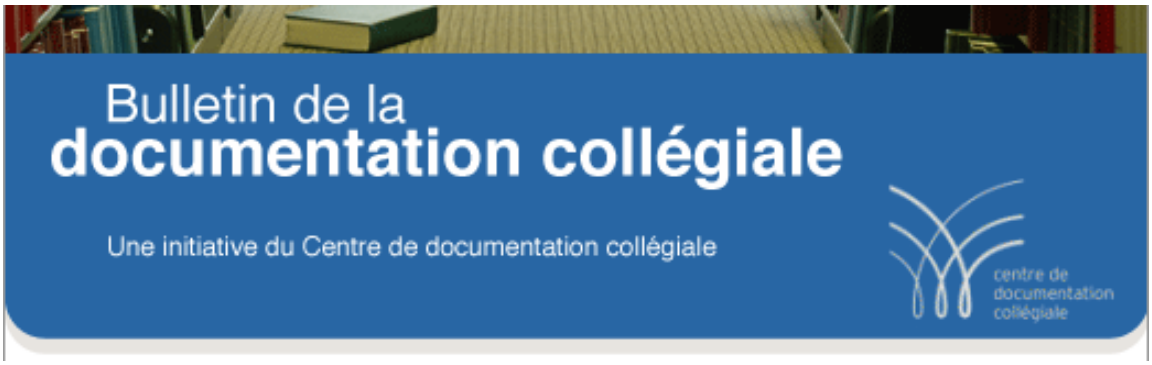

College Documentation Bulletin

September 2011, Number 7

ASSESSING TEAM WORK

Selecting resources and writing:

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Presentation

One of the key arguments frequently mentioned in team-work related documentation states that students learn to work as a team and that the work market indeed demands that people develop team work skills. Team work is given greater importance in the teaching profession because, according to the authors, it would seem to help in developing general skills. Thus teachers in all fields provide various periods for team work in class, in labs or during internship programs.

At the same time, all teachers fully realize that documentation on learning assessment and all college-level Institutional Policy on the Evaluation of Student Achievement (IPESA), ever since their creation in 1995, have repeated that the score appearing on the report card must reflect students' individual skills rather than those of the group.

So how do you score students for their team work? Reconciling the two issues (that is to say, promoting the fact that students work together while assessing each team member's individual skills) often appears as a hard question for teachers to solve. Several persons have approached the CDC for documentation on this complex issue. This bulletin was prepared precisely with this in mind. The result is a document study covering these two spheres: team work (or collaborative work) and assessment of learning.

From the outset, we see that there is not much documentation specific to the subject of assessment in a context of team work. French-language documentation is rare and is

often made up of rather outdated texts when we are in fact looking to find avenues of solutions dating back no further than the year 2000. English-language documents mainly focus on peer assessment strategies and self-assessment by the students themselves; they show how students may contribute to scoring their own performance in addition to the score handed out to the team as a whole by the teacher. Certain English texts may seem surprising given that, in our culture, it is up to the teacher alone to judge their students' skills.

1. French language documentation

SCALLON, Gérard*. L'évaluation des apprentissages dans une approche par compétences*, Saint-Laurent, Éditions du Renouveau Pédagogique, 2004, 342 p. (CDC class number: 729607)

This well-read and important book deals with several aspects of competency assessment. A short section (pages 160 to 162) addresses the reality of team work and Scallon makes certain remarks that will help the teacher better understand his own obligations regarding the amount of supervision he must ensure vis-à-vis the work the teams are performing but also regarding possible limits of what may be inferred following team work, especially if the team work was very closely supervised. Supervision yes, but not too much! Scallon therefore stresses the importance of an adequate balance. It is the same for the validity of inferences one may draw from what one observes and, therefore the validity of the score given.

> According to Scallon (p. 160), students cannot be left to themselves in the context of team work, even if the teacher would want to see how far they would go by themselves, without any help. The teacher's ethical duty is involved here, even if, obviously, students must be self sufficient while demonstrating his competencies.

The author reminds us that the real objective of assessment is to report on what has been learned. As for the risks of limiting the validity of inferences we may draw regarding academic work executed as a team, Scallon looks into the necessary equilibrium between providing structured assistance to students and letting them work autonomously:

Cooperative work and guidance through explicit instructions should be promoted in the course of the learning process, but they do not allow us to check whether the student is able to mobilize his resources by himself and without the help of others. It is hard to infer a given skill in situations where a student gets a lot of help. Explicit instructions that accompany the task at hand and the context of team work may interfere with this inference. One must not forget that when a summative assessment is being performed, it is up to the student to answer personally for his abilities and for what he has learned. (p. 162)

ABRAMI, Philip C. et al. ***L'apprentissage coopératif : théories, méthodes, activités***, Montreal, Chenelière, 1996. (CDC class number: 720547)

This book was created by a team from Concordia University's Centre for the Study of Classroom Processes. Both theoretical and practical, it allows you to better understand why collaborative learning may improve success for students. The first part delves into theoretical basis of collaborative learning, and especially the notion of motivation. The second part titled *"*Implementation*"* sets out the conditions for successfully implementing collaborative learning in the classroom. Issues discussed include groups training, creating positive interdependence and responsibility, acquiring skills and assessing group performances. The third part describes some methods for collaborative learning. However, the book does not deal with the question of assessing competencies.

AYLWIN, Ulrich. ***Le travail en équipe : pourquoi et comment ?***, Pédagogie collégiale, mars 1994, Vol. 7, no. 3, pages 28-32.

Based on five main challenges facing teachers, Ulrich Aylwin decribes a teaching formula that resorts to learning in sub-groups: collaborative learning. This document is a truly interesting summary of the characteristics and conditions of collaborative learning and its educational repercussions. It describes some of the formulas and scenarios as well as their conditions required for effectiveness.

In Aylwin's text, summative assessment within teams is always individual and is based on the notion of each student's individual responsibility. The author opens up the possibility for the teacher to award bonus points to teams in order to reinforce interdependence between team members.

However, this paper which has value for its summary and its construction, offers a point of view that is probably out of date to the extent that, as compared to current teaching reality, it does not take into account the evaluation of competencies.

PROULX, Jean. ***Enseigner : réalité, réflexions et pratiques****,* Trois-Rivières, Cégep de Trois-Rivières, 2009, 564 p. (CDC class number: 787182)

Contrary to his book on team work (Le travail en équipe, PUQ, 1999) which does not deal with assessing team work, Jean Proulx's latest book offers rich and relevant material on our topic. Indeed, in his chapter on evaluating learning results, module 25 is dedicated to the issue of assigning scores within a team work context. It describes issues involved in assessing team work and the risk of generating scores that are neither valid nor fair (p. 403-405).

The author describes and discusses work tools and formulas for evaluating team work that could avoid, compensate or control sources of unfair treatment in assigning scores to team members. Among these tools, Proulx describes an appeals mechanism in case a student feels he has been treated unfairly. One interesting peculiarity in this chapter is that Jean Proulx proposes some possible tools: A sample report on team member activities and sample grids for peer-assessment within team members or allowing the teacher and fellow team members to co-assess a student.

LAFERRIÈRE, Thérèse et al. *Le travail en équipe. Théorie et pratique*, Sainte-Foy, Laval University, Teaching Faculty, 1996.

This online document is a manual for the dynamic management of teams. In reference to the current CDC Bulletin topic, it deals with student-evaluation of team work effectiveness but does not look into the question of how the teacher can assign a score for certification purposes.

Université du Québec à Trois-Rivières. *Enseigner à l'UQTR.* ***Fiches pédagogiques. Travail d'équipe; Évaluation***

This online document pertains to a series of teaching files titled "Enseigner à l'UQTR ". In just a few pages, the file on Assessment deals with the advantages and pitfalls of team work, for teachers as well as for students. It mentions in particular that team work is a privileged formula for formative assessment that, without awarding a score to the student, permits feedback on strong points and weaknesses.

In regard to scoring team work, authors of this "teaching tips" series list and describe assessment components as well as possible means of assigning a score either individually or as a group. However these examples inspired by the work of Jim Howden do not include any form of criticism or comment. As this text is written by teachers and published by the university's educational services, a reader may interpret this as meaning that these propositions are all acceptable and valid. In fact, some of the suggestions in this teaching file are probably not compatible with the IPESAs of many colleges as they are questionable, fir instance, on a socio-constructivist, motivational and educational point of view.

This document rightly recommends that teachers planning on resorting to team work guide and supervise their students and that they should expect to have to be more available for individual meetings either in class or in their offices.

KOZANITIS, Anastassis. ***L'évaluation du travail en équipe*****,** École Polytechnique. Bureau d'appui pédagogique, Montreal, November 16, 2005.

Polytechnique's office of educational support publishes various educational support tools on line for the school's teachers, including this article on team work.

As is the case for most writings on team work, the author describes the advantages of team work from the perspective of the skills it allows to develop: generic skills in leadership, resolution of interpersonal problems, group management, etc. However, students sometimes find it hard to maintain their individuality when working as a team, especially when the teacher gives the same score to all team members. As at post-secondary level, students have very different characteristics where most hold a paid job or have families and financial responsibilities, having to be available for team work constitutes an added burden.

This document deals with risks in assessing team work and shows that there are probably more problems than advantages in attempting to assess team work. Specifically, when students know that the work they are doing as a team will be evaluated, there is a risk of inhibiting the learning process, especially if they haven't been prepared for the assessment process, or aren't familiar with the assessment tools, criteria and rating scales. Furthermore, the teachers themselves are concerned that they have little or no information on what is being accomplished within the teams and on each individual team member's actual contribution.

When students are asked to take part in assessing team work, three types of evaluation can be used: self-assessment, peer assessment and a combination of the two. The text describes these types of student contribution. However, the author reminds us that self-assessment can only be used in the context of formative assessment. As for peer assessment, it can help students gauge their self-assessment for learning purposes. It promotes greater responsibility for students but a number of them say they have trouble impartially evaluating their peers, especially when these are friends.

The author notes some risks of peer assessments:

- Inflated scores given to friends;
- Collusion within a team regarding favourable scores;
- Tendency to give out average scores to all team members, not recognizing individual contributions;
- Influencing leaders in their favour;
- The "deadwood" phenomenon where individuals benefit from the work of others and get the same score.

This document reminds us of the importance of taking the time to teach students how to evaluate their peers in an explicit and organized manner.

It ends with a recommendation to teachers that they evaluate learning individually , based on established criteria.

2. English language documentation

KAUFMAN, D. B., FELDER, R.M., FULLER, H. ***« Accounting for individual effort in cooperative learning teams »***, North Carolina State University, *Journal of Engr. Education*, Vol. 89, Issue 2, 2000, p. 133-140.

This article studies factors that skew students' judgement when asked to take part in peer-rating team work. The authors remind us that collaborative work is a teaching approach by which teams of students work on structured tasks such as lab experiments, collective productions, design projects, problem solving, homework, all within the five following conditions: active interdependence, individual responsibility, face-to-face interaction, appropriate application of collaborative skills and regular self-assessment of team performance. Several studies have shown that properly organized collaborative work promotes the acquisition and retention of information, superior intellectual skills, interpersonal communication skills and self-confidence.

According to the authors, most experts on collaborative work say this teaching formula works better when the team score is adjusted to reflect the performance of each team member. If there is no such adjustment, the student who does little or no work may get the same score as one who accomplished a lot; this is unfair and may undermine individual responsibility. Students who do all the work are thus justified if they feel resentful towards "hitchhikers" and maybe even towards the teacher who, in appearance at least, would seem to condone and reward laziness and irresponsibility.

A peer-rating system has been developed and tested to allow participants in team work to assess the individual performance of each team member. On a scale of nine, (from "excellent" to "poor"), students confidentially evaluate how each team member fulfilled his responsibilities. They are told to only evaluate how each fulfilled his individual responsibilities and not the skills themselves or the portion each member accomplished within the work done by the group.

But the validity of these peer evaluations may be challenged. Some fear that students may be too indulgent or generous in their evaluations. Teams could agree to give identical scores by collusion in order to avoid any conflict. In other cases, variables from outside the team work (sex, race, culture, etc.) could possibly skew scores.

The research reported here consisted of checking to see if such fears were founded. Fifty-seven teams have been examined. The most common complaint regarding team work and team scores focused on "hitchhikers" who do not contribute to the team effort but reap the benefits in terms of grades. But when students understand that hitchhikers will not get the same score than those who work responsibly, they are less likely to fear that the team work will not be treated fairly.

In the course of this study, students were asked to assess themselves and their teammates on the basis of their "team citizenship" and not on the academic skills nor on

the amount of work accomplished by each member. Arithmetic weighting allowed for increased scores for those who had worked more than the minimum required and penalized hitchhikers by preventing them from getting a favourable grade because of the work of others.

The main findings of this study are:

- Differences between self-assessments and evaluations given by fellow students are not significant;
- Only two of the 57 teams in the study colluded or acted with complacency to obtain the same score;
- There is a strong correlation between peer rating and exam grades. Students who obtain strong evaluations from their peers based on team citizenship tend to get better grades than those with weaker evaluations from their teammates;
- Those who arrived well prepared for the team work sessions and who contributed actively in the group tasks got better exam results, though research did not show a causal relation between these two variables.

These findings tend to show that certain fears concerning possible weaknesses in team work were not founded. The researchers finally recommended that if you adopt this means of regulating team work by using peer rating, students must have had the opportunity to first become familiar with the process, the criteria and the peer rating grid. Regarding this issue, another study have suggested that there should be four peer rating criteria, as follows: regular participation in team work sessions; a clearly demonstrated sincere effort in accomplishing the work expected; active contribution or, if need be, searching out assistance within the group; active cooperation to the group effort. It is suggested that you take a little time in the classroom to familiarize students using team work simulations, to make them fill in rating grids for fictional team members, to discuss evaluations obtained in class and to reach a consensus on ratings in relation to the simulated scenarios.

KING, Paul E, BEHNKE, Ralph R. « ***Problems associated with evaluating student performance in groups*** », ***College Teaching*****.** Vol. 53, Issue 2, Spring 2005, p. 57. [Requires a personal ProQuest code, given by the CDC]

This relatively recent study is significant and seems essential for any research in the topic of scoring team work. Like many others, the authors remind us of the advantages and disadvantages of team work.

If team work is a rich learning environment regarding individual responsibility, numerous students say that they feel they are losing control of their work when they have to tutor less advanced teammates. Relational skills (communication, leadership, negotiation, problem solving) are so important in team work that certain students whose skills are less well honed may have low feelings of self-efficacy in accomplishing the work required by the teacher and may feel a certain degree of hostility towards team work and

towards the group itself. Others who have no trouble working as a group may not want their grade to depend on the group, or, worse yet, to be awarded in part by the group.

When teachers award a single common score for the whole team, a variety of problems appear, almost always linked to the issue of fairness. A common score is more of an average and does not take into account the statistical notion of dispersion. Moreover, a common grade challenges its own validity and reliability as there is a risk of increased measurement error in any grade. Finally, the teacher is generally “blind” to the internal dynamics within the teams and thus cannot control variables that may generate real or perceived unfair treatment. The authors even mention lawsuits in the United States on this issue.

An interesting approach consists in asking teammates to rate in full or in part the team’s score. A number of formulas have been listed in various documents. The teacher can award a common grade for the team and this score may be modulated or modified via a personal evaluation from each of the team members. As a variation of this method, each student is asked to comment, either openly or confidentially, on the performance or contribution of his teammates and the teacher takes the students’ evaluation into account in judging the work of each team member. However, some may see any formula by which the students participate in awarding a grade as the teacher relinquishing all or part of his responsibility to this effect. And if a student who feels his grade is unfair requests that it be reviewed, the teacher or grade revision committee could not be sure that the part of the grade awarded by students was fair and valid as the teacher was not present while team work was being carried out or during the self-assessment session. The authors warn of the halo effect by which students who could be lacking in self-assessment or inter-evaluation training could be influenced by variables that have nothing to do with the skills to be assessed. Finally the authors mention the risk of collusion between students in awarding their portion of grades.

According to King and Behnke, any attempt to award grades to team work is a minefield one had better avoid. Whatever you do, they say, you will have problems.

Team work is a rich and fertile ground for developing a number of skills and abilities. It may serve as a learning activity, as a formative assessment activity with effective and relevant feedback. But summative assessment should be based on an individual and personal demonstration of skills and competencies. According to the authors, all learning need not be rated and count in the student’s records (though an indicative grade might be meaningful for students). On this point the authors make a very clear distinction between a formative assessment and a summary assessment, stating that team work can only be evaluated as formative assessment. They suggest that skills learned during team work do not necessarily have to be evaluated to become transferable.

The authors implicitly remind us that the teacher must personally have seen the individual skills to be able to assess them professionally. This leads them to suggest that individual skills may be highlighted in various ways. For instance, each student takes

part in an oral presentation after the team has done its work or each student signs the portion of the work he accomplished.

Rather than allowing students to take part in the rating, even partial, of team work and thereby possibly compromising the validity of grades in the students' records, King and Behnke suggest it would be less damageable to hand out a single score for the entire team.

They state more than once that the practice allowing students to take part in their own grade, in the context of summative assessment, amounts to establishments relinquishing their responsibility and in many cases (in Quebec with IPESAs in effect in several colleges), this would contradict local policies of skill assessments.

The article concludes with two recommendations. First, that there should be a discussion and consensus within departments on all team work assessment practices. Secondly, team work assessment practices should be clearly presented to students and they should have a chance, in class, to practice self-assessment or peer-evaluation and they should be familiar with rating grids, criteria and instructions before team work is allowed to begin.

MARTINAZZI, Robert. ***A team centered grading system based primarily on the team's performance*****,** Johnston PA, University of Pittsburgh, Engineering Technology Division.

Within the specific field of engineering courses (superior technology), this teacher describes a team work assessment process where students are consulted from the very beginning of the session. They are free to choose to do their work individually or in groups. Acknowledging that students must be responsible for their own learning but that the job market values inherent team work skills, the formula proposed here would give the same grade to all team members to promote the development of cooperative skills rather than competition. However, rating for team work counts for two thirds of the final grade while accumulated scores for exams and individual quizes top off the final third.

The author recognizes that his formula for scoring team work forces students to demonstrate solidarity and that the destiny of each student, whether strong or weak is bound by this team solidarity.

STEVENS, Margaret Carnes. ***«Making Groups Work»***, *College Teaching*, Vol. 55, Issue 2, Spring 2007, p.88. [Requires a personal ProQuest code, available at the CDC]

In this short testimonial, this teacher describes how she reacted to students who, in the classroom, expressed concern and wondered if all team members provided the same

contribution to the team's work. Just like King and Behnke (2005), Ms. Stevens acknowledges there are several ways of scoring team work. What she does is give a team score (the same for all team members) which usually amounts to 75% of the overall grade. She then asks students to evaluate the performance of one another for the remaining 25%. For each of the three criteria (communication among team members, the contribution of each member and the overall participation of each member to the team work and final presentation), students must award a score and comment on the work of their teammates, justifying their score. In this, the teacher's practice shows originality and is especially interesting.

There will always be some students who feel they have done all the work while others have contributed very little to the team. But there may be situations where one or two students might dominate the group, thereby preventing others from contributing, for instance by controlling what happens in the group. She is therefore giving all a chance of expressing themselves about those who do not work sufficiently as well as about those who simply do too much. This is why this teacher has decided to provide students with a divergent type of scale for each of the three criteria. On a scale of nine (9), the scale reads from left to right: 1 (insufficient) - 2 - 3 - 4 - 5 (just right) - 4 - 3 - 2 - 1 (too much).

Thus, each may have his say about teammates who either did too much or not enough. From there, she calculates an average opinion and integrates this average into the team score.

CHENG, Winnie, WARREN, Martin. **«*Making a Difference: Using peers to assess individual students' contributions to a group project*»,** *Teaching in Higher Education*, Vol. 5, Issue 2, April 2000, p. 243-255. [Requires a personal ProQuest code, available at the CDC]

In the course of a class of English as a second language, these authors carried out a study on the impact a mechanism to award individual grades for team work has on final grades. This mathematical mechanism establishes an individual weighting factor and applies it to the overall team work assessment score in order to award an individual grade to each student.

Like in many other texts on this topic, the proposed scenario is as follows. The teacher awards an overall score for the team. At the same time, students are asked to evaluate their fellow team members on their effort or contribution to the team work. They receive a five-level grid to evaluate their teammates based on the following criteria: seminar preparation, preparation of the oral presentation, preparation and drafting of the report on the team project.

Based on these assessments from each of the team members, an average grade is calculated for the team and an individual score is calculated for each of the team

members. The individual score is then divided by the team grade resulting in the individual weighting factor. The teacher applies this factor to the group score to obtain an individual grade for each teammate. As this is an American university study, the grade is finally transposed into letters. But they are first calculated on a percentage basis like in Quebec colleges. The percentage point calculation resulting from weighting the team score using the individual weighting factor is such that 39% of students saw their grade go up while 55% got a lower grade. In all cases, the variation was slight but one of the 53 students failed while his teammates passed.

The authors concluded that this method is fair and allows grades to reflect each person's contribution in the team work.

They note the importance for teachers within a given department to discuss the evaluation criteria used in the assessment by the teacher as well as by teammates and that they reach a consensus over this. Furthermore, like other authors, they insist on the need to give students the opportunity to learn how to assess themselves and others. In the course of this study, the authors devoted time in class to discuss with students the notion of peer evaluations, evaluation procedures, assessment criteria and the evaluation grid. Moreover, they held practical classroom exercises using these tools and procedures so that students get the feel of these tools and get any clarification they required from the teacher.

Conclusion

Almost all English-language documentation mentions peer assessment formulas by which students contribute to modulating grades given to the entire team by the teacher. These formulas are aimed at taking into account the ever present concern regarding students and teachers being aware that some would hitchhike on the team's efforts to the detriment of interested, motivated, hard-working students.

At the same time, French-language documents remind us that each student must be responsible for his own learning experience and that the score assigned to his records must correspond to his skills and knowledge. If it is a matter of students' responsibility, it is also an issue of teachers' responsibility in awarding grades that must symbolize competence and nothing else. You have probably noticed that certain English-language authors note that assessing team work is an unavoidable source of problems because the teacher is usually absent during the team work process and can therefore not pass judgement on the quality of work of each of the team members. Whatever the formula, a number of authors tell us that assigning grades for team work is always a source of problems and complications.

Like King and *Behnke* (2005), we could draw the conclusion that team work can always serve as an exercise, a learning activity and formative assessment. But when comes time to attest to a person's competence, skills or knowledge with a summative

assessment, it is better to resort to individual methods of evaluating what each student has acquired. The professional judgement a teacher passes on students' learning must focus on each student individually.

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To go even further

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