

TEACHING WITH AND THROUGH TEAMS: STUDENT-WRITTEN, INSTRUCTOR-FACILITATED CASE WRITING AND THE SIGNATORY CODE ———

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Modern organizations prize teamwork. Management schools have responded to this reality by integrating teamwork into the curriculum. Two important challenges associated with integrating teams in the management classroom include (a) designing teamwork assignments that achieve multiple, sophisticated learning outcomes and (b) instruction in, and management of, the classic social loafing problem. This article addresses these two challenges. First, it provides a method for designing teamwork assignments using Student Written–Instructor Facilitated (SWIF) case learning. SWIF provides the ideal vehicle for achieving all six of Bloom’s (1956) Educational Objectives—knowledge, comprehension, application, analysis, synthesis, and evaluation. Second, it demonstrates the use of the Signatory Code, a team-contracting device that helps teams minimize social loafing. Survey results from 112 students speak to the efficacy of this tandem teaching methodology for blending complex management concepts with genuine team experience.

Keywords: teams; groups; learning; management; case study

Modern organizations are rapidly altering internal processes and relinquishing hierarchies to meet intense global competition, adjust to an

emerging service orientation, and capitalize on highly educated employees who insist on discretion and participation. Such factors give rise to cross-functional teams as a critical competitive advantage. The sophisticated technical and process knowledge embodied in these teams is, simply put, any firm's core competency. Businesses rely on teams to increase quality, rationalize efficiency, reengineer systems, design and launch products, determine strategy, and govern the firm (Guzzo, 1995). Sophisticated technological or "knowledge" workers may not accept or require careful supervision but their team interaction is still a delicate and complex matter that calls for skilled management.

Business leaders have voiced concern that fresh recruits remain ill equipped for the group dynamics of decentralized organizations. Although technically proficient, new employees display limited self-awareness, leadership, interpersonal communication, and conflict management skills (see Goleman, 1995, for a treatment of other noncognitive skills and intelligence). Critics argue that one reason for this is that business schools emphasize technical mastery at the expense of social development (Bailey, Saporito, Kressel, Christensen, & Hooijberg, 1997; Porter & McKibbin, 1988).

In response, redesigning curricula in business schools include more interactive experiences that require student teams to complete authentic, "real-world" projects (McAthur, Hudson, Cook, Spotts, & Goldsmith, 2001; Nowak, Miller, & Washburn, 1996; Roebuck, 1998). Such projects allow participants to interact with peers and faculty so as to mimic genuine business operations and the dynamics of teams (S. Johnson, Srinivasan, & Kemelgor, 1998). Of importance, structured teamwork assignments are consistent with the broader movement to emphasize cooperative and collaborative learning in higher education (D. W. Johnson, Johnson, & Smith, 1991). Collaborative learning offers benefits beyond traditional education, such as problem solving and conflict resolution skills. Our article explores two important challenges of integrating teamwork into courses, proposes methods for dealing with them, and reports survey results on the efficacy of these methods.

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Curricular Integration of Teamwork

Introducing teamwork into curricula holds a host of challenges, such as comprising groups in a fair and balanced manner, coordinating competing schedules, designing assignments that achieve a range of structured learning objectives, and managing the classic social loafing problem (see Cohen, 1994, for a comprehensive discussion of teamwork challenges). This article is devoted to the latter two of these challenges.

LEARNING OBJECTIVES

Effective education strives to achieve multiple, sophisticated learning objectives. For instance, remembering a concept or formula is important but it serves merely as a platform on which to construct more complex learning. Practically applying principles, structuring meaningful data, and evaluating alternative courses of action all require a higher level of cognitive proficiency. Generally, greater proficiency relates to greater performance. It is, then, the charter of educational institutions broadly, and business schools especially, to provide instructional experiences that develop cognitive mastery. The most widely accepted scheme for benchmarking such skill is Bloom's Taxonomy of Educational Objectives (1956; see also, Krathwohl, Bloom, & Masia, 1974).

At the fundamental levels of cognitive learning, *knowledge* and *comprehension* indicate a basic memory for and understanding of concepts, formulas, events, and the like. Managers demonstrate knowledge, for example, by recalling operational schedules. In contrast, comprehension is the ability to grasp the meaning of material. A human resources professional who paraphrases complex employment laws to fellow managers demonstrates successful comprehension of employment law.

The next three objectives reflect a higher order of thought. *Application* lies in the ability to learn information in new and concrete situations, for example, when an engineer applies the tension-strength formula to manufacturing an automobile door. *Analysis*, the ability to break down information into its component parts to establish a total structure, takes place when a manager identifies and appreciates the unstated norms that govern an organizational culture. *Synthesis* is the ability to reconstruct elements into a new whole. This involves detailed knowledge as well as the conception of unique connections. An example would be reorganizing interdepartmental communication channels to more efficiently transfer information and objectives.

Bloom's final and most sophisticated cognitive skill, *evaluation*, is judging the value of information for a given purpose. Evaluation integrates the

first five levels while intertwining tacit knowledge and opinion. Managers use evaluation when rendering a performance appraisal or selecting applicants.

As business schools modify pedagogy to better prepare students for productive organizational lives, it is imperative that cognitive skill development becomes a benchmark for progress. In a later section, we argue that Student Written–Instructor Facilitated (SWIF) case learning meets this benchmark and provides a powerful and instructive device for team experiences.

SOCIAL LOAFING

A universally vexing team phenomenon is the social loafing problem (also known as the free-rider phenomenon), referring to when an individual obtains benefits from group membership without sharing proportionally in the costs (see Albanese & Van Fleet, 1985; Joyce, 1999; Sheppard & Taylor, 1999). If social loafers are present, frustration among and distrust between team members develops, thus interfering with performance and satisfaction. Despite wide recognition and considerable attention, no generally agreed on solution has emerged. One popular strategy entails designing teamwork so as to render individual contributions identifiable. Evaluation and compensation are dually determined by both team and individual performance. Although such systems provide incentives for individual participation, they also diminish cohesion. That is, members are motivated to achieve their own objectives, possibly at the expense of team objectives. Making individual contributions identifiable and accountable may limit social loafers but it fosters an atmosphere of competition that is antithetical to team spirit and in this way becomes a classic expression of the “folly of rewarding A while hoping for B” dynamic (Kerr, 1975).

Social loafing occurs in classroom as well as business settings, therefore posing both a challenge to, and an opportunity for, first-rate instruction. The challenge is fairness in grading, whereas the opportunity is offering real-world team dynamics for students to experience and learn from. Faculty seeking to instill teamwork skills must facilitate the instruction and management of this problem to prepare students for similar scenarios in the work environment. As in organizations, it is possible to limit the dilemma via individual rewards. But more valuable still would be to give student teams a structured and discretionary method for dealing with the problem. Sheppard and Taylor (1999) review a range of alternative strategies that focus less on individual contributions, including opening avenues of communication, aligning individual and team interests, establishing norms for appropriate

behavior, promoting a sense of group cohesion, appointing a supraordinate authority to punish defection, and appealing to altruistic concerns. In a later section, we propose the Signatory Code as an illustrative and useful device that incorporates all of these recommendations.

Classroom Teamwork Solutions

SWIF CASE WRITING

The preceding argued that business schools should employ pedagogy that fully engages students in their education. The choice of methods, however, should be guided by the potential to achieve multiple learning objectives. Because of its focus on real-world problems and critical reasoning, one time-honored method in management and business domains is case teaching (Christensen & Hansen, 1987). Although unquestionably valuable, traditional case teaching limits students to the role of analyst, where they are passive observers responding to facts and events as reported by a distant third party.

To enhance student involvement in cases, several adjustments have been offered, such as the McAleer Interactive Case Analysis (MICA; Siciliano & McAleer, 1997). The MICA method employs student teams to administer assigned cases by soliciting action steps and monitoring class discussion. The instructor role is curtailed to coaching, intervening (when necessary), and scoring the resulting discussion. MICA has been found to increase student preparation and participation in class discussion via defined scoring criteria.

A technique that takes student involvement even one step further is SWIF (Swiercz, 1998) case learning.¹ SWIF learning converts case teaching into an active experience that requires students to assume a variety of new roles—researcher, petitioner, interviewer, negotiator, writer, editor, and of course, team member.

The basic SWIF design has student teams write and analyze their own cases, based on an amalgam of members' unique background and experience. Although student case writing is not new, the SWIF process goes beyond conceiving, structuring, and developing novel cases by requiring that they be analyzed and presented, all of which is accomplished in a team and facilitated by an instructor. There are seven distinct benefits of this approach. First, it integrates theory and practice through the generation and testing of theoretical propositions. In case study writing, the investigator observes and

records a phenomenon or event. But simultaneously, the investigator examines the meaning of the observations and interprets them within the context of a prescribed or emergent theoretical framework.

Second, it builds a tolerance for ambiguity and incompleteness. One objective of SWIF is to help teams discover a system for probing, classifying, and interpreting unstructured data drawn from an inherently ambiguous and dynamic organizational process. Third, development of case studies enables students to recognize, apply, critically assess, and communicate principles from study material. Fourth, SWIF helps to differentiate between the significant and the trivial. Effective teams are distinguished by their ability to recognize and tell only what is needed and leave the rest to the reader. Fifth, SWIF builds shared learning skills by bringing together students with various learning styles into small groups where they can teach each other in a process that reinforces knowledge provided by traditional lecture and textual materials. Sixth, it provides an opportunity for original thought. SWIF extends the chance for writers to observe a chaotic and complex experience, interpret what they see, and turn it into a disciplined and thoughtful narrative, thus generating original thought. And seventh, SWIF strengthens advanced writing and communication skills.

SWIF empowers students to experience a team atmosphere where multiple cognitive styles and skills are tapped in pursuit of a defined end product. It allows students to design and analyze a situation where knowledge is recalled, applied, and discussed. General information is reorganized to illustrate the understanding and opinion of facts learned in a course. Students are not limited by the restraints of a prewritten case because they invent a situation that binds knowledge together. Therefore, SWIF illustrates and encourages all six of Bloom's Educational Objectives (see Siciliano, 2001).

Specifically, *knowledge* is tapped during all stages of SWIF. After writing the case itself, students are required to retrieve course concepts and experiences, which are listed as part of the relevant case study. Once the terms and situations are recalled, *comprehension* is illustrated by elaborating on each. Members paraphrase concepts in writing, as they pertain to the case itself, to demonstrate basic understanding. This material is then *applied* to the created situation. No longer are students repeating the thoughts of others but rather are beginning to reach new plateaus of learning by using knowledge and comprehension to structure their created case. Participants *analyze* their unique situation by discriminating between elements of the behavioral, event, or operational sequence they fashioned and identifying them as examples of course concepts. They also *synthesize* these various course concepts by knitting them into a coherent case. Finally, teams *evaluate* their concept

choices and action plans by intertwining fact and opinion while weighing costs and benefits, opportunities, and threats.

The manner in which SWIF potentially achieves these benefits is consistent to that described by Cohen in *Designing Groupwork* (1994). Cohen holds that designing group assignments that optimally realize intellectual development turns on a task that entails conceptual thinking, opportunities for creative problem solving, and a platform to hone oral language proficiency. The way to do so, maintains Cohen, is to create a task that “has more than one answer or more than one way to solve the problem . . . is intrinsically interesting . . . allows different students to make different contributions . . . requires a variety of skills and behaviors . . . requires reading and writing . . . [and] is interesting” (pp. 57-58). Clearly, SWIF includes all of these elements.

SIGNATORY CODE

As previously noted, social loafing is pervasive in both organizations and classrooms. Informing students of its operation is standard for group dynamics modules. But instruction tends to be long on exposition and short on action. That is, although social loafing is easily identified, and its detrimental effects readily understood, concrete steps to arrest it are not as forthcoming. And those that are available, such as making individual contributions identifiable, have unintended, and often unsavory, consequences.

Hence, we propose using the Signatory Code. The Signatory Code is a team-generated governance device that stipulates rules used to determine whether individual team members can or cannot receive credit for assignments. Specifically, team members author and unanimously agree on a set of conditions by which all members are allowed to, or are prevented from, sign the final product. Any member whose signature does not appear on the final product is not given credit for that assignment. Signatory Codes vary widely, from simple voting procedures (e.g., a majority of team members must approve) to peer evaluations (e.g., each member must receive at least an average of 7 on a 10-point, multi-item scale) to statements of deliverables (e.g., each member must produce two reports used in preparation of the final product).

Participation in the Signatory Code addresses Sheppard and Taylor’s (1999) ameliorative recommendations in several ways. First, by requiring students to openly acknowledge and discuss social loafing and task expectations, channels of communication are opened and interests are aligned. Opportunities for frank exchange are, we believe, integral to avoiding social

loafing in the first place and serve as a foundation for understanding the diverse agendas of various members. Second, it places the onus of governance on the team itself. As in all things, imposing rules leads to lackluster acceptance and observation at best. In this case, the team creates its own norms for appropriate behavior, furnishing a sense of participation and ownership that further enhances the group's sense of cohesion. Third, enforcing the Signatory Code is the responsibility of the team, and there are very real consequences associated with unsatisfactory performance. Thus, the team serves as its own supraordinate authority. Fourth, it sends a strong signal to all members that teamwork is not merely a function of individual effort or talent. Rather, members' fates are interdependent, the realization of which fosters a sense of altruism.

The following sections describe the process of introducing SWIF and Signatory Codes in a large undergraduate class and then report the results of two surveys designed to assess perceived efficacy.

Team Case Project

OVERVIEW AND PARTICIPANTS

The George Washington University School of Business and Public Management requires a core course in human relations that is designed to complement the First Year Development Program—a series of cocurricular activities that include self-awareness exercises, a mentor pairing, and career orientation and counseling. The human relations course itself focuses on organizational behavior concepts (e.g., attitudes, conflict management, communication) delivered in a large lecture section ($N = 165$) with accompanying discussion sections ($N = 35$) that employ behavioral exercises, self-assessments, and didactic discussions. As codified in the syllabus, the course has four interrelated objectives:

The first is to impart a body of knowledge about human social dynamics in organizations. Such knowledge is at the core of mastering the managerial endeavor and serves as a basis for conceiving of and executing behavioral coordination in the pursuit of organizational goals. The second purpose is to test the applicability of this knowledge by using it to better comprehend, anticipate, and influence the thinking and behavior of others as conditioned by organizational structure and policy. That is, this course will provide opportunities to examine the usefulness of theory as applied to real-world practice. The third purpose is to encourage students to assume a more reflective posture about their aptitudes, aspirations, and interactions. This entails developing a keener sense of self-awareness about one's strengths and weaknesses in relation to

environmental demands. The fourth and final objective is to introduce students to the culture and expectations of a business school education. Business schools are professional in nature and orientation, and this course will furnish a foundation for one's experience.

Undergraduate students participating in this course were charged with writing an original case study; 162 students (78 women, 84 men; average age = 19.2) were assigned to teams of four to six members—balanced for gender and English language skill—in the first discussion sections. These teams worked together for the entire semester, completing numerous in-class exercises (e.g., blizzard survival, money motivation debate). In addition, teams were assigned to write, analyze, and present an original case study as a final project and were required to author and sign a Signatory Code.

TEAM CASE STUDY AND COMPETITION

The team case study and competition was assigned the first day of class, constituting the SWIF experience. The syllabus encapsulates the assignment:

Team case study and competition: Teams of four to six will be designated at the first discussion section, charged with writing an original case study and presenting their case analysis orally to their discussion sections. The top-rated team from each discussion section will then present their case study in a competition held in the lecture section. This assignment can be broken down as follows.

Case study. Teams will write an original case depicting an actual or fictitious event that illustrates human relations in organizations. Subjects and dynamics should be drawn from the team's collective work experience, including current or past employment, participation in student organizations, sports teams, volunteer efforts, community organizations, and so forth. For instance, a case might tell the story of a young woman in her first serious career position, determining whether to accept an assignment that is high profile but high risk versus one that is low profile and low risk. The case will serve as a basis for analysis using course concepts. Specifically, teams should strive to show how course concepts help to better understand and explain the people, events, and organizations depicted in the case. The paper should be approximately 10 pages in length (70% for the case, 30% for the analysis) and integrate and apply at least 15 course concepts from the first and second halves of the class. Students are welcome to read ahead to find appropriate concepts and to ask discussion instructors to comment on rough drafts.

Case presentation. Late in the semester, teams will present a 10-min summary of their case study in their discussion section. The professor and both discussion instructors will evaluate each presentation and designate which team will represent that particular section in the class competition. Only simple visual aids will be necessary at this stage.

Case competition. Each discussion section will then work with their designated team to polish and improve their presentation. In the very last regular class meeting of the lecture section, each designated team will present their improved case study in a class-wide competition, which will be judged by the professor, the associate dean of undergraduate studies, and possibly other deans and faculty. During this 12-min (strictly enforced) presentation, more sophisticated visual aids will be necessary, and the entire class is required to attend and asked to dress in business attire.

The assignment achieves four objectives. First, it provides very real exposure to the advantages and disadvantages of teamwork. Second, it furnishes an opportunity to apply course concepts to a self-generated, complex situation. Third, it gives students a chance to develop their presentation skills. Fourth, it demonstrates several lessons about competition and cooperation that are important components of human social organizations. That is, teams compete against each other in their discussion section, only to work with the designated team for the class-wide competition. In total, the team case study and competition comprised 33% of the total grade for the course.

Intentionally limited direction forced teams to determine how to execute the assignment. Ample time for team conferences was scheduled in the discussion sections and feedback was offered when requested. This allowed students to get first-hand experience with the management of teams while they were coached on handling difficult situations.

SIGNATORY CODE

After a 3-wk period of forming, teams constructed and submitted a Signatory Code that was unanimously agreed on by all members. Signing the Signatory Code indicated that its contents were understood and that the conditions and possible consequences put forth would be abided by. The Signatory Codes themselves stipulated the rules by which members were allowed to receive credit for the team case study and competition. Any member prevented from signing the final copy of the team case study was denied credit for the assignment, which in effect meant that that team member would receive the grade of "Z," which requires that the course be taken over. Examples of Signatory Codes appear in the appendix.

Teams were encouraged to revisit their codes periodically to determine if they were operating as planned and to discuss whether there was exigencies not accounted for. This was done to reinforce their commitments as well as to allow for corrective action if the code was being violated by one or more members.

Evaluation of SWIF and the Signatory Code

SWIF/SIGNATORY CODE SURVEY

Students completed a 20-item survey, 18 of which used a 5-point Likert scale with 1 (*strongly disagree*) and 5 (*strongly agree*) as the endpoints (Items 14 and 15 inquired about the number of hours worked on the project using an open response scale). The survey was distributed at the end of the course and completed outside of class. One hundred and forty eight responses (49% women, 51% men) were returned for a 90% response rate. Themes covered by the questions included six categories: (a) SWIF objectives; (b) Signatory Code objectives; (c) overall team process, satisfaction, and outcome; (d) equality of team contribution; (e) perceptions of individual time spent on projects; and (f) perceptions of team members time spent on projects. We looked at the six categories along with three outcomes: (a) grades case write-up, (b) grades on case presentation, and (c) overall case grade, which combined case and write-up portions. Survey items, mean scores, and standard deviations for each item are listed in Table 1.

Table 2 shows means, standard deviations, alpha coefficients, and intercorrelations among all study variables. To determine that distinct constructs existed resulted from the creation of a multitrait correlation matrix. Three survey constructs that contained more than one item were included: (a) SWIF objectives, (b) Signatory Code objectives, and (c) team process and satisfaction objectives. The other six variables were not included because they were either measured using a single item or were not part of the initial survey. Empirical support for three distinct constructs exists if the items within each construct are more highly correlated than items between constructs. This was supported because the item correlations within constructs were higher, ranging from $r = .68$ to $.84$, than item correlations between constructs, which ranged from $r = .41$ to $.45$. This provided initial support for the construct reliability and validity of our survey. Item 9, which asked about the stressfulness of the Signatory Code, was dropped from this part of the analysis because it failed to conform to any construct.

Analysis of the SWIF objectives, Signatory Code objectives, and team process and satisfaction measures in conjunction with other variables yielded interesting results that provide preliminary support for the efficacy of the SWIF and Signatory Code.

TABLE 1
SWIF/Signatory Code Survey Results

<i>Theme/Statement</i>	M	SD
SWIF objectives		
1. Writing the case helped me to understand course concepts and materials.	4.12	0.72
2. Writing the case helped me to apply course concepts and materials to realistic situations.	4.24	0.72
3. Writing the case helped me to realize that human relations in organizations are complex.	4.07	0.79
4. Writing the case provided an opportunity for original thought.	4.18	0.75
5. Writing the case helped me to become a better writer.	2.99	0.97
6. Presenting the case helped me to understand the importance of presentation skills.	4.05	0.88
7. Presenting the case helped me to become a better presenter.	3.46	0.99
8. The team case analysis and presentation is a valuable component of this course.	4.31	0.95
Signatory code objectives		
9. Creating the Signatory Code was stressful.	1.99	0.93
10. Creating the Signatory Code helped me to understand the importance of a governance system.	3.38	1.03
11. My team's Signatory Code was a fair way to determine who deserved credit for the team case analysis and presentation.	3.77	1.08
12. My team's Signatory Code was useful in ensuring that team members did their fair share of the work.	3.38	1.14
13. Everyone on my team contributed more or less equally to the paper and presentation.	3.72	3.53
14. Approximately how many hours did you spend working on the team case analysis and presentation, including meetings, phone calls, research, writing, etc.?	14.51	8.88
15. On average, approximately how many hours do you believe your teammates spent working on the team case analysis and presentation, including meetings, phone calls, research, writing, etc.?	12.52	7.99
Team process and satisfaction		
16. Overall, the team experience was valuable.	4.13	0.93
17. Overall, the team process was effective.	3.88	1.01
18. Overall, my team was cohesive.	4.02	2.49
19. The team experience helped to prepare me to work in teams in the future.	3.94	0.83
20. I learned more working with a team than I would have by working alone.	3.77	1.14

NOTE: SWIF = Student Written–Instructor Facilitated. Responses range from 1 (*strongly disagree*) to 5 (*strongly agree*), except for Questions 14 and 15, which were open.

SWIF

There was no relationship between SWIF objectives and either perceived time spent on the project's individual members or their team. SWIF objec-

TABLE 2
Means, Standard Deviations, Cronbach's Alphas, and Intercorrelations Among Variables

Variable	M	SD	α	1	2	3	4	5	6	7	8
1. SWIF	3.93	.53	.77	—							
2. Signatory code	3.50	.86	.68	.41**	—						
3. Team process and satisfaction	3.96	.93	.84	.41**	.46*	—					
4. Equal team contribution	3.72	1.37	—	.17*	.12	.25**	—				
5. Individual time spent	14.51	8.88	—	.00	-.18*	-.14	-.10	—			
6. Group time spent	12.52	7.99	—	.06	.12	.16*	.01	.62**	—		
7. Case write-up	36.84	1.75	—	.13	.00	.02	-.16	-.07	-.02	—	
8. Case presentation	8.42	.61	—	.23**	.00	.18*	.07	-.05	.08	.30**	—
9. Case score overall	90.5%	4.0%	—	.18*	.00	.07	-.12	-.04	.00	.96**	.55**

NOTE: SWIF = Student Written-Instructor Facilitated.

* $p < .05$. ** $p < .01$.

tives were positively related to perceptions of equal contribution to the team ($r = .17, p < .05$). This suggests that SWIF leads to perceptions in the group that all members pull their weight and also suggests that SWIF may lead to lower levels of social loafing. In addition, SWIF objectives were positively related to both the case presentation ($r = .23, p < .01$) and overall case grade ($r = .18, p < .05$). This bodes positively for the use of the SWIF because it suggests that teams realizing the intended value of the SWIF may lead to improved grades on case presentations and write-ups.

SIGNATORY CODE

Signatory code objectives were negatively related the amount of time an individual spent on a project ($r = -.18, p < .05$). This provides preliminary support for the use of the Signatory Code because it suggests that when students see the benefit of the code, they may need to spend less individual time working on the group project. However, perceptions of team time on the group project showed no relationship, suggesting that the Signatory Code has no effect, including no additional time demands to team work. The questions regarding individual and group time on task were designed to see if individual team members believed that they did more work than others. As would be predicted by research on the self-serving bias and actor-observer effects, students reported having spent more hours on the project than did their fellow team members.

TEAM PROCESS AND SATISFACTION

Team process and satisfaction were correlated with three variables. A positive relationship to success on the case presentation ($r = .18, p < .05$) may mean that success on the team case presentation requires greater team effort. Members cannot complete this aspect of the project alone because more team work may be required for the presentation aspects of a task. In contrast, writing up the case study can be achieved by having a limited number of team members participate in the completion of the project. Also, team process and satisfaction was related to perceptions of equality of contribution ($r = .25, p < .01$), suggesting that good group process may lead to lower social loafing. Finally, team process and satisfaction was positively related to perception of team time spent on the project ($r = .16, p < .01$) but nearly negatively related to perceptions of individual time on the project ($r = -.14, ns$). This too may suggest that improved team process may lead to increased perceptions that team members are pulling their own weight and that greater team process and satisfaction requires less individual work but greater team work.

ADDITIONAL OBSERVATIONS

There was no evidence that increased perceptions in the equality of teamwork or the perceived time on task had any impact on outcomes. Looking at specific items in the survey leads to some general observations about the efficacy of the Signatory Code. Creating the code was not seen as especially stressful ($M = 1.99$, $SD = .93$) and students felt the code was a fair way to determine credit ($M = 3.77$, $SD = 1.08$). They also believed that creating the code helped to appreciate the importance of a governance system ($M = 3.38$, $SD = 1.05$) and that the code was useful in ensuring that members did their fair share ($M = 3.17$, $SD = 1.03$). Of importance, overall, students felt that members of the team contributed more or less equally to the project ($M = 3.72$, $SD = 1.37$), which adds additional evidence that the code was seen as a valuable tool. A summary of the potential benefits of the instructional and team process methods that emerged from this data are presented in Table 3.

Discussion

This article argues that teamwork is an increasingly important skill in modern organizations and that, properly managed, team assignments can achieve sophisticated learning objectives while dealing with the thorny and very real social loafing problem. We present SWIF case learning as a team assignment that capitalizes on various group synergies and provides an opportunity for developing all six of Bloom's Educational Objectives—knowledge, comprehension, application, analysis, synthesis, and evaluation. Furthermore, we advocate the use of Signatory Codes as team-generated governance devices that spark thoughtful discussion about responsibilities and create mechanisms for dealing with unsatisfactory performance.

The survey results strongly suggest that students found both methodologies useful elements of the learning experience. As argued throughout, SWIF plays on all of the advantages of case teaching and teams, in the process energizing student involvement. In this way, SWIF expands on the case refinements offered by Siciliano and McAleer (1997) and the experiential learning benefits, examined in a consulting context, by Tubbs (1984). Of course, it is difficult to draw authoritative conclusions without a careful control group (see the discussion of limitations below) but other subjects might benefit from similar approaches and fit the requirements for effective large class assignments outlined by Michaelsen, Watson, Cragin, and Fink (1982). Despite its potential, like all team assignments, SWIF is only as effective as the skilled instruction that accompanies it. Furthermore, the resources

TABLE 3
Potential Benefits of Instructional and Process Methods

<i>Method</i>	<i>Potential Outcome</i>
SWIF	Increases equality of contribution by team members May limit social loafing Improves case presentation Leads to increased overall case grade
Signatory code	Decreases <i>individual</i> time spent on group projects Little impact on <i>group</i> time spent on project
Team process and satisfaction	Increases equality of contribution by team members May limit social loafing Increases team time spent on project Improves case presentation

NOTE: SWIF = Student Written–Instructor Facilitated.

required to complete the task must be readily available and understood by the participants. These points are emphasized by Cohen (1994) as key elements of designing group work.

The results regarding the Signatory Code were especially revealing. Recall that students reported that they worked about 2 hr ($M = 2.17$, $t = 3.60$, $p < .00$, $df = 148$) more than their fellow team members and that the question about equal contributions did not correlate well with others about the process and outcomes of the Signatory Code. These results could be interpreted as examples of the self-serving bias or actor-observer effects. Indeed, even when procedures are in place to prevent social loafing, differential expectancies remain (see Sheppard & Taylor, 1999). It is nevertheless entirely possible that the Signatory Code did not achieve its full potential. We suggest that this is due to the fact that the code is a team-generated governance device. That is, teams authored their own codes, the conditions of which varied widely from simple voting procedures to vague and unmeasurable promises to meet expectations. This interpretation is supported by the Signatory Codes included in the appendix and by previous work in the area (Joyce, 1999).

It may be true that an imposed governance system would be more effective in reducing social loafing, but we believe that a team-generated one holds even more valuable lessons. Anecdotally, portions of three teams approached the professor to complain that certain members were not contributing as planned. The professor immediately referenced the teams' Signatory Code, where it was soon revealed that the language did not adequately anticipate contingencies or was too vague to allow reasonable action. Students were

thus treated to a rare lesson not only on the importance of forethought but also on the limitations of legal devices to manage the vagaries of interdependence. Two observations are worth noting. First, in the semester prior to introducing the Signatory Code, 8 of 32 teams complained to the professor about social loafers, whereas during the semester in question, only 3 of 33 did so. Second, during the semester in question, only 1 student did not receive credit for the assignment because of the team enforcing the Signatory Code.

In retrospect, this study would benefit by several refinements. First and foremost, it provided no comparisons. For instance, testing the efficacy of team case studies versus individual case studies for achieving learning objectives would be highly diagnostic. Similarly, comparing questions about team member contributions with groups that did, versus those that did not, complete a Signatory Code would speak directly to its impact. Second, there are no direct measures of educational objectives beyond participant opinion. It is true that each case presentation was judged by three experts—the professor and two doctoral-level teaching assistants (interrater reliability was 92%)—and each case study was graded, but a better method would have used a technique that specifically evaluated each of the six objectives. Performance on this assignment is not a useful index, again because there is not a valid comparison.

In addition, it would be helpful to see if groups were actually able to ignore marginal performers because the penalty for social loafing was so harsh (e.g., taking the course again) that students may have taken the course of least resistance. This study was not designed to test hypotheses but rather to provide insight into the potential of these two pedagogical devices. Although this intent does not dismiss its shortcomings, it does place the study and its classroom application in appropriate context.

Conclusion

Despite these limitations, we believe that the value of SWIF and the Signatory Code is not only demonstrated by the survey results but also has compelling face validity. Traditional case analysis is indeed useful and allows for grading comparisons across individuals and groups. But because SWIF involves creating the case itself, it is more likely to fully enlist the mind and talent of the students. Moreover, making SWIF a team, as opposed to individual, assignment closely mimics the unstructured tasks characteristic of cross-functional teams in the modern world of work (see Jessup, 1995) and perhaps triggers the development of abilities that fall into the broad domain of emotional intelligence because it has been linked to ability to perform more effec-

tively in teams (see Goleman, 1995). Perhaps the greatest benefit of the Signatory Code is triggering a dialogue about what constitutes acceptable contributions to team projects. Such a dialogue implicitly and explicitly addresses expectations and standards in a manner that helps individuals to define their roles and heightens group cohesiveness. Furthermore, the Signatory Code has potentially wide applicability across a variety of educational and organizational contexts.

In today's business climate, teams are adaptable and cost-efficient organizational forms that are here to stay. It is therefore the responsibility of business schools to provide genuine teamwork experiences for their students. In integrating teamwork into the curriculum, various objectives can be obtained, and problems avoided, by thoughtful design of assignments. SWIF and the Signatory Code represent a tandem teaching methodology to maximize cognitive skill, minimize social loafing, and generally to demonstrate that team dynamics, although subtle and often frustrating, can be effectively managed for all members' benefit.

Appendix **Representative Examples of Signatory Codes**

Example 1

The following rules must be followed:

1. Meetings must be attended by all members that the group schedules
2. Come on time
3. Have and present work that is delegated to you
4. In case of emergency in which you can't attend a meeting, you must e-mail the entire group
5. The reason for absence must be deemed valid by the group
6. When a member is absent, he must stay up on work
7. Participation at meetings is mandatory

Steps to determine a person's participation:

1. Someone must bring up the problem
2. Person is confronted with the problem
3. Give person a reasonable amount of time to complete designated work
4. If problem persists, group must vote with a majority 3 out of 5 votes to exclude signature

Appendix (continued)

Example 2

Our goal as a group is to complete this project within the time constraints given. Ultimately, our objective is to win the competition and obtain as high a grade as possible.

A central theme for our group is to learn all parts of “this” project to the highest ability. We have chosen to hold ourselves to the following rules and regulations:

1. Daily attendance at lectures and laboratory (including group meetings)
2. Complete assignments on time according to outline
3. Respect ideas and thoughts of group
4. Speak out and disagree
5. Check Prometheus daily
6. Be an active member on a winning team
7. Courtesy in advance

If all rules aren't followed and complied by a group member, a vote will be taken to decide whether they have the right to sign the final project (a vote of majority based on weekly progress).

Example 3

1. We will arrange a meeting time(s) each week in order to complete the project at hand.
2. We will not argue but rather listen to each other's opinions in order to facilitate communication among each of the group members.
3. We will not judge each other's opinions based on personal biases but rather we will discuss whether each idea/thought best suits the project at hand.
4. A vote will be taken and the majority has it.
5. We have all verbally agreed to be present at each of the meetings. Therefore, no course of action has been decided on in case any of us proves to be a “slacker.” If presented with such an obstacle, we will thoroughly discuss the issue and vote on a course of action.
6. We have not voted on an outright leader of the group and, in turn, we are equally responsible for the outcome, grades, and presentation of this project. Any comments, questions, etc., may be presented to us as a group. We have decided not to divide up the tasks.

Example 4

1. Appropriate meeting attendance must be met for each group member. Excessive absence will not be tolerated. Those not at attendance at a meeting must

(continued)

Appendix (continued)

- understand the information they missed. A missed meeting equals missed opportunity for contribution to the group.
2. Members must meet all group deadlines.
 3. Equal contributions to text of paper and ideas of case study are required of all group members. Approximately 20% of the paper (two pages) should be contributed by each member.
 4. The division of labor should be appropriate throughout the group. Tasks should be delegated by individuals volunteering to undertake a fair share of work and make a contribution to the group.
 5. Three-fourths vote affirmation needed for person to sign off at the end of the presentation. Three group members of the four members voting must all vote positively in order for the member being voted on to be able to sign off at the conclusion of the project.
 6. We agree to the above guidelines and constraints pertaining to our organizational behavior group and will do all in our power to ensure the enforcement of all guidelines.
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Note

1. This teaching tool was developed by Paul M. Swiercz. A manual, appropriate for distribution to students, is available from the Web site of Houghton Mifflin or directly from the developer (prof1@gwu.edu).

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