Individual Grade Allocation in CSCL Writing Tasks: a Case Study

Buis, S.C.A., J.I. Schoonenboom, and J.J. Beishuizen, VU University Amsterdam, Prof. E.M. Meijerslaan 2, 1183AV Amstelveen, The Netherlands
Email: s.buis@vu.nl, judith.schoonenboom@vu.nl, j.j.beishuizen@vu.nl

Abstract: The research question of this case study was: how does a teacher take semi-automatically generated information on individual contributions to CL into account in grading? To answer this question a teacher assessed students' collaboratively written answers to essay questions and allocated grades based on information on individual contributions. The study shows that these data affect a teacher's grade allocation, and that they are imperative for individual grade allocation.

Introduction

In the assessment of collaborative learning (CL) products, allocating individual grades can be a problematic job for teachers. The problem is often caused by the fact that teachers have no proper indication of what each individual student contributed. In many cases the only solution for teachers is to assign group grades. Group grades however are not the proper answer to this problem. Group grades are not fair, undermine motivation, and violate individual accountability (Kagan, 1995). CSCL allows tracking individual students' contributions through log files. This results in information on exactly what each student contributed to CL. Providing this information to teachers offers a possibility to grade individual students, and avoid group grades. Trentin (2009) and Khandaker and Soh (2010) both used log files from Wiki's to assess individual contributions to written CL products, mainly based on the amount of contributions made.

The focus of the present case study is on how a teacher takes semi-automatically generated information on the quantity and quality of individual contributions to written CL products into account when allocating individual grades. By providing the teacher with different levels of information (a summary of quantitative data, a summary of quantitative and qualitative data, and the entire log files) the following research question is answered: How does a teacher take semi-automatically generated information on individual contributions to CL into account in grading?

Method

Procedure: generation of semi-automated data: The data collection was prepared by collecting collaborative answers to essay questions and information on individual contributions from 22 students at Applied Psychology at the Amsterdam University of Applied Sciences (AUAS). The students were randomly assigned to six groups of either three or four students. Etherpads (web-based collaborative real-time text editors with chat function and a possibility to produce log files) were used in all groups for CSCL. Data on what each student contributed to both chat and the collaborative answer were automatically generated in the Etherpad log files. Students communicated through their Etherpads only, so that all communication was monitored. To encourage students' effort, gift certificates of 7.50 euro for each student in the best group and a single gift certificate of 20 euro for the best individual student were awarded. The student data was then analyzed and prepared manually.

A teacher had composed the essay questions and a scoring scheme for students' answers, and was asked to score each collaborative answer (CA score) to the essay questions for all the groups with this scheme on a 10-point scale. In this assessment the teacher was not aware of the log files, and therefore did not have any information on individual contributions. The teacher also marked in the collaborative answer which text parts she considered insufficient (I), moderate (M), sufficient (S) or good (G).

Charts on individual data were prepared by the researcher. One chart displayed the number of contributions to the chat and the collaborative answer per student, and the amount of words contributed to the chat and the collaborative answer. A second chart displayed which amount of contributions to the chat the researcher had classified as either: 'content related' (dealing with the question's subject), 'coordinative' (contributing to the answering process), or 'remaining' (not contributing to either content or coordination). A third chart displayed per student: the number of times text is deleted and the number of words deleted; and the number of words in the collaborative answer. Data on the quality of individual contributions was presented in two more charts. For this, the data of each student's contributions to the collaborative answer from the log files were matched with the teacher's mark per student (I/M/S/G). This resulted in charts indicating the scored quality of each student's contributions.

Procedure: assessment by the teacher: In three rounds the teacher (35 yrs, female), who had been teaching for 5 years at AUAS, was provided with the collaborative answers, and data on individual contributions. She was asked to allocate grades to individual students when she thought suitable. The three rounds consisted of: 1. assessment based on charts with data on the quantity of contributions per student; 2.

assessment based on the entire collaborative process through viewing the log files and the chat; and 3. assessment based on charts with data on the quality of the individual contributions. In all rounds data of the previous rounds were available.

Data collection: Data was collected in semi structured interviews with the teacher. After each round allocated grades were registered and the teacher was asked to explain how she had derived grades based on the sets of semi-automatically generated data on individual contributions, whether the information provided was adequate for allocating individual grades, and whether she could justify the grades to students. The interviews were videotaped, and participation was voluntary.

Data analysis: Changes in grades given by the teacher were analyzed. Her justification of individual grade allocation was analyzed qualitatively.

Results

The teacher adjusted grades from 14 out of 22 students in the final round compared to the CA scores. For 6 students she adjusted grades from six or higher to lower than six. In a real exam this would be the difference between passing or failing a course. The grades allocated by the teacher are found in table 1.

Table 1: Scores on a 10-point scale per student.

	Group 1				Group 2				Group 3			Group 4			Group 5				Group 6			
Student	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*K*	*L*	*M*	*N*	*O*	*P*	*Q*	*R*	*S*	*T*	*U*	*V*
CA score	6				3				7			5			7				7			
Quantity	2	4	6	4	3	3	3	3	7	7	7	5	3	3	7	6	6	6	6	6	9	9
Log files and chat	2	3	6	4	3	3	3	3	7	7	7	5	3	2	7	5	7	6	6	5	7	9
Quality	2	3	6	4	3	3	2	1	5	7	6	5	3	2	7	5	7	6	6	5	7	9

In the grading process the teacher was convinced that individual students could not score higher than the CA score. She also stated that individual grades were derived by subtracting points from the grade for the CA score when students obviously contributed less then peers, or when a good deal of the contributions were rated insufficient. She said she thought information adequate for individual grade allocation and that grades were justifiable. It should be noted that in groups 5 and 6 the teacher received the information on the quality of the individual contributions before she received information from the log files and chat. The teacher stated that viewing the log files and the chats did not give her reasons to allocate new grades compared to the grades based on the information about the quality of the individual contributions. The information on the quantity and quality of the individual contributions, however, she found imperative. The teacher also stated that the plain text round is necessary for assessing the collaborative answer, and determine the quality of text parts.

Discussion and Conclusion

The teacher did take semi-automatically generated information on individual contributions to CL into account in her grade allocation. The teacher did prove to be able to allocate individual grades and felt grades could be justified to students. Whether other teachers can use information on the quantity and quality of individual contributions for individual grade allocation should be studied in future research.

References

Khandaker, N., Soh, L.-K. (2010). ClassroomWiki: A Collaborative Wiki for Instructional Use with Multiagent Group Formation. IEEE Transactions on Learning Technologies, 3 (3), 190-202.

Slavin, R.E. (1980). Cooperative learning. Review of Educational Research, 50(2), 315-42.

S. Kagan, “Group Grades Miss the Mark,” Educational Leadership, vol. 52, no. 8, pp. 68-71, 1995.

Trentin, G. (2009). Using a wiki to evaluate individual contribution to a collaborative learning project. Journal of Computer Assisted Learning, 25 (1), 43-55.