

# Online Self Assessment and Peer Assessment of Students Teamwork: Evidence from Accounting Information System Discipline

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## Abstract

This research was conducted to find out the extent to which a College Instructor can depend on peer evaluation of students as an accurate reflection of the contribution of each team member on the Team Project. This study used two approaches, namely quantitative and qualitative approaches. Quantitative approach is carried out to find out whether there is a difference between the assessment of group friends during the process of making project report and performance of their teamwork during the presentation. This is to see whether the assessment by the lecturers is sufficient to assess the contribution of each team member. Then, to find out if the Peer Assessment is fair, the Peer Assessment will be compared to Self-Assessment, whereby students were given the opportunity to assess their own contributions in the Team. Qualitative approach is carried out to see how students perceive the implementation of Peer assessment and Self-Assessment to determine the contribution of each member to the Team.

**Keywords:** Accountant, Peer Assessment, Self-Assessment, Online Assessment.

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## 1. Introduction

Accountants are known as “numerical experts”, with high analytical skills and deep knowledge about financial reporting standards. However, in the midst of globalization today, an important component for professional accountants is how they build and manage relationships with their teams and with various functions within the organization. Accountants, in addition to becoming entrepreneurs themselves, can also practice individual professional works, for example as a tax or financial consultant. Accountants can also be workers/employees in a company, where they are not only working under a supervisor, but also working and interacting with fellow accountants and other professionals in auditing and various management roles. In a company, an accountant does not always have just one role, for example, one who is the head of an accounting department, can also serve as a member of the management team. Accountant who contributes to decision making can also be assigned to work in a company project. Many accountants in the industry do not think of themselves as "accountants" anymore; instead, they see themselves as financial information specialists who work as members of the management team (Page and Donelan, 2001).

Professional communication, empathy and readiness in facing various challenges, for accountants, are as important as technical capabilities. In 2016, the Chartered Global Management Accountant (CGMA) who is part of a joint venture between the American Institute of CPAs (AICPA) and the Chartered Institute of Management Accountants (CIMA) issued a report stating that in fact, the accountants' insights to help business decisions were built from their experience of socializing with people as well as their experience analyzing accounts. Not less important, the effectiveness of an accountant's ability lies not only in technical abilities, but also in networking and communication capabilities. Modern accountants need to consider their social skills as one of the fundamental requirements. Research report of the Association of Chartered Certified Accountants (ACCA) in 2008 identified top six soft skills that were valuable in performing accountants' roles competently as communication (99%), analysis (96%), leadership (93%), time management (93%), team building (92%) and presentation (90%). From these roles, we can see that it is very important for accountants to have good communication skills.

Those facts challenge educators to incorporate teamwork into the college curriculum to prepare students for their careers as accountant. Students as candidates for professional accountants need to be placed in a team to be able to provide experience and sharpen their teamwork skills (ability to adapt, leadership, team building, empathy, communication skills). By assigning a Team Project, the instructor can provide opportunities for students to experience working with other people who may not match their working styles.

Evaluating student performance in their team is a challenge. In the team, the lecturer will not be able to know exactly who works in the team and who the silent rider is, and who contributes more than others. Lecturers can only assess the contribution of each team member from their performance during project report presentation, and cannot see how they performed during the project report making process. This situation may readily make one student to appear less bright than his/her peers and get poor assessment/grading even though he/she was very active

in the process of producing the project report.

The way to measure “real” student performance as part of a team is to ask each team member to evaluate the contribution of other members of their group to the project and also the peer's ability to work in a Peer Assessment (PA). To be balanced, each team member is also given the opportunity to assess their own contribution to the team's performance (Self-Assessment (SA)). Both self-assessment (SA) and peer-assessment (PA) are considered to be useful tools in the development of lifelong learning, as they help promote a wide range of transferable skills. In addition, PA and SA are needed to complete and provide input for lecturer's assessment. Furthermore, the lecturer can provide feedback and input to students to improve their Teamwork skills.

Modern accountant candidates, who are born as generation Z, are already very familiar with the latest technologies. Communication in a team nowadays is not only achievable through face-to-face setting, but also through Group Chat Messenger and e-mail exchanges. Communication technology is expected to become more practical and sophisticated in the future. For this reason, Peer Assessment and Self-Assessment should not be limited to traditional paper form submission, but should be extended to electronic format on a website, so that students can submit their assessments online.

The results of this study can show whether the results of peer assessment and self-assessment carried out by students differ significantly from the instructor's assessment. From the results of the analysis it will be known whether there is actually a difference in Teamwork situation between the Project Report Making Process and the Project Presentation Process. We also want to see how students value themselves during group work, compared to the grades they get from group friends. From the Questionnaire and Interview, it will be seen how students perceive the implementation of this process. During the data retrieval process, it is expected to increase student involvement in the learning process. The results of the analysis in this study can be used as a guideline in assessing the work of the Team holistically. In the long run, this process will have an impact on the formation of student teamwork skills needed in the world of work.

## 2. Literature Review

It is argued that SA enables students to monitor, direct, and regulate their own information acquisition goals, increased expertise, and self-improvement (Lew, Alwis and Schmidt, 2010). Similarly, PA (an assessment of students' works by their peers) gives students a greater sense of ownership and empathy for the subjective judgments required during the assessment process (Ellington, 1996). These arguments suggest that both SA and PA should be actively used in educational practices (Falchicov and Goldfinch, 2000). These two concepts are not just distributing rubric assessments to students so that the assessment method is open and transparent, but they are also training students to be realistic to decide how much they deserve in accordance with the results of their business (Thomas, Martin, & Pleasant, 2011).

According to Kennedy in Rochmiyati (2013), there are several problems encountered in peer assessment practices. Students may be less consistent in assessing. In addition, there are certain students who are worried that they will make mistakes so that they are not free to make judgments. Peer assessment also allows conflict between members which results in decreased collaboration and group performance. Finally, peer assessment can add to differences in ratings between students.

Karami and Rezaei (2015) stated that peer assessment effectiveness is largely determined by various factors, such as student behavior, student mastery of assessment criteria, assessment metrics, and the possibility of biased assessment due to friendship or gender differences. This is in line with the statement of Landry, Jacobs, & Newton (2015) that the results of peer assessment cannot be expected to be fully positive and consistent because this assessment focuses entirely on students. It is possible for students to give bad ratings to friends they do not like, and instead give good ratings to friends they like, even if the assessment is not in accordance with their performance. Therefore, repeated assessments are needed so that the results obtained are more accurate and more or less the same as the assessment conducted by the lecturer.

## 3. Methodology

111 Students in an accounting information systems course from 2011-2018 were required to complete a big group project, in which the selection of team members are made randomly. The group consists of four to five students depending on class size. The project involved extensive collaboration whereby team members met to assign individual responsibilities and then created one project report by combining the various components of the project such as organizational summary and structure, documentation, current AIS evaluation, internal control evaluation, AIS recommendations, and conclusions. The teams were also required to present their projects to the class as final exam and after project completion, they were asked to evaluate each team member in their group, including themselves, in each of the six categories listed below. Students rated themselves and their team members on a scale from 1 to 5.

Survey Questions for the process:

1. Cooperation and resolving differences

2. Communicating with team members effectively
3. Completing the task given right on time
4. Contributing value, quality, and accuracy
5. Doing part of the team's work
6. Overall performance

In the next semester, Evaluation Questionnaire after Self-Assessment (SA) and Peer Assessment (PA) will be distributed (Table 1).

Table 1. Evaluation Questionnaire

Criteria	Self-Assessment					Peer Assessment				
	1	2	3	4	5	1	2	3	4	5
Better understand one's own abilities										
Motivate students to learn more										
Improve the ability to control themselves emotionally										
Develop the soft skills needed by a professional accountant										

Note: 1 = Strongly Disagree - 5= Strongly agree

This study consists of two parts. In the first part, we will use Quantitative Analysis and in the second, we will use Qualitative Analysis. The first part of this study uses a quantitative method to examine differences between assessment of students and instructors. In addition, we also want to find out whether students can be fair in assessing themselves by comparing their assessment of personal performance with a peer assessment of a group on the student's assessment. We used two-sample t-test using MINITAB to find out the Gap. The test will be conducted in two ways:

1. Peer Assessment vs. Instructor Assessment

This test is conducted to determine whether there is a significant gap between the assessment of the instructor and peer assessment. Peer assessment value is taken as the mean of all peer values. In this case the instructor assesses based on the group's performance in the presentation and presentation of the final results of the project team.

2. Self-Assessment vs. Peer Assessment

This test is conducted to find out whether students can be fair in assessing themselves by comparing the value they give to themselves to the value given to them by a group of friends.

The second part discusses about the evidence about the students' qualitative part perceptions of the SA and PA processes, which were gathered using a second questionnaire and several interviews. All questionnaires and assessments will be shared online using Google Form.

#### 4. Result and Discussion

Table 2. Peer Assessment vs. Instructor Assessment

		N	Mean	Std Dev	SE mean	P value
1	<b>Cooperation and resolving difference</b>					
	Peer Assessment	110	7.89	1.05	0.1	0.005
	Instructor Assessment	110	8.253	0.842	0.08	
2	<b>Communicating with team members effectively</b>					
	Peer Assessment	110	8.23	0.78	0.075	0.161
	Instructor Assessment	110	8.377	0.767	0.073	
3	<b>Completing the task given right on time</b>					
	Peer Assessment	110	8.382	0.714	0.068	0.2
	Instructor Assessment	110	8.51	0.763	0.073	
4	<b>Contributing value, quality, and accuracy</b>					
	Peer Assessment	110	8.12	1.02	0.097	0.001
	Instructor Assessment	110	8.508	0.718	0.068	
5	<b>Doing part of the team's work</b>					
	Peer Assessment	110	8.19	1.14	0.11	0.013
	Instructor Assessment	110	8.512	0.727	0.069	
6	<b>Overall performance</b>					
	Peer Assessment	110	8.504	0.724	0.069	0.413
	Instructor Assessment	110	8.428	0.659	0.063	

Table 2 shows the results of the statistics test (two-sample t-test) between Peer Assessment (PA) and Instructor Assessment (IA). SPSS output can be seen in the Appendix. The score of P value < 0.05 in Table 2 shows a difference in the value of SA and IA. From the six categories, it can be seen that PA and IA are equal in

the category of “Communicating with team members effectively”, “Completing the task given right on time”, and “Overall performance”. PA and IA are not equal in the “Cooperation and resolving difference, Contributions value, quality, accuracy, and Do part of the team's work. There are three categories that show similarity, and there are three categories that show differences from PA and IA. This result shows that the peer assessment is still needed by the instructor as part of the assessment. PA is different with IA because group members can see the whole process of group work from the beginning to the presentation process. Instructors are only able to see little part of the overall project's process. We also can see that the instructor gives more generous scores than the score given by fellow group friends.

Table 3. Self-assessment vs. Peer assessment

		N	Mean	Std Dev	SE mean	P value
1	<b>Cooperation and resolving difference</b>					
	Self Assessment	110	8.25	1.06	0.1	0.012
	Peer Assessment	110	7.89	1.05	0.1	
2	<b>Communicate with team members effectively</b>					
	Self Assessment	110	8.329	0.896	0.085	0.382
	Peer Assessment	110	8.23	0.78	0.075	
3	<b>Completing the task given right on time</b>					
	Self Assessment	110	8.401	0.893	0.085	0.865
	Peer Assessment	110	8.382	0.714	0.068	
4	<b>Contributions value, quality, accuracy</b>					
	Self Assessment	110	8.381	0.854	0.081	0.039
	Peer Assessment	110	8.12	1.02	0.097	
5	<b>Do part of the team's work</b>					
	Self Assessment	110	8.459	0.757	0.072	0.041
	Peer Assessment	110	8.19	1.14	0.11	
6	<b>Overall performance</b>					
	Self Assessment	110	8.429	0.736	0.07	0.445
	Peer Assessment	110	8.504	0.724	0.069	

Table 3 shows the results of the statistics test (2 sample t-test) between Self-assessment (SA) with Peer Assessment (PA). SPSS output can be seen in the Appendix. The score of P value < 0.05 in Table 3 shows a difference in the value of SA and PA. From the six categories, it can be seen that SA and PA are equal in the category of Communicate with team members effectively, Completing the task given right on time, and Overall performance. SA and PA are not equal in the “Cooperation and resolving difference”, “Contributing value, quality, and accuracy”, and “Doing part of the team's work”. There are three categories that show similarity, and there are three categories that show differences from SA and PA. We also can see that students tend to rate themselves higher than what their friends do.

From Tables 2 and 3, we can see that SA, PA and IA have similarities in the assessment of the three parties in three categories:

1. Communicating with team members effectively, the similarity can occur because group communication in the group processes is same as the communication demonstrated in the final presentation.
2. Completing the task given right on time. The similarity can occur from the final project collection.
3. Overall performance. The similarity can occur because the overall performance can be seen from the final presentation.

Differences in PA, IA and SA occur because instructors cannot supervise the whole process of making assignments, so students tend to value themselves higher than the assessment of group friends.

Another finding from the questionnaire data was that students tended to give the same value weight. For example, if there is one student who stands out in the class from the first week, other students tend to give high ratings to that student. Conversely, if there is a student who has been less performing from the beginning, he/she tends to score low from his peers' assessment.

Table 4. Perception of PA and SA (Evaluation Questionnaire)

SELF ASSESSMENT	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Mean
Better understand one's own abilities	5 (5%)	7 (6%)	3 (3%)	56 (50%)	40 (36%)	4.07207
Motivate students to learn more	13 (12%)	9 (8%)	24 (22%)	35 (32%)	30 (27%)	3.54054
Improve the ability to control themselves emotionally	6 (5%)	8 (7%)	10 (9%)	40 (36%)	47 (42%)	4.02703
Develop the soft skills needed by a professional accountant	3 (3%)	5 (5%)	12 (11%)	58 (52%)	33 (30%)	4.01802
PEER ASSESSMENT	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Mean
Better understand one's own abilities	4 (4%)	6 (5%)	6 (5%)	54 (49%)	41 (37%)	4.0991
Motivate students to learn more	0 (0%)	3 (3%)	24 (22%)	47 (42%)	37 (33%)	4.06306
Improve the ability to control themselves emotionally	2 (2%)	9 (8%)	11 (10%)	41 (37%)	48 (43%)	4.11712
Develop the soft skills needed by a professional accountant	2 (2%)	5 (5%)	5 (5%)	56 (50%)	43 (39%)	4.1982

Table 4. Shows the results of the second questionnaire at the next semester and shows that most students have a positive view of PA and SA. This shows that SA and PA are needed as complementary IA.

In SA evaluation, 86% of the respondents either agreed (50%) or strongly agreed (36%) that SA helped them to better understand one's own abilities. The remainder of the responses are also very positive, since 59% (32% and 27%) believed that this form of assessment motivates students to learn more, 78% (36% and 42%) thought that it allowed them to control their learning, and 82% (52% and 30%) said that it helped them to develop the soft skills needed by a professional accountant.

The student's views relating to PA were similarly positive; for example, 86% of the respondents either agreed (49%) or strongly agreed (37%) that PA helped them to better understand one's own abilities. The remainder of the responses are also very positive, since 75% (42% and 33%) believed that this form of assessment motivates students to learn more, 80% (37% and 43%) thought that it allowed them to control their learning, and 89% (50% and 39%) said that it helped them to develop the soft skills needed by a professional accountant. From the evaluation questionnaire, it can be seen that students give higher scores to PA than to SA

The results of the interview on 20 students who were randomly assigned to complete the results of the questionnaire showed positive and negative comments. One example of positive comment is that PA motivates students to be more productive, motivates students to give their best because they are judged not only by appearance during presentation, but the whole process as well. They also learn to understand and reflect on the works of other students.

Example of Positive comment on SA is "you must be able to judge yourself before judging others". With the existence of SA, students are required not only to judge other people, but also to set the same standard to assess themselves. Thus, students can be aware of their position compared to their peers and learn to respect their own efforts.

The negative comment for PA is that students find it difficult to give the right value. About five students said, "The standard that I use, can be different from the standard that other colleagues use". Others said, "I am not sure that my judgment on my friends is correct: Less comfortable in assessing other people and also uncomfortable when being observed by others."

A negative comment for SA is "When I judge myself, I often do not apply the same standards as when I judge my friends". Most students say that they deliberately give high marks to themselves compared to the value they give to their group friends.

With regards to online assessment, student comments are all positive. When they use an assessment paper, they are often "afraid" to return the paper, because they fear confidentiality is not guaranteed. And if one of the scoring papers is accidentally divulged, it might cause a quarrel among them. Therefore, they consider online assessment as a more secure means, where they can submit themselves and not restricted to only when the lecturers are present on campus.

#### 4. Conclusion

The key conclusion in this study is that Peer Assessment and Self Assessments are still needed. For Instructor, PA

and SA can be complementary to assessment, because Instructors cannot see the overall process of team work. For students, SA and PA have a positive impact to motivate them to give the best they can for the team. In the long run, this process will have an impact on the formation of student teamwork skills needed in the workforce. PA and SA are highly recommended for Accounting Instructors to be able to train students to enter the workforce. For future recommendation, the same research can be carried out with a larger set of samples. In addition, several other assessment criteria can be added to be able to produce better correlation.

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## APPENDIX

### (MINITAB OUTPUT)

3/20/2019 9:27:42 AM

Welcome to Minitab, press F1 for help.

#### Two-Sample T-Test and CI: S1, P1

Two-sample T for S1 vs P1

	N	Mean	StDev	SE Mean
S1	110	8.25	1.06	0.10
P1	110	7.89	1.05	0.10

Difference = mu (S1) - mu (P1)

Estimate for difference: 0.363

95% CI for difference: (0.082, 0.643)

T-Test of difference = 0 (vs not =): T-Value = 2.55 P-Value = 0.012 DF = 217

#### Two-Sample T-Test and CI: S2, P2

Two-sample T for S2 vs P2

	N	Mean	StDev	SE Mean
S2	110	8.329	0.896	0.085
P2	110	8.230	0.780	0.074

Difference = mu (S2) - mu (P2)

Estimate for difference: 0.099

95% CI for difference: (-0.124, 0.322)

T-Test of difference = 0 (vs not =): T-Value = 0.88 P-Value = 0.382 DF = 213

### Two-Sample T-Test and CI: S3, P3

Two-sample T for S3 vs P3

	N	Mean	StDev	SE Mean
S3	110	8.401	0.893	0.085
P3	110	8.382	0.714	0.068

Difference =  $\mu$  (S3) -  $\mu$  (P3)

Estimate for difference: 0.019

95% CI for difference: (-0.196, 0.234)

T-Test of difference = 0 (vs not =): T-Value = 0.17 P-Value = 0.865 DF = 207

### Two-Sample T-Test and CI: S4, P4

Two-sample T for S4 vs P4

	N	Mean	StDev	SE Mean
S4	110	8.381	0.854	0.081
P4	110	8.12	1.02	0.097

Difference =  $\mu$  (S4) -  $\mu$  (P4)

Estimate for difference: 0.263

95% CI for difference: (0.013, 0.513)

T-Test of difference = 0 (vs not =): T-Value = 2.08 P-Value = 0.039 DF = 211

### Two-Sample T-Test and CI: S5, P5

Two-sample T for S5 vs P5

	N	Mean	StDev	SE Mean
S5	110	8.459	0.757	0.072
P5	110	8.19	1.14	0.11

Difference =  $\mu$  (S5) -  $\mu$  (P5)

Estimate for difference: 0.269

95% CI for difference: (0.011, 0.527)

T-Test of difference = 0 (vs not =): T-Value = 2.06 P-Value = 0.041 DF = 189

### Two-Sample T-Test and CI: S6, P6

Two-sample T for S6 vs P6

	N	Mean	StDev	SE Mean
S6	110	8.429	0.736	0.070
P6	110	8.504	0.724	0.069

Difference =  $\mu$  (S6) -  $\mu$  (P6)

Estimate for difference: -0.0753

95% CI for difference: (-0.2693, 0.1187)

T-Test of difference = 0 (vs not =): T-Value = -0.77 P-Value = 0.445 DF = 217

### Two-Sample T-Test and CI: P1, I1

Two-sample T for P1 vs I1

	N	Mean	StDev	SE Mean
P1	110	7.89	1.05	0.10
I1	110	8.253	0.842	0.080

Difference =  $\mu$  (P1) -  $\mu$  (I1)

Estimate for difference: -0.367

95% CI for difference: (-0.620, -0.115)

T-Test of difference = 0 (vs not =): T-Value = -2.86 P-Value = 0.005 DF = 208

### Two-Sample T-Test and CI: P2, I2

Two-sample T for P2 vs I2

	N	Mean	StDev	SE Mean
P2	110	8.230	0.780	0.074
I2	110	8.377	0.767	0.073

Difference =  $\mu$  (P2) -  $\mu$  (I2)

Estimate for difference: -0.147

95% CI for difference: (-0.352, 0.059)

T-Test of difference = 0 (vs not =): T-Value = -1.41 P-Value = 0.161 DF = 217

### Two-Sample T-Test and CI: P3, I3

Two-sample T for P3 vs I3

	N	Mean	StDev	SE Mean
P3	110	8.382	0.714	0.068
I3	110	8.510	0.763	0.073

Difference =  $\mu$  (P3) -  $\mu$  (I3)

Estimate for difference: -0.1279

95% CI for difference: (-0.3243, 0.0684)

T-Test of difference = 0 (vs not =): T-Value = -1.28 P-Value = 0.200 DF = 217

### Two-Sample T-Test and CI: P4, I4

Two-sample T for P4 vs I4

	N	Mean	StDev	SE Mean
P4	110	8.12	1.02	0.097
I4	110	8.508	0.718	0.068

Difference =  $\mu$  (P4) -  $\mu$  (I4)

Estimate for difference: -0.391

95% CI for difference: (-0.625, -0.156)

T-Test of difference = 0 (vs not =): T-Value = -3.29 P-Value = 0.001 DF = 195

### Two-Sample T-Test and CI: P5, I5

Two-sample T for P5 vs I5

	N	Mean	StDev	SE Mean
P5	110	8.19	1.14	0.11
I5	110	8.512	0.727	0.069

Difference =  $\mu$  (P5) -  $\mu$  (I5)

Estimate for difference: -0.322

95% CI for difference: (-0.577, -0.068)

T-Test of difference = 0 (vs not =): T-Value = -2.50 P-Value = 0.013 DF = 184

### Two-Sample T-Test and CI: P6, I6

Two-sample T for P6 vs I6

	N	Mean	StDev	SE Mean
P6	110	8.504	0.724	0.069
I6	110	8.428	0.659	0.063

Difference =  $\mu$  (P6) -  $\mu$  (I6)

Estimate for difference: 0.0765

95% CI for difference: (-0.1073, 0.2604)

T-Test of difference = 0 (vs not =): T-Value = 0.82 P-Value = 0.413 DF = 216