

# INTEGRATING STUDENT GROUPWORK RATINGS INTO STUDENT COURSE GRADES

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## ABSTRACT

This article reviews the rationale for groupwork projects, particularly as they apply to business-related courses. It describes some of the pedagogical issues that faculty must address and highlights inherent weaknesses, particularly in the assessment of student effort, that often occur when groupwork is required in a course. The problem of evaluating individual student's contributions to their group is particularly troublesome given that all students do not always contribute equally to a group's success. Faculty members normally have little to no data or observations to assist them in valuing one student's contribution over another student's contribution to the group's ultimate success. The evaluation problem can be solved by gathering and using student input regarding the contributions of their peers. This, too, can be problematic if not done in a manner that requires each student to distinguish amongst the different levels of contribution provided by each of their fellow group members. A conceptual solution for solving the 'group member contribution' problem and a detailed methodology for implementing the solution is offered for this problem. The solution uses peer evaluations solicited from all group members as a component of each individual student's groupwork grade. Using a web-based form, student peer assessments are gathered anonymously and are easily integrated into the faculty member's electronic gradebook.

**Keywords:** groupwork, group projects, peer review, web data collection, evaluation

## 1. THE IDEOLOGY BEHIND GROUPWORK

Students seeking a business-related degree face numerous classes that include a group project as one of the requisites for success in the class. Educators justify group projects on the basis that businesses seek newly matriculated students who can collaborate, share skills and knowledge, and communicate their ideas effectively (Bryant 1998; Fowler 1995; Martinez 1997; Maslow 1998). Businesses suffer increasing pressure to meet short deadlines for work requiring a multitude of knowledge, skills, and abilities. Often, the requisite skills are not available in a single individual. Moreover, with ominous deadlines, it is

not unusual to encounter situations where there is insufficient time available for a single individual to complete all of the necessary work. These types of circumstances have become the norm, rather than the exception, in the business world and when combined serve as the motivating force behind business' mandate that educators must impart groupwork skills to business students. Accordingly, groupwork has become an essential ingredient of many business courses. Groupwork experiences encourage students to develop and enhance their teamwork skills. More and more educators are designing or revising their courses to incorporate the use of team projects to provide students with the opportunity to develop these skill sets, a

prerequisite for success in today's business environment.

## **2. THE RELATIONSHIP BETWEEN GROUPWORK AND THE RATING PROCESS**

While the importance of group projects in business degree curriculums is undeniable, there are pragmatic problems associated with group projects. Educators are often faced with the dilemma of trying to evaluate students fairly when the faculty member is not able to adequately assess each student's contribution to the group. Students recognize this shortcoming and often cite the inability to accurately assess individual contributions as one of the chief arguments for not being burdened with having to perform groupwork.

One example of how the problem of a faculty member's inability to assess individual's contributions manifests itself occurs when team members are either unable or unwilling to contribute equally to the team's success. This inequality may stem from different levels of maturity, different teamwork experiences, or the interpersonal chemistry within the student group. It is a double-edged sword because the group may contain either "free-riders" (nomenclature used by students to describe team members that coast on the productive members' efforts without doing a proportional amount of work) or members who dominate the group. "Free-riders" cause obvious difficulties because remaining group members must choose between suffering a lower group grade due to the missing member's efforts or performing the missing work themselves. Conversely, dominating person(s) may inhibit other group members from participating despite those other members' willingness and desire to contribute. Both types of scenarios, "free-riders" and dominators, make it difficult for faculty to monitor the different dynamics within a group, which in turn makes it impossible to accurately assess each member's individual contribution.

Some individuals may argue that these types of problems can be minimized or avoided by forming student groups properly. Group team assignments are inherently problematic because they involve merging students with different skill sets and personalities with the hope that they will work together collaboratively towards a common goal. A related problem faced by students and educators alike involves motivating team members to contribute their fair share and subsequently awarding the best grades to the best performers. Students and faculty strive to be both fair and efficient when motivating and rewarding individual's contributions to the team's success.

When a problem with "free-riders" or dominators

occurs, an injustice is created because work is not shared fairly within the group. Yet, all team members benefit or suffer equally from the team's accomplishments because educators cannot reliably assess an individual student's participation in a group. This is because the faculty member lacks the knowledge of individual student contributions to the finished team product since they have not been present for the team meetings. Group members are better positioned to know who did what work for the group and are, therefore, in the best position to assess each other's performances. Consequently, team members who outperformed their peers should expect to receive greater recognition from other group members than less outstanding team members should expect to receive. For this reason, the need for an accurate rating process is irrefutable.

Current rating processes do not offer the best means to encourage honest and accurate ratings of each group member's performance. The Web-based approach suggested in this article offers many advantages over alternative rating processes in use at many universities.

## **3. THE WEB-BASED APPROACH: AN IMPLEMENTATION MODEL**

In designing a model to integrate student ratings into course grades, several implementation considerations guided our efforts. We sought an implementation strategy that would integrate easily into the course, be easy for students to use, and assure confidentiality of student peer evaluators to encourage honest and candid evaluations. At the same time, students must perceive the evaluation process as fair and as weighted sufficiently to induce at the desired level performance. And it must be easy for the faculty member to incorporate the results into the class gradebook.

A final consideration related to the implementation strategy involves the human-computer interface for students and ease of use for the faculty member of the groupwork rating system. The delivery methodology for the proposed strategy relies upon the assumption that all students have access to the World Wide Web. This allows students to enter their peer evaluations at a convenient time and location. The Web-based solution addresses the pragmatic considerations associated with collecting and tabulating the results of peer evaluations by electronically capturing the evaluation data. This data is then easily formatted for transfer to a spreadsheet or grading software package.

The Web-based solution begins with the syllabus where the purpose and requirements of the group project are explained. The syllabus highlights the importance of the group project as a factor of the course grade by weighting it more than any single exam grade. As illustrated in

Figure 1, students are clearly informed that peer evaluation is one of the three components that comprise the group project grade. By rewarding each student separately for their individual contribution, it is possible for members of the same group to earn different groupwork final grades. Students are also forewarned of the potential consequences of non-performance.

**Group Project:** Your project grade will consist of peer evaluation, presentation and report grades. Nonproductive group members may be fired by their group. Fired members could receive a zero for their project grade.

Figure 1

Firing is introduced as a potential consequence for non-performers. The process of “firing” a team member is intended to provide an opportunity for group members to put a non-performing team member on notice that their participation is sub-standard while affording the offending member an opportunity to correct their inappropriate behavior. Students generally lack experience confronting team members who under-perform. Most have never had to document other people’s performance-related problems. For this reason, students often find it difficult to challenge team members who do not contribute their fair share to team projects. While students recognize that substandard performance by team members presents obstacles to the accomplishment of the team’s mission, they do not know how to remedy the problem or how to motivate team members to improve their performance. Firing offers a mechanism for students to notify each other about performance problems in a way that allows remediation and provides motivation designed to induce under-performers to elect to contribute to the group’s success. Students are informed about the firing process in the course syllabus, see Figure 2, and provided with steps to take when they feel other group members are not performing.

Students initiate the “firing” process by documenting performance problems, and stating what is needed to remedy the deficiency. This document is provided to the faculty member and the under-performing team

Figure 2

## The Firing Process

Student initiated:

- Documenting the problem
- Informs offending student
- Determine corrective actions
- Remedy problems or fire the offender

remember. If needed, the faculty member is available to assist the group in documenting performance issues and in arriving at desired actions to remedy the deficiencies. Upon receiving the documentation, the faculty member will arrange a meeting of the entire group for the purpose of discussing ways to correct the deficiencies. Documenting performance problems allows team members to confront the offending member with all their performance-related concerns. Experience has demonstrated that, often, initiating the firing process is enough to motivate under-performers to perform.

If the offending team member fails to improve their substandard performance, the remaining team members can then choose to “fire” the offending team member. Student team members who are “fired” will, at the faculty member’s discretion, either receive a failing grade for the team project, be required to complete the project independently, or complete alternative work in lieu of the group project.

### 4. DATA COLLECTION METHOD

It is important that the rating process does not in itself drive student group participation. Instead, the rating process should reward students for effective participation. The mechanics of the peer evaluation process are intentionally introduced late into the course so that students focus their efforts on positive contributions in lieu of trying to decipher and optimize their efforts in relation to some prescribed participation formula.

A web page is used to collect student peer evaluations. During the final weeks of the course, each group member is required to access the web page to rate their group members. This allows students to enter their peer evaluations at a time and location that is convenient for them. The top of the web page offers suggested criteria for students to use in evaluating their team members. This is illustrated as Figure 3.

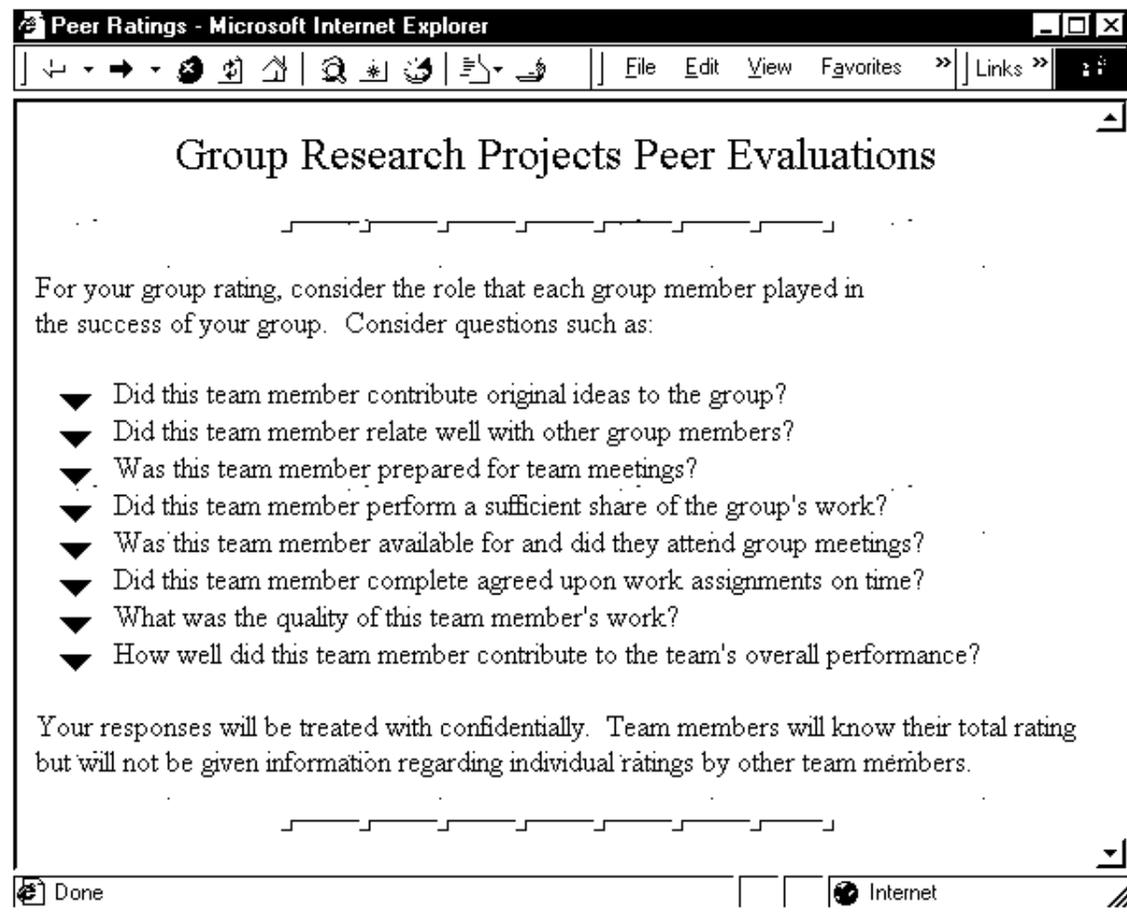


Figure 3

Prior to this evaluation experience, students are usually unaware that resources for employee recognition are allocated from a fixed pool of benefits; the resources given to one entity are not available for allocation to another entity. In the business environment, resources usually exist in the form of dollars; in the educational environment, points are substituted for dollars. The proposed implementation strategy provides students with experience allocating scarce resources by providing each group member a finite number of points that may be distributed among all other group members. Team members are required to award points, as integers, to each team member based on that member's contribution and performance as a team member.

The point allocation scheme attempts to force student evaluators to recognize differences in team members' contributions. Prior to the use of this allocation scheme, experience showed that students awarded each other the maximum points possible in most situations. Using a total number of points that is not

evenly divisible by the number of team members and requiring that points be awarded in whole number increments prevents students from awarding each team member the same number of points. If students choose to award equal points to each group member, 100% of the available points cannot be allocated. Figure 4 illustrates the web page that is used to solicit student peer evaluations.

The Web-based solution addresses the pragmatic considerations associated with collecting and tabulating the results of peer evaluations. First, the Web page handles data validation through the use of JAVA script. Second, it captures evaluation data in a file that is easily formatted for transfer to a spreadsheet or grading software package. This technique uses the faculty member's web site as the data collection point.

Data validation is required because we found, despite explicit instructions and in-class explanation of the rules for awarding points, students have a tendency to award more points than are available for allocation. Using

Please provide the following information:

Your name - Last, First

Your Student ID #

Your JMU E-mail address  @jmu.edu

Check the Box for the  CIS 320/1  CIS 320/2

Course you are evaluating MWF- 8:00 AM MWF 9:05 AM

**You may award a total of 10 points to members of your group (other than yourself) in whole number increments (i.e.-0,1,2,3,4,5,6,7,8,9 or 10). List the first and last name of each group member and the number of points you wish to award in the spaces below.**

**REMEMBER: the total number of points awarded may not exceed 10.**

Group Member's Name	<input type="text"/>	Points	<input type="text"/>
Group Member's Name	<input type="text"/>	Points	<input type="text"/>
Group Member's Name	<input type="text"/>	Points	<input type="text"/>
Group Member's Name	<input type="text"/>	Points	<input type="text"/>

Figure 4

JAVA script embedded in the web page, see Figure 5, individual point awards are totaled and checked to confirm that they do not exceed the allowable points. Validation is also performed to ensure that students entered their own name and course section. The student must correct errors in the total points awarded or must supply all required information before the submission is accepted.

Once collected and validated individual groupwork grades are transferred to a gradebook. These individual group grades are combined and merged as a component of the student's final course grade. Student ID and email addresses are used to authenticate each student's input as evaluation grades are transferred into the gradebook. To ensure that group members provide peer evaluations, the spreadsheet checks for students who have not submitted peer evaluations and assigns a zero group peer evaluation grade to any student who has not, themselves, submitted a peer evaluation.

## 5. EXPERIENCE AND SUMMARY COMMENTS

The approach to peer evaluations described has been used for over two years with hundreds of students. Student acceptance and reaction have both been positive. Two instances have occurred where students initiated the firing process and subsequently the faculty member met with the entire group to review the problem and agree upon a remediation plan. In both cases the under-performing group member took action to correct the problem and was not subsequently fired.

The Web-based procedure offers convenience and confidentiality. The process discussed in this article encourages students to contribute to their group's success. It also recognizes the differences among contributors to each group's success. Furthermore, the peer evaluation process is easily integrated into the course and encourages honest and candid responses to the peer evaluation process due to the high degree of confidentiality that it affords. Most importantly, this approach facilitates fair evaluation

of group members by fellow group members. Using members with realistic experience in allocating scarce

```
<script language="JavaScript">
var totalPoints = 0
function submitIt(form)
{
  if (form.pt_1.value == "")
  {
    alert("You did not enter any points for the first group member")
    form.pt_1.focus()
    return false
  }
  if (form.pt_2.value == "")
  {
    alert("You did not enter any points for the second group member")
    form.pt_2.focus()
    return false
  }
  if (form.pt_3.value == "")
  {
    alert("You did not enter any points for the third group member")
    form.pt_3.focus()
    return false
  }
  if (form.pt_4.value == "")
  {
    alert("You did not enter any points for the fourth group member")
    form.pt_4.focus()
    return false
  }
  totalPoints = parseInt(form.pt_1.value) + parseInt(form.pt_2.value)+
    parseInt(form.pt_3.value)+ parseInt(form.pt_4.value)
  if (totalPoints != 10)
  {
    alert("The number of points you entered add up to "+totalPoints+".
    Please check your point totals again and make sure they equal 10.")
    form.pt_1.focus()
    form.pt_1.select()
    form.pt_2.focus()
    form.pt_2.select()
    form.pt_3.focus()
    form.pt_3.select()
    form.pt_4.focus()
    form.pt_4.select()
    return false
  }
  return true
}
</script>
```

Figure 5

this approach, educators are better able to recognize which group members were perceived as contributing equally and fairly and which ones were seen as the “free-riders” or domineering members. Fellow group members are in the best position to assess each other. The peer evaluation method described herein provides a way for group members to express their feelings without having to fear that they will insult other group members by their responses, providing group

resources (points) and serves as a positive, easily accessible, user-friendly automated process.

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ISSN 1055-3096