

Innovative Assessment for Collaborative Learning: The Antithetical Rubrics

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Abstract—This study proposes antithetical rubrics as an innovative solution to the challenges faced by dual assessments indispensable for collaborative learning. Rubrics, in their existing form, are useful assessment tools of learning outcomes. However, while they are effective in every field of learning, the learning outcomes are measured on single scales such as “content: excellent to poor.” Single scales are not suitable for collaborative learning where mutually opposing pairs of competencies such as “leadership and assistantship” and “consistency and flexibility” need to be simultaneously measured. Learning 21st century competencies such as critical thinking, problem solving, innovating, communicating, and collaborating, require acquisition and integration of complex social skills and attitudes. In collaborative learning, particularly, the outputs of teams are not always consistent with the individual qualities of members. Therefore, individual qualities must be assessed appropriately with the qualities of the team products. However, the individual qualities involved consist of mutually opposing pairs of competencies, a problem which antithetical rubrics attempt to resolve.

Index Terms— antithetical rubrics, assessment, collaborative learning.

I. INTRODUCTION

Collaboration is one of the key competencies of 21st century learning. While the results of collaborative learning are important, how to assess the whole body of collaboration is also of much significance. For example, Alghandi (2014) focused on the differences in the language acquisition between collaborative learning and traditional learning. On the other hand, Almadi and Zadehv (2013) emphasized the effects of peer assessment on language learners. As collaboration involves many people and includes diverse activities, it entails very complicated operations. At the same time, many effective assessment tools and strategies like rubrics, portfolio, self-assessment, and peer assessment have been developed to measure outcomes of complex learning settings. Of all these tools and strategies, rubrics are the most effective in various learning contexts and often combined with other assessment tools.

Rubrics subdivide one learning operation into elements of skills and knowledge. The subdivided elements are measured with graded scales, which are arranged in ascending or descending order, such as, “0, 1, 2, 3, 4” and “poor, average, and excellent.” In collaborative learning, the required elements often conflict with each other like “leadership and assistance” or “consistency and flexibility.” Single scales cannot properly measure the qualities of participants in collaborative tasks. For example, natural leaders may lose points for not assisting others, and those who are followers may lose points for not leading.

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Obviously, if the roles in the team are allotted from the beginning, the assessments are simple. However, it is problematic whether the weight of points for different roles should be the same. As Wren (2009) remarks, assessments should be fair and free from bias. All the members in team activities should be given fair attentions.

Antithetical rubrics offer a solution to the complicated and unstable assessment of collaborative learning. The indicators take the form of “dual scales” which have a pair of opposing elements like “consistency and flexibility” in a single category. Thus, the antithetical rubric could measure various aspects of individual contribution. In addition, the new rubrics could assess one’s effort in a collaborative task independent of the quality of its product.

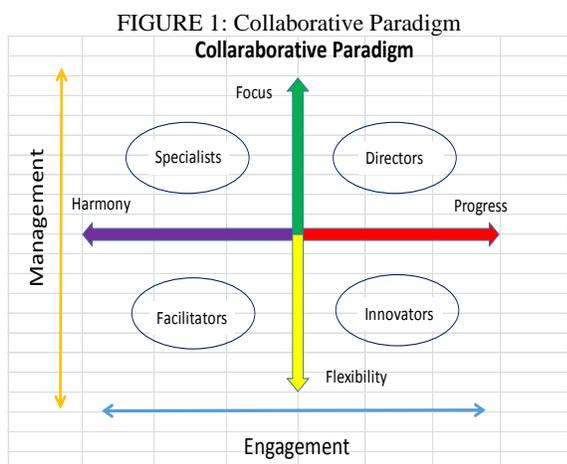
II. SINGLE SCALE AND DUAL SCALES

Rubrics can integrate any aspects of learning to be measured. By combining various indices of the aspects like development, grammar, uniqueness, and time frame, rubrics can be applied to almost all assessments of learning. Usually, every category of a learning index is measured on a single scale like “poor, average, and excellent” and “0, 1, 2, 3.” In the assessment of collaborative learning in teams, however, single scales do not always work well because the descriptors are limiting. For example, some people in a team are good at consistently staying focused on the task. In contrast, others like to flexibly adjust to changes. Nevertheless, either person is undoubtedly working toward the completion of their team task. Although their roles in the team oppose each other, either of the roles should be properly measured. If either of the opposing roles, such as, “stays focused” or “flexible to changes” is measured in an independent single scale, the gain in one would be a loss in the other. Antithetical rubrics can simultaneously describe both roles by putting them in dual scale with opposing indicators put together.

III. METHODOLOGY

In this research of assessment of collaborative learning, two courses were selected: one was for general education and the other was a teacher-training course for English majors. These courses were selected because they include activities that require collaboration in English. To assess individual roles in collaborative tasks, antithetical rubrics were employed. The individual roles were hypothetically divided into four in the “collaborative paradigm”: director, specialist, innovator, and facilitator. This categorization was based on the two aspects of team activities: management and engagement. “Management” refers to the team organization in terms of the other members in the team and has the two opposing indicators of “focus” and “flexibility.” On the other hand, “Engagement” refers to an individual’s operation in the

team and, likewise, has the two opposing indicators of “progress” and “harmony.”



The antithetical rubrics are designed to properly measure the team contributions in all four indicators. The opposing pairs of indicators, “focus” and “flexibility”; and “progress” and “harmony” are set in dual scales so that the opposing two elements would be counted as gains in the scores.

TABLE 1: Antithetical Rubrics

Antithetical Rubrics		1.5	1	0.5	0	0	0.5	1	2
Engagement	Progress ←								Harmony →
	Very self-directed. Consistently has a positive attitude about the tasks. Actively looks for and suggests solutions to problems.	Fairly self-directed. Usually has a positive attitude about the tasks. Looks for and suggests solutions to problems.	Rather self-directed. Sometimes has a positive attitude about the tasks. Has difficulty looking for solutions to problems.	Less self-directed. Rarely has a positive attitude about the tasks. Does not deal well at all with looking for solutions to problems.	Rarely draws on others' ideas or respond to them. Does not complete required components.	Sometimes draw on others' ideas or respond to them. Does what is required but with minimal effort.	Usually draws on others' ideas or responds to them. Completes required components.	Consistently draws on others' ideas and responds to them appropriately without dominating the conversation. Thoroughly completes required component(s).	
Management	Focus ←								Flexibility →
	Consistently stays focused on the task and what needs to be done. Independent planning of steps to achieve tasks.	Usually focuses on the task and what needs to be done, suggesting steps to complete tasks.	Sometimes needs reminded to focus and stay on task, and needs help to organize task into steps.	Rarely focuses on the task and what needs to be done. Unable to define steps to achieve a task.	Does not deal well at all with change. Allows change to seriously impede the completion of the tasks.	Has difficulty adjusting to change but eventually sees the completion of the tasks.	Adjusts to change with some hesitation but does not allow it to interfere with the task's task's completion.	Easily adjusts to changes and always works towards the completion of the tasks.	

IV. AIMS OF THE STUDY

The focus of this study is to investigate proper gains in scores in rubric assessment for collaborative activities by using antithetical rubrics. The following research questions were formulated: Are various roles in collaborative activities measured? Can the difference between the scores of the team product and individual roles in collaborative tasks be observed?

V. PARTICIPANTS AND TASKS

Sixteen students from an English Composition Class and six students from an English Teaching Methodology Class participated in this study. For both classes, the students were divided into groups of three to four students to work on a collaborative group project. Their ultimate task was to prepare for a videoconference group presentation to be delivered in front of an overseas live audience. Group members brainstormed their topics, negotiated and created their content materials and slides, made quizzes and prepared for the Q&A.

VI. RESULTS

The participants were asked to work on a peer evaluation and group assessment using antithetical rubrics after the collaborative group work. For most of the participants, one of the opposing indicators stands out from the other. This means that the individual roles of the participants are measured well using the two opposing pairs of scores. Of course, for some participants, the opposing pairs have even points. In this case, the participants are considered to have either well-balanced abilities or quite moderate basic skills. Either way, it represents an individual’s mode of operation on the team. In addition, the antithetical rubrics for most of the participants showed differences between the scores for an individual’s participation and the scores for their team product. Some have higher points in the former than in the latter, or vice versa. This indicates that their individual involvement in the team task is independently measured by being separated from the assessment of the team products. In summary, the antithetical rubrics offer a way to assess deeper aspects of complexity in collaborative learning.

VII. CONCLUSION

As the roles in a team vary according to participants’ personalities, antithetical rubrics are useful to reflect every individual role in scores. In addition, antithetical rubrics could play a very important role in 21st century learning, which transfers the locus of instruction from instructors to learners. Therefore, the criteria of the rubrics work as formative rather than summative.

What is interesting in this survey is the difference between the results of self-assessments and those of peer assessments, that is, the difference between what one imagines who he or she is and what others observe. As the self-assessments show, many tend to consider themselves to be a multi-role player while the peer-assessments indicate it is not true. Hence, the results of peer-assessments provide participants with meta-cognitive information, and the information could be used in the following three ways: First, to strengthen one’s specific aptitude in collaborative settings, second, to direct one’s ability to accomplish what is desired, and third, to foster all the skills required to be a multi-role player.

Some of the participants display specific aptitudes of their own in collaborative settings. If they are provided with the meta-cognitive information about themselves from the peer assessments and are willing to accept the feedback as their learning goals, the information could be employed to form proper learning operations for them. Thus, the peer assessments can strengthen one’s individual abilities.

The difference between the results of self-assessments and those of the peer-assessments sometimes reveals a cruel fact that one’s self perception differs from how one is perceived by others. The undesirable meta-cognition, however, could enhance one’s motivation to improve. To know what one wants enables one to begin seeking it. As a result, one could find appropriate ways of attaining goals, and the goals should be “well-defined” ones (OECD/CERI 2008, p.3). Normally, instructors would propose useful information or directly provide particular training. Possibly, they could provide much better instructions. For, being involved in the more

learner-oriented locus of collaborative learning, instructors could “learn” more useful teaching and evaluating skills (Ross, Rolheiser, & Hogaboam-Gray, 1998). By definition, “assessment is used by learners and their teachers to decide where the learners are at in their learning, where they need to go, and how best to get there” (ACT 2008, p.6). In this way, the unwelcome meta-cognition as feedback could conversely accelerate the motivation of learners and enable them to find effective ways to attain the skills required. Eventually, learners could attain more reliable criteria for self-assessment and autonomously develop their own learning (Ross 2006, p. 8-9).

Many of the participants in this survey exhibit their confidence in all the categories of collaborative skills. They rate themselves high in all the categories. However, this is in contrast to the results of the peer-assessment evidence. While a few individuals demonstrate all of the traits, many do not, according to their peers. The second way of using meta-cognition mentioned above, nevertheless, expects that the inconvenient truth could turn out to be a specified objective to challenge. Even if the number of objectives would increase, the basic approach is the same. One only has to identify what he or she wants and to find the way to attain it. The meta-cognitive assessment is highly useful for assisting acquisition of “higher order intellectual skills” as discussed here (Wood, Darling-Hammond, Neil & Roschewski, 2007). In reality, the number of excellent multi-role players is very small, but the motivation to be one should not be suppressed. At the very least, the way of achieving this goal could be provided through meta-cognitive information.

In conclusion, antithetical rubrics offer the above possibilities for the transformation of the learning process since they provide more subdivided and complicated factors that work in collaborative learning. As “formative assessment builds students’ ‘learning to learn’ skills (OECD/CERI 2008, p.2), along with proper assessments of both a team and its members, the new rubrics supply more detailed meta-cognitive information as formative assessments for the development of the individual learning process.

REFERENCES

- [1] M., Ahmadi and N., S., Zadeh, “Putting Rubrics to the Test: The Effect of Rubric- Referenced Peer Assessment on EFL Learners’ Evaluation of Speaking,” *Journal of Academic and Applied Studies*, Vol. 3(11), pp.1-12, November 2013.
- [2] R., Alghamdi, “EFL Learners’ Verbal Interaction during Cooperative Learning and Traditional Learning,” *Journal of Language Teaching and Research*, Vol. 5, No. 1, pp. 21-27, January 2014.
<https://doi.org/10.4304/jltr.5.1.21-27>
- [3] P., Blumberg, P. *Assessing and Improving Your Teaching: Strategies and Rubrics for Faculty Growth and Student Learning*. Jossey-Bass, San Francisco, CA., 2014.
- [4] D., J. Brown, *Developing, Using, and Analyzing: Rubrics in Language Assessment with Case Studies in Asian and Pacific Languages*. National Foreign Languages Resource Center, University of Hawaii. Sterling, Virginia, 2012.
- [5] OECD/CERI, *Assessment for Learning Formative Assessment*, International Conference Learning in the 21st Century: Research, Innovation and Policy, 2008.
- [6] J., A., Ross, “The Reliability, Validity, and Utility of Self-Assessment,” *The Practical Assessment, Research & Evaluation*. Volume 11, November, 2006.

- [7] A., J., Ross, C., Rolheiser, & A., Hogaboam -Gray, “Student evaluation in cooperative learning: Teacher cognitions,” *Teachers and Teaching: Theory and Practice*, 4(2), 299-316, 1998.
<https://doi.org/10.1080/1354060980040207>
- [8] Stevens, D., D. & Levi, J., A. (2013). *Introduction to Rubrics: An Assessment Tool to Save Grading Time, Convey Effective Feedback, and Promote Student Learning*. Stylus Publishing, LLC.
- [9] *Teachers’ Guide to Assessment*, Archdiocese of Canberra and Goulburn Catholic Education Office, Association of Independent Schools of the ACT Incorporated. pp.1-13, 2008.
- [10] G., H., Wood and L., Darling-Hammond, M., Neill , and P., Roschewski, “Refocusing Accountability: Using Local Performance Assessments to Enhance Teaching and Learning for Higher Order Skills,” *Briefing Paper: Members of The Congress of The United States*, pp.1-18, 2007.
- [11] D., G., Wren, “Performance Assessment: A Key Component of a Balanced Assessment System,” *The Department of Research, Evaluation, and Assessment*, pp.1-12, March 4, 2009.