Can We Hypothesize that a Positive Attitude toward Teamwork Always Ends with a Good Peer Feedback in Collaborative Learning?

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This study is to examine what factors are associated with the positive or negative peer feedback among students who have highly positive attitudes toward teamwork. For this study, the highest scored five university students from a questionnaire of student's attitudes toward teamwork are sampled. Among those, two students have positive peer feedback (P-P group) and the rest three have negative feedback (P-N group). By comparing these two groups, the factors causing positive or negative peer feedback are examined. Results of the study report that there are noticeable differences between P-P and P-N group in their selection pattern of standards for peer evaluation, ratio of gender, ways of peer feedback, contents of self-evaluation, and achievement.

Keywords: attitude toward teamwork, peer feedback, collaborative learning, higher education, problem-based learning

1. Introduction

Today collaborative learning is one of the most prevalent teaching methods in the classroom because it gives learners a chance to receive numerous perspectives of other learners, and enhance individual critical thinking skills by comparing with, evaluating, and opposing different viewpoints (So & Brush, 2008). In collaborative learning, the teams of student learners work on structured tasks under the conditions of positive independence, individual accountability, face-to-face interaction, appropriate use of cooperative skills, and regular self-assessment of team functioning (Kaufman, Felder, & Fuller, 2000). It helps to make learners encouraged to be independent and accountable for one's own and one another's learning process (Dillenbourg, 1999). With these benefits, the university students who like teamwork activity or need to experience working with others for their future careers prefer taking classes of collaborative learning. As the Feichtner and Davis (1984) study notes that it is important for students to learn to work with and form relationships with others who are not like themselves, and the students need to know how to work well with other people, and to negotiate differences in personalities and task approaches, because the culture around us is becoming increasingly less independent (Pfaff and Huddleston, 2003).

Studies of collaborative learning have been conducted in many areas in order to meeting the needs of educational practitioners. In the case of the student's attitude or belief about collaborative learning, most of studies have been focused on its relation to the student's achievement (Nam, 2014). Even in a teamwork attitude study of Pfaff and Huddleston (2003), it examined that what variables are related to a positive attitude toward teamwork. In the study, the result reveals that, for junior and senior college students, project grades, perceived workload, time in class for project work, use of peer evaluations, and absence of a free-rider problem are the significant predictors of attitudes toward teamwork. On the other hand, in classes using collaborative learning, peer feedback is one of the major components making their goals complete. Because successful peer collaboration needs students to be engaged with and aware of each other's thinking (Kuhn, 2015), involving students in peer feedback is an important way to make sure of their active engagement during collaborative learning (Phielix, Prins, & Krischner, 2010). Nevertheless, few studies are involved with an analysis of relationship between collaborative learning and peer feedback. But even worse, it is rare to find studies of the student's attitudes or beliefs about collaborative learning in relation to peer feedback. On this matter, and as always, it is considered that students favoring collaborative learning think their positive attitudes and behaviors are welcomed by peers in classrooms of teamwork. And, they expect highly positive peer feedback in return for their comments on the behavior of others. However, is that expectation met in collaborative learning? When it is often found in classrooms that several students complain of unsatisfying results of peer feedback after teamwork activity.

We may possibly not easily relate a positive attitude toward teamwork that always ends with a good peer feedback in collaborative learning. In the study of Watson, BarNir, and Pavur (2010) observing students in learning teams and how their observations of their team and team members are reflected in peer evaluations, it is found that the students reporting more effective team processes in working together receive lower significant peer evaluations. Therefore, this study, a small-scale of a pilot study, is to analyze what makes a difference of the student's peer feedback, even though their attitudes toward teamwork are all positive. With the result of this study, the unsolved questions related to peer feedback may be answered with reasonable clues and facts. This study uses the Problem-Based Learning (PBL) model as one of collaborative learning instructional strategies. The PBL is a student-centered approach to instruction in which students learn material in small groups, by addressing or solving an authentic and complex problem (Elder, 2009).

2. Methodology

2.1. Sample and Procedure

The participating students of this study are selected from an education course of which major instructional method is the PBL. The primary characteristics of the PBL learning environment are problem-focused, student-directed, self-directed, self-reflective, and facilitative (Marra, Jonassen, Palmer, & Luft, 2014). At the beginning session of the PBL class, a questionnaire of students' general attitudes toward teamwork was requested to be answered by the students. The whole students of the class are twenty students. The numbers of small groups for PBL are four, at which five students work as a group. A term of a PBL session is composed of five class times. Based on the results of student's responses on the questionnaire, the highest scored 25 percent of students, which is five students, are selected for the purpose of this study. Therefore, the final subjects for this analysis are five university students who showed high positive attitudes towards teamwork. Peer evaluation has been performed at the end of a PBL term. Each student is asked to evaluate his/her peers by ranking the peers with giving reasons for the rankings. The students ranked first and second of each group by peer evaluation are named as positive peer feedback, while ones ranked the last and the second to the last are done negative peer feedback. Finally, the results of peer feedback are matched to the highest twenty five percent of students at attitudes toward teamwork (which are five students).

2.2. Measures

2.2.1. Instrument of Attitude Toward Teamwork

The questionnaire of the student's attitudes toward teamwork is a revised version of the instrument used by Pfaff and Huddleston (2003). Their instrument for teamwork study is a combination of various factors such as overall team experience, leadership, workload, cooperation, class time, peer evaluation, free rider, and demographic information. For the purpose of this study, eleven items are finally selected from the original instrument. These items ask the students about cooperation, peer evaluation, and free rider. The questionnaire is in a 5-point Likert-type scale format, in which 1 equals to strongly disagree and 5 implies strongly agree. The higher the total score of the questionnaire is, the more positive a student's attitude toward teamwork is noted.

2.2.2. Peer and Self- Evaluation Form

The peer evaluation form asks the students to rank peers of their PBL group including their self-evaluation. Therefore, each student is evaluated by their peer members. At the time of completing the evaluation form, it is requested for the students to write the evidences of "why peer students have the designated ranks." The evidences are composed of three peer evaluation standards that he/she makes, an assignment evaluation in teamwork activity, one or more episodes proving the rank, and other comments, if any. The self-evaluation is included even though the evaluation is not counted for the final class grade. All of these evaluation processes are done in a confidential environment.

2.3. Validation of data analysis

This study includes qualitative data collected from students' peer feedback and the implications of those. And, for the valid explanation of the study results, investigator triangulation is used, in which two or more researchers in the same study participate to provide multiple observations and conclusions, and ensure both the confirmation of findings and different perspectives, adding breath to the phenomenon of interest (Denzin, 1978). In this study, an educational specialist is asked to do this role.

3. Findings

The results of this study show that, among the highest 25% (five of twenty students) of scores of attitudes toward teamwork, two of five students have positive peer feedback (P-P group: positive attitude toward teamwork with positive peer feedback), while the rest of the three students have negative peer feedback from their peers (P-N group: positive attitude toward teamwork with negative peer feedback). The differences of these two groups are analyzed in the following. First, the evaluation standards of the P-P group students are composed of emphasizing creativity or voluntary service for their peers' evaluation, while the evaluations of the P-N group students are generally composed of members' attendance, diligence, or implementation ability. More undirected and morals-oriented behaviors seem to be desired from the students of the P-P group for their peers' evaluation, while students of the P-N group are likely to demand more exemplary behaviors, which seem to be required at a traditional cooperative learning situation.

Second, all of the students of the P-P group are all female, while all of the students of the P-N group are male. The female students who showed strongly positive attitudes toward collaborative learning of PBL received positive feedback from their peer ratings. On the other hand, male students with strong positive attitude for collaborative work received negative feedback from their peers. A one gender-dominant statistical result for both groups is found in this study. For this result, though, careful and restrained implication is needed until more well organized examination reveals the reason why the result happens in that way. Third, the peer feedback comments of the P-P group from the peers on their teamwork are different from the ones of the P-N group. At the beginning part of peer feedback, peers' evaluation comments are mostly filled with compliments and praise, regardless of the group difference, which means whether it is either the P-P or the P-N group. Those comments are:

. *He did all of his work well.*
. *He participated in the discussion a lot.*
. *She practiced very hard to prepare for his presentation.*
. *It was her idea to make our presentation as a new pattern.*
. *She showed great responsibility.*

Nevertheless, the peers tended to add their negative comments on their member's teamwork. But the negative comments for the two groups are different. Most of negative comments for the P-N group are complaining of their shortness:

. *He was late to our discussions few times, making our meeting time longer.*
. *What he did were mostly useless*
. *He did not listen to members' opinion.*
. *Presentation was a little bit different from our expectation.*
. *He did not participate in making presentation file.*
. *He was stubborn, and refused to be open-minded regarding the group direction.*

On the other hand, the comments for the members of the P-P group are filled with excessive effort, passion, or overwork. The exemplary comments of peers are:

. *I think sometimes her way of communication was little bit offensive, but not problematic.*
. *She was not our leader, but she showed leadership roles too much.*

Fourth, the result of self-evaluation shows that the students of the P-P group either express intensively their efforts for teamwork or stay humble about what she has done by saying nothing, but the students do not say what were the shortcomings of their own behavior or attitudes as exhibited during their own teamwork activities:

. *I contributed on making presentation file and editing.*
. *I cannot evaluation myself.*

On the other hand, the students of the P-N group tended to report that there are things not done well or properly during the times of their collaborative learning:

. *I did not spend enough time for PBL*
. *I missed the team meeting.*
. *I was a little talkative during the team meeting and made the team disturbed.*

Lastly, the final course grades of students of these two groups, as was expected from the peer feedback results, are consistently different. The final course grades of the students of the P-P group are in the excellent category, while the ones of the P-N group are in the satisfactory category.

The final course grades are given by the summing all of scores of student's lecture attendance, PBL project evaluation, class participation, and peer evaluation.

4. Discussion And Conclusion

The purpose of this pilot study is to examine what factors are associated with the positive or negative peer feedback among students who have highly positive attitudes toward teamwork. For this study, the highest scored five university students from a questionnaire of student's attitudes toward teamwork are sampled. Among those, two students have positive peer feedback (P-P group) and the rest three have negative feedback (P-N group). By comparing these two groups, the factors causing positive or negative peer feedback are examined. The examination of student's selection pattern of standards for peer evaluation reveals that the students of the P-P group tend to evaluate peers by their creativity or voluntariness (undirected and morals-oriented behavioral standards), while the students of the P-N group evaluated others by the peers' attendance, diligence, or implementation ability (exemplary behaviors required at a traditional cooperative learning situation). Mostly, previous studies related to collaborative learning and peer evaluation give ideas of all-embracing standards regardless of the student's conditions and do not even ask students to develop evaluation standards for peers. As examples of the comprehensive standards, the Alzaid (2017) study reviews several previous research and develops new evaluation standards for peers in collaborative learning which include leadership, listening, feedback, cooperation, and time management, and the Strom and Strom (2011) study also develops teamwork standards which covers attending to teamwork, seeking and sharing information, communicating with teammates, thinking critically and creatively, and getting along in the teams. In this study, the student selection of evaluation standards are all shown at both studies described earlier, but this study shows which standards are preferred for students either of the P-P or the P-N group, and that is the unique point to differentiate it from other studies. The implication of the result that all the students of the P-P group are all female, while all the students of the P-N group are male, which needs careful attention because it is not validly proven due to the small size of case study in this research. According to the study of Watson, BarNir, and Pavur (2010), no effect of gender on peer evaluation is discovered. Meanwhile, the Dingel and Wei (2014) study stated that gender-related evaluation error is context dependent, and therefore it can be difficult to anticipate how and when this bias will emerge. It means that there is possibility of gender-related bias which causes biased peer feedback. By all means, the more extensive and well-designed experiments of collaborative learning related to gender and peer feedback need to be proceeded, to reach concreate conclusion of gender-dependent peer evaluation result.

The comments of peer feedback in this study are mostly complimentary regardless of the peer ranks which are either the P-P or the P-N group. But, when they need to describe what peers lack during the time of their teamwork activity, the answers from the participants were frank and straightforward. For the students of the P-N group, the peers tended to report on the shortness of effort or readiness during their meeting or individual study period, while they performed excessive preparation or gave advice to peers for the students of the P-P group. But, here we need to be cautious of their trustworthiness of the peers' comments. The quality and authenticity of peer feedback content is still open to question due to the fairness and educational expertise of students as evaluators. For this issue, the Saito and Fujita (2004) study mentions that a number of biases are associated with peer feedback including friendship, reference, purpose (development or grading), feedback (effects of negative feedback on future performance), and collusive (lack of differentiation) bias. The Smith (2017) study also gives advice that the most pernicious disadvantage to peer feedback is the quality of the feedback, because every student may not be equally motivated to provide feedback to the best of their ability, which necessarily disadvantages the students receiving the weaker feedback provided. The Boud and Falchikov (1989) study describes self-evaluation and refers to the involvement of learners in making judgements about their own learning, particularly about their achievements and the outcomes of their learning. By applying their ideas, this study asks the participants to reveal a judgement about their own learning in collaborative learning through the self-evaluation process. And the result shows that the patterns of self-evaluation are not in the same direction as reviewed with both groups. It means that the self- evaluation comments of students of the P-P group are different from the comments of students of the P-N groups. The students of the P-P group either express intensively their efforts for teamwork or stay humble about what they have done by saying nothing, but they do not report what were considered the shortcomings of their own behavior or attitudes during their teamwork activity. On the contrary, the students of the P-N group tended to report that there are things not done well or properly performed during the time of their collaborative learning.

The students of the P-N group leave room for more learning or changing their attitude in utilizing a teamwork activity, but it was not found from the comments from students of the P-P group. The Sluijsmans, Dochy, and Moerkerke (1999) study reports that self-assessment is used for promoting the learning of skills and abilities enable taking responsibility for one's own learning. According to their explanation of self-assessment, the purpose of self-evaluation seems to be attained for the students of the P-N group, but not for the students of the P-P group. Most of studies in a literature review show that the students' achievement is, in general, positively related to cooperative learning, compared to other traditional teaching methods. The Johnson (1985) study reports that, if implemented correctly, research has shown that cooperative learning has helped to maximize students' learning, and has resulted in greater academic achievement than other methods of teaching. In the study of Inuwa, Abdullah, and Hassan (2017), it was supported that a cooperative learning approach effectively enhances a subject-based knowledge achievement of students more than that of a conventional approach (2017). Even so, this study also examines the matter of an associated positive relation between a collaborative learning environment and achievement, but it goes more detailed level. This study reveals that the excellent final achievement of students goes along with the students having a positive attitude toward collaborative learning and positive peer feedback, while the students of positive attitude, but not positive peer feedback, are in the lower level of achievement than the prior group.

5. Limitations Of The Study

On the whole, the weakest point of this study is that the analysis is based on small size of participant sample. Therefore, in this case, there is a limit to the implication of the study result. With this in mind, more cautiousness is needed in the generalization of determining this study result. We offer an explanation for this weakness, which is that due to the characteristics of PBL in which small class size is preferred, it is rarely possible to utilize a large sample in that case. Next, the qualitative analysis is the major research tool of this study, therefore the validating process of the explanation and implication of this study's result are not well presented.

References

Alzaid, J. (2017). The Effect of Peer Assessment on the Evaluation Process of Students. *International Education Studies*, 10(6), 159-173.

Boud, D., & Falchikov, N. (1989). Quantitative studies of self-assessment in higher education: A critical analysis of findings. *Higher Education*, 18, 529-549.

Denzin, N.K. (1978). *Sociological methods: A sourcebook*. New York, NY: McGraw-Hill.

Dillenbourg, P. (1999). What do you mean by collaborative learning? In P. Dillenbourg (Ed.), *Collaborative learning: Cognitive and computational approaches* (pp. 1-19). Oxford: Elsevier.

Dingel, M. & Wei, W. (2014). Influences on peer evaluation in a group project: an exploration of leadership, demographics and course performance. *Assessment & Evaluation in Higher Education*, 39(6), 729–742.

Elder, A. (2009). Using a brief form of problem-based learning in a research methods class: Perspectives of instructor and students. *Journal of University Teaching & Learning Practice*. 12(1), 1-12.

Feichtner, S. & E.A. Davis. (1984). Why some groups fail: A survey of students' experiences with learning groups. *The Organizational Behavior Teaching Review*, 9(4), 58-73.

Inuwa, U., Abdullah, Z., & Hassan, H. (2017). Assessing the effect of cooperative Learning on financial accounting achievement among secondary school students. *International Journal of Instruction*, 10(2), 31-46.

Johnson, D. (1985). The effects of prolonged implementation of cooperative learning on social support within the classroom. *The Journal of Psychology*, 19(5), 405-411.

Kaufman, D., Felder, R., & Fuller, H. (2000). Accounting for individual effort in cooperative learning teams. *Journal of Engineering Education*, 89(2), 133-140.

Kuhn, D. (2015). Thinking together and alone. *Educational Researcher*, 44(1), 46–53.

Marra, R., Jonassen, D., Palmer, B., & Luft, S. (2014). Why problem-based learning works: Theoretical foundations. *Journal on excellence in College Teaching*, 25(3&4), 221-238.

Nam, C. (2014). The effects of trust and constructive controversy on student achievement and attitude in online cooperative learning environments. *Computers in Human Behavior*. 37, 237-248.

Pfaff, E. & Huddleston, P. (2003). Does it matter if I hate teamwork? What impacts student attitudes toward teamwork. *Journal of Marketing Education,* 25(1), 37-45.

Phielix, C., Prins, F., & Krischner, P. (2010). Awareness of group performance in a CSCL-environment: effects of peer feedback and reflection. *Computers in Human Behavior,* 26, 151-161.

Saito, H., & Fuita, T. (2004). Characteristics and user acceptance of peer rating in EFL writing classroom. *Language Teaching Research*, 8(1), 31-54.

Sluijsmans, D., Dochy, F., & Moerkerke, G. (1999). Creating a learning environment by using self-, peer- and co-assessment. *Learning Environments Research,* 1, 293-319.

Smith, D. (2017). Collaborative Peer Feedback. Paper presented at the International Association for Development of the Information Society (IADIS) International Conference on Educational Technologies.

So, H., & Brush, T. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education*, 51(1), 318-336.

Strom, P. & Strom, R. (2011). Teamwork skills assessment for cooperative learning. *Educational Research and Evaluation.* 17(4), 233–251.

Watson, W., BarNir, A., & Pavur, R. (2010). Elements influencing peer evaluation: An examination of individual characteristics, academic performance, and collaborative processes. *Journal of Applied Social Psychology,* 40 (12), 2995–3019.