT of the previous assignment, research proposal. A week later, they posted the design GC board and the link of google form containing rubrics. For PPT design the criteria of rubrics consist of content, slide creation, slide transition, pictures, clip art and background, mechanics, and technology connection. These rubrics range from 1 for minimum and 5 for maximum score. Every student evaluated the design and gave feedback to peers' work. The last process, students checked the responses of google form, then revised the PPT design.

The calculation in the table 3 shows that the mean of students' work before and after revision is 60, 63 and 62, 93. There were about 2 points difference. In the table 4, it is clear that Sig. (2-tailed) is 0,000 which means that there are significant differences between before and after revision. Because there is a statistically significant different if Sig. (2-tailed) < 0,005.

Table 3. PPT design assignment (a)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before Revision	60.6387	119	3.72516	.34148
	After Revision	62.9328	119	3.43889	.31524

Table 4. PPT design assignment (b)

Paired Differences

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper	t	df	Sig. (2-tailed)
Pair 1	Before Revision - After Revision	-2,29412	2,28982	,20991	-2,70979	-1,87844	-10,929	118	,000

Note: If Sig. (2-tailed) < 0,05, there is a statistically significant different between the condition.

The result shows only 2 points different in the process of revision. Though the rubrics are clear, however parameter of assessing design for individual has no exact standard. Students gave different slight score on the revision draft.

- Assignment 3

Free essay was given as the third assignment. Research proposal assignment was designed into 3 meetings. The process was more complicated. Students were given some exercises then they had to consult their works before they do writing process. For essay writing, students were asked to do five writing steps: prewriting, planning, outlining, writing, revising and submitting. Rubrics criteria for free were coherence, evidence, depth and consideration, and relevance.

Again, they uploaded the first draft and the Google form link of rubrics in GC board. Every student should read, assess, and give feedback on others' work. The next step, students opened the result of peer assessment in Google drive by clicking the responses button. The last step was uploading the revision to assignment board.

The result can be seen in the table 5 below. From the table, the mean of students' work before and after revision is 64, 4 and 72, 9 respectively. There were 8 points difference. Further data showed in the following table, table 6 that Sig. (2-tailed) is 0,000 which is less than 0,05. It means that there are significant differences between before and after revision.

Table 5. Free essay (a)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before Revision	64.4000	105	6.93736	.67702
	After Revision	72.9524	105	5.77192	.56328

Table 6. Free essay (b)

Paired Differences

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Before Revision - After Revision	-8,55238	5,46489	,53332	-9,60997	-7,49479	-16,036	104	,000

Note: If Sig. (2-tailed) < 0,05, there is a statistically significant different between the condition.

The difference is quite significant. As a product of writing, essay summary assignment needs feedback of others especially writing mechanics. Likewise, the process of finding idea were also a problem for students.

- Assignment 4

Assignment 4 given to the students was summary. Students summarized a research journal. The process of this assignment was more complicated. Students were given some exercises then they had to consult their works before they do the essay summary. For summary writing, students were asked to draw a concept map based on the text they had read. They should write based on the mind map to avoid plagiarism. The criteria of rubrics were mechanics (sentence structure, typo, coherence, and number of words), and content (research question, objective of the research, method, finding and discussion, strength & weakness of the research). The process of peer assessment was done afterwards with the same process.

Table 7 states that the mean of students' work before and after revision is 57, 01 and 64, 8 respectively. The difference is 7 points. Further data showed in the following table, table 8 that Sig. (2-tailed) is 0,000 which is less than 0,05. It means that there are significant differences between before and after revision.

Table 7. Summary (a)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before Revision	57.0175	114	6.26125	.58642
	After Revision	64.8158	114	4.51657	.42302

Table 8. Summary (b)

		Paired Differences							
					95% Confidence Interval of the Difference				**Sig. (2-tailed)**
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	Before Revision - After Revision	-7,79825	4,92273	,46106	-8,71168	-6,88481	-16,914	113	,000

Note: If Sig. (2-tailed) < 0,05, there is a statistically significant different between the condition.

This assignment was the most difficult one compared to others. Journal is a complex text then they have to make paraphrase. They need more practices. Plagiarism is also a problem too for students.

- Assignment 5

Assignment 5 given to the students was *summary development*. This is a continuous assignment of summary writing. They had to expand the summary with their opinion, argument and added some related information from valid sources (citation). Students studied how to cite an information from other source, learned how to write bibliography using certain citation method.

The result can be seen in the table 9 below. After being assessed, the mean of students' work before and after revision is 63, 75 and 72, 6 respectively. There were about 9 points difference. Further data showed in the following table, table 10 that Sig. (2-tailed) is 0,000 which is less than 0,05. It means that there are significant differences between before and after revision.

Table 9. Summary development (a)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before Revision	63.7568	111	6.52856	.61966
	After Revision	72.6847	111	5.21359	.49485

Table 10. Summary development (b)

		Paired Differences							
					95% Confidence Interval of the Difference				**Sig. (2-tailed)**
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	Before Revision - After Revision	-8,92793	5,99350	,56888	-10,05531	-7,80055	-15,694	110	,000

Note: If Sig. (2-tailed) <0,05, there is a statistically significant different between the condition.

Complex process of developing a paragraph summary is one of the problem that students had to face. Moreover, the lower points were in writing a good sentence structure, paragraph coherence, and writing unity.

2. The Use of Rubrics and Peer Assessment

There were 14 questions given to the students. And the result can be seen in the table 11.

Table 11. The use of rubrics and peer assessment

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	114	2.00	4.00	3.7193	.69777
Q2	114	2.00	4.00	3.9649	.26373
Q3	114	2.00	4.00	3.9825	.18732
Q4	114	2.00	4.00	3.9649	.26373
Q5	114	2.00	4.00	3.9474	.32156
Q6	114	2.00	4.00	3.3596	.59685
Q7	114	2.00	4.00	3.4123	.62132
Q8	114	1.00	4.00	3.4912	.62748
Q9	114	1.00	4.00	2.9386	.68207
Q10	114	2.00	4.00	3.8947	.44857
Q11	114	2.00	4.00	3.9825	.18732
Q12	114	2.00	4.00	3.9298	.36963
Q13	114	2.00	4.00	3.9298	.36963
Q14	114	2.00	4.00	3.9649	.26373
Valid N (listwise)	114				

There were only 114 students filled the questionnaire. Questions given were about the advantages of the use of rubrics and peer assessment. Answers were varied from 1 (strongly disagree) and 4 (strongly agree). For each question the means of answers were varied from 2.9 to 3.9. Overall, the mean was 3,7. It means that most participants stated that rubrics and peer assessment help them a lot in maximizing their work.

E. CONCLUSION

Rubrics and peer assessment are suitable in guiding students to maximize their works. These can be a synchronized process in order to limit the gap between the expected learning outcome and what students have understood from teacher's instruction. Teacher can monitor the students' progress efficiently through the online platform. Furthermore, students

were independently assessed their work and others. In this case, SCL is applied thoroughly. Otherwise, it needs a long process to prepare the rubrics, and assist students through online platform.

REFERENCES

Alan, M., & Una, O. (2014). Student-centred learning: the role and responsibility of the lecturer,Teaching in Higher Education, 19:4, 350-59, DOI: 10.1080/13562517.2013.860111.

Falchikov, N. (2001). Learning together: peer tutoring in higher education. London; New York: Routledge Falmer.

IBM Corp (Released 2013). IBM SPSS statistics for windows, version 22.0. Armonk, NY: IBM Corp.

Li, J., & Lindsey, P. (2015). Understanding variations between student and teacher application of rubrics. Assessing Writing, Volume 26, Pages 67-79, ISSN 1075-2935, https://doi.org/10.1016/j.asw.2015.07.003.

Phan, Will. (2015). Head Back to School with new features in Google Classroom. Google for Education. Available: http://googleforeducation.blogspot.com/2015/08/headback-to-school-with-new-features-in-Google-Classroom.html

Mersand, S. (2014). GOOGLE CLASSROOM: A SNEAK PEEK. Tech & Learning, 35(1), 16. Available: https://www.questia.com/magazine/1G1-392303964/googleclassroom-a-sneak-peek

Monceaux, A., & Daip, J. (2014). Using Rubrics as Formative Assessments to Coach ELL Writers 145 Published by Korea TESOL KOTESOL Publications Proceedings of the KOTESOL / KAFLE International Conference Seoul, Korea October 4-5, 2014

Munroe, M.E., (2017). Assessment and the Learning Domains. The Center for Faculty Excellence, United States Military Academy, West Point, NY.

Nitko, A. J., & Brookhart, S. M. (2011). Educational assessment of students. Boston, MA: Pearson/Allyn & Bacon.

Reiser, R. A. & Dick, W. (1996). Instructional Planning: A guide for teachers (2nd ed.). Allyn and Bacon Publication.

Singh, N., (2011). Student-centered learning in classrooms- A comprehensive overview. Educational Quest Vol. 2. No. 2 August, 2011 (Page 275-282)

Stevens, D. D., & Levi, A. (2005). Introduction to rubrics: an assessment tool to save grading time, convey effective feedback, and promote student learning / Dannelle D. Stevens, Antonia Levi (1st ed). Sterling, Va: Stylus Pub.