

Journal of University Teaching & Learning Practice

Volume 6, Issue 1

2009

Article 7

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Abstract

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Abstract

Universities are increasingly using group based assessment tasks; however, as with workplace teams, such tasks often elicit mixed feelings from participants. This study investigated factors that may predict student satisfaction with group work at university. Final-year business students completed a questionnaire addressing experiences of group work. Quantitative and qualitative data suggest that the major barrier to students' group work satisfaction was workload issues. Conversely, perceptions of learning and feelings of group-based achievement contributed most to satisfaction. Knowledge of predictors of satisfaction allows teaching staff to identify potential problems in groups, and improve the quality of the group work experience.

Predicting student satisfaction with group work assignments

The emerging predominance of group work assignments represents a major trend in education (Brown, Bull, & Pendlebury, 1997; Gottschall & Garcia-Bayonas, 2008). Employers highly value teamwork skills and seek the development of these in graduates (Cranmer, 2006). This study investigates the issue of university student satisfaction with group work assessments. Insights drawn from this study should inform the development of strategies to improve student group work assignment experiences and outcomes.

Group work provides an opportunity for students to engage in peer-to-peer learning. Learning is enhanced when students are able to share and clarify their knowledge, and build creative problem solving capabilities (Almond, 2009; Johnson & Johnson, 2005). Working together productively can result in more favourable attitudes to learning and persistence within degrees (Scott-Lad & Chan, 2008; Springer, Stanne, & Donovan, 1999) and academics often favour group work for its anticipated reduction in marking loads.

Despite their advantages, group assignments are not always regarded positively by students (Burdett, 2006; Payne & Monk-Turner, 2006); and dissatisfied students can inhibit the performance of others, resulting in poorer group outcomes (Freeman, 1996). Also, groups that become dysfunctional result in collaborative efforts failing and compromised learning outcomes (Livingstone & Lynch, 2002). In some cases content learning can be impeded by group, as opposed to individual, work (Bacon, 2005). These negative outcomes are likely to reduce satisfaction, a critical issue given that student satisfaction has been linked to decreased drop-out rates and higher learning performance (Suhre, Jansen, & Harskamp, 2007). Furthermore, valuable learning opportunities are missed when future group work is avoided (Volet & Mansfield, 2006).

Student satisfaction is used as a critical indicator of quality of teaching and is allied to academic tenure, promotion, university reputation, and student choice (Moore, 2006). Funding pressures reinforce priority areas for teaching practice. Faculty must attend to 'satisfaction' as reflected in student course evaluations, a focus that influences the design, delivery, and assessment of courses. Hence, student satisfaction is a key concern for academic staff. It is important that such a potentially contentious teaching methodology as group work be investigated so that both positive and problematic aspects are understood.

This study investigated the experience of group work, focusing on key areas in which students' satisfaction with assessed group work experiences might be improved. Of particular interest were: individuals' achievement orientations; whether students took on leadership roles within groups; their perceptions of workload fairness; and their satisfaction with the outcomes, in terms of marks awarded and learning about group work skills.

Predictors of Group Work Satisfaction

This study specifically addressed the impact of five issues on students' general satisfaction with group work projects at university, related to individuals (achievement orientations); and their satisfaction with aspects of the task (leadership roles and workload within task), and its outcomes (marks and learning).

Achievement orientation

Group work requires changes to conventional learning styles and may contradict the motivations, aptitudes, and learning preferences of high achievers (Yazici, 2005). Those with high achievement orientation are often competitive, seek to work alone, and are less accepting of group-based rewards (Trank, Rynes, & Bretz, 2002). Almond (2009) concluded that group assessment disadvantages high achieving individual students, and Bahar (2003) found that students with achievement-oriented motivational styles were significantly less satisfied with group work, compared to those with curious, conscientious, and sociable learning styles.

It was expected that achievement orientation would be negatively related to overall satisfaction with group work.

Leadership roles in groups

Most group work assessment tasks involve leaderless groups, however, in practice, one or more students often end up taking responsibility for completing the work, whether or not they want to (Mills, 2003). In some cases, these 'leaders' may be encouraged by others in the group to do more, resulting in higher responsibility and workload, while 'free riders' in the group flourish (Payne & Monk-Turner, 2006). This is likely to lead to resentment and dissatisfaction. There is the possibility that the high degree of control over the group work product may contribute to greater satisfaction among leaders (Pfaff & Huddleston, 2003). However, while this may increase their satisfaction with the product created, it is unlikely to increase their satisfaction with the group work process.

It was expected that taking on a leadership role would be negatively associated with overall satisfaction with group work.

Workload

Student frustration and conflict often seem linked to uneven sharing of workload in group assignments. Most group projects require out-of-class time and groups must take responsibility for organising their collaboration and individual inputs (Lizzio & Wilson, 2005). Social loafing behaviour creates an imbalance of effort, such that 'free riders' are able to benefit from the contributions of others. Pfaff and Huddleston (2003) reported that workload is often not shared fairly amongst group members, and that perception of the fairness of workload distribution was a significant predictor of student attitudes towards group work.

It was expected that satisfaction with workload distribution in group work tasks would be positively associated with overall satisfaction with group work.

Marks

Dissatisfaction with assessment processes and marks awarded for group work assignments are a major source of student complaint (Boud, Cohen, & Sampson, 1999). Individual contributions, or lack thereof, of group members may not be acknowledged in the group mark awarded (Sharp, 2006). Differing standards may also influence students' reactions to a group's marks, along with achievement orientation. Students with higher standards would be expected to be more dissatisfied with low shared marks or to feel that they missed opportunities, because the group could not match the performance expected by the higher achiever (Bacon, 2005).

It was expected that satisfaction with marks would be positively associated with overall satisfaction with group work.

Perceptions of learning

The ability to work as part of a team is an important life and employment skill that should be actively encouraged in educational settings (Cranmer, 2006). Through group work assignments, students are expected to learn about managing group dynamics and resolving conflict, and about content knowledge. Student satisfaction is likely to result if students perceive their learning outcomes, both in terms of interaction with others and content knowledge, to be enhanced as a result of working in a group (Ramsden, 1992). In contrast, perceptions of learning may be influenced by perceptions of the group work experience. Positive perceptions are associated with feelings of achievement; negative perceptions are not (Volet & Mansfield, 2006). Most research, however, has focused on content learning or a mix of learning about both team work and content. Here participants were specifically asked about their learning of group work skills.

It was expected that perceived learning of group work skills would be positively associated with overall satisfaction with group work.

Method

Participants

The sampling frame for this study comprised 344 final year undergraduate business students within a Business School at a large Australian university. This included students in Accounting, Administrative Management, and Management Information Systems degrees. Final year students were chosen because they were more likely to have the richest experience on which to base overall perceptions, having engaged in group work over the period of their studies. It was also expected that these students would be more likely to possess the interpersonal and organisational skills required for group work, which may not be the case for students in earlier years. A response rate of 30.5% was achieved with the return of the questionnaires ($n = 105$).

Ages of respondents ranged from 19 to 56 years ($M = 27.0$, $SD = 7.8$). Seventy percent were female (30% male) and 91 percent were domestic (9% international) students. This suggested an overrepresentation of females, $\chi^2(1) = 7.96$, $p < .001$, and domestic students, $\chi^2(1) = 13.99$, $p < .001$, in the sample compared to the sampling frame (where 56% were female and 73% were domestic students). Neither of these demographics were related to the main variables in the study though (see Results section). Students reported participating in assessable group work projects frequently throughout their degrees, although the number of projects varied considerably ($M = 7.5$, $SD = 4.3$). The mean number of group members was 3.4, with most reporting an average of 3 or 4 people per group (86.6%).

Measures

Self-report mail questionnaires were used to obtain measures of the constructs of interest and relevant background information. Demographic data (age in years, gender and status as domestic or international students) was collected, along with number of group work projects participated in and average number of group members. All items designed to measure the key constructs were rated on a 5-point scale (from *Strongly disagree* = 1, to *Strongly agree* = 5). Negatively worded items were reverse scored before analysis. Both achievement orientation and leadership role were measured with single items. Means of items were used to calculate scores for each of the remaining constructs: workload (2 items, $\alpha = 0.76$); marks (2 items, $\alpha = 0.78$); learning group work skills (8 items, $\alpha = 0.90$); and overall satisfaction with group work (6 items, $\alpha = 0.77$). All scales were normally distributed, with higher scores indicating greater levels of the specific construct.

Questionnaires also included open-ended questions about students' perceived *best* and *worst* aspects of their group work experiences at university. Responses from these questions were coded manually by both authors based on the main constructs of interest (achievement, leadership, workload, marks, and learning). Results were then discussed and recoded with one additional category (social) and lower order categories within each (see Results section).

Procedure

Names and addresses of all final-year business students within the Business School were obtained from university administration. All received a copy of the questionnaire by mail, with a return addressed, reply-paid envelope. No incentives were provided for participation in the research. There were two rounds of mail-outs, with 61.0% ($n = 64$) of the final sample responding in the first round and 39.0% ($n = 41$) in the second round. Chi-squares showed no significant differences in gender or status (domestic or international) between early and late respondents. Independent samples *t*-tests showed no significant differences on any other background variable (age, average number of group members, number of group work projects) or on any of the group work perception variables (achievement, leadership, workload, marks, learning or overall satisfaction), between early and late respondents. This suggests that there were minimal differences on the key constructs between responders and non-responders (Ullman & Newcomb, 1998), although this cannot be determined definitively (Lin & Schaeffer, 1995).

Results

Quantitative Results

Relationships between each variable and their overall means and standard deviations are shown in Table 1. These results generally demonstrate satisfaction with group work, with all means greater than 3 (the scale midpoint). Rating of learning group work skills was particularly high, while satisfaction with workload was lowest.

TABLE 1: Descriptive statistics and correlations for perceptions of group work measures

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Satisfaction	3.51	0.74					
2. Achievement	3.30	0.87	-.08				
3. Leadership	3.49	1.01	-.19*	.42***			
4. Workload	3.04	1.00	.57***	-.13	-.30**		
5. Marks	3.43	0.85	.48***	.01	-.18	.44***	
6. Learning	3.71	0.65	.67***	-.00	-.05	.35***	.43***

*** $p < .001$; ** $p < .01$; * $p < .05$.

Demographic differences

Independent samples *t*-tests indicated no significant differences on the group work perception measures for participants' gender or status (domestic or international). Pearson's correlation coefficients showed no significant relationships between number of times participants had been in a group and any of the perception measures. However, there was a significant relationship between leadership role and age, with older participants more likely to report taking on a leadership role, $r(99) = .23, p = .022$. Average number of participants in groups was significantly negatively related to taking on a leadership role, $r(95) = -.24, p = .017$, suggesting that when there were fewer members, people were more likely to be leaders. As a result, age and reported average number of group members were included as control variables in the subsequent regression analysis.

Predicting overall satisfaction with group work

Hierarchical regression was performed to test the hypotheses regarding the prediction of overall satisfaction, with age and average number of group members entered first as controls, followed by the key study variables. Model 1, with only the two control variables was not a significant predictor of overall satisfaction with group work, with only 0.3% of variance in the model accounted for, $F(2, 93) = 1.21, p = .886$. The addition of the group work perception variables significantly improved the model, accounting for an additional 58.5% of the variance over Model 1, for a total of 58.8% of variance explained, $F(7, 88) = 17.92, p < .001$ (see Table 2).¹

¹ Tests for possible moderating effects of achievement or leadership tendencies by age, gender, and fee status (domestic or international) were not significant. Details available from the authors on request. The nature of the cross-sectional, generalised data collection means that possible mediating effects of assuming a leadership role could not be assessed.

An examination of the individual predictors revealed that only two, workload and learning, made substantial contributions to overall satisfaction, independently of the other variables. Learning was a stronger predictor of overall satisfaction relative to workload. These findings were largely consistent with the correlations reported in Table 1; however, contrary to expectations, marks did not have a significant effect in the regression equation. This suggested that the relationship between mark satisfaction and overall satisfaction was not substantial once the variance it shared with workload and learning satisfaction was excluded. This is a surprising finding given the anecdotal importance assigned to grades in explaining student satisfaction.

TABLE 2: Regression results for prediction of overall student satisfaction with group work assignments

	Model 1			Model 2		
R^2	.003			.588***		
$R^2 \Delta$	-			.585***		
	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β
Age	-.005	.011	-.051	.004	.007	.045
Average group members	.000	.107	.000	.124	.074	.125
Achievement				-.045	.065	-.053
Leadership				.007	.062	.009
Workload				.244***	.059	.330
Marks				.123	.073	.137
Learning				.586***	.088	.513

* $p < .05$; ** $p < .01$ *** $p < .001$.

Qualitative Results

Open-ended responses to the *best* and *worst* aspects of group work were first deductively coded in line with the main constructs (achievement, leadership, workload, marks, and learning) and then coded inductively into subcategories for exploration.² Two additional categories of responses emerged: social (friendship as a best aspect, conflict as a worst aspect); and staff (negative comments about the role of staff as a worst aspect). The aspects most frequently appearing as *best* were achieving with the group and social opportunities (see Table 3), while the *worst* by far was the uneven distribution of workload, followed by group members impeding achievement (see Table 4).

² Where students offered more than one aspect as *best* or *worst*, these were treated as separate comments; hence the results presented are percentages of total responses, rather than total respondents. Total number of best aspects mentioned was 126, with 150 comments about worst aspects.

TABLE 3: Best aspects of group work

	% Total (<i>n</i> = 126)	Example statements
Achievement	39.7	
<i>Shared ideas</i>	<i>31.0</i>	<i>Different views lead to different ideas & more & better outcomes</i>
<i>Group goals/ standards</i>	<i>8.7</i>	<i>Working with people with shared vision, goals & responsibility</i>
Social	27.8	Helped develop good relationships with other students; helps you get to know other students
Learning	19.0	
<i>Teamwork skills</i>	<i>10.3</i>	<i>Developing team skills</i>
<i>Content</i>	<i>6.3</i>	<i>Learn from each other & share ideas</i>
<i>Personal skills</i>	<i>2.4</i>	<i>Learned capabilities of myself</i>
Workload	10.3	
<i>Even</i>	<i>7.1</i>	<i>There were shared responsibilities of workload</i>
<i>Lessened</i>	<i>3.2</i>	<i>Group work required less work</i>
Marks	2.4	When all members of the group worked equally we got really high marks
Leadership	0.8	Build up leadership skills

TABLE 4: Worst aspects of group work

	% Total (n = 150)	Example statements
Workload	68.0	
<i>Lack of contribution</i>	23.3	<i>Team members not performing their share of the work</i>
<i>Time issues</i>	21.3	<i>Finding time to suit everyone</i>
<i>Lack of commitment</i>	18.0	<i>People don't turn up to group meetings</i>
<i>Standards/goals</i>	5.3	<i>Other members do not put in the time because they just want to pass</i>
Achievement	12.0	
<i>Standards/goals</i>	8.0	<i>Working with students who don't have the same work ethic</i>
<i>Lack of contribution</i>	2.7	<i>Free riders & loose cannons</i>
<i>Lack of commitment</i>	1.3	<i>You get group members who don't care</i>
Social (conflict)	9.3	Strong personalities within the group causing conflict
Marks	4.7	When some don't do the work but still get the same grades
Leadership	2.7	
<i>By others</i>	2.0	<i>A 'natural leader' can try & control the project</i>
<i>By self</i>	0.7	<i>One person always has to take charge</i>
Staff	2.7	Staff seem to approach group work as a means to conduct less tutorials & mark less assignments...
Uncoded	0.6	Phone bills
Learning	0.0	

Generally, responses were consistent with quantitative findings and also helped to illuminate the interdependent relationships between achievement, workload and marks. It appears that some students have greater ability or motivation to commit and contribute to group work. This may be due to an intrinsic desire to succeed or a desire for an extrinsic reward (high mark); most likely a combination of both. Therefore, students express dissatisfaction at the unfairness of reward not equalling input, in the case of group marks, or the dissatisfaction of having to do more work (workload) to achieve an adequate reward, because other members of the group are perceived as having lower standards and/or capabilities. Issues of both 'deservingness' (justice) and achievement seem to contribute to participants' satisfaction, or lack thereof.

Discussion

The quantitative results suggested that, of the five constructs examined, the best predictors of students' dis/satisfaction with their experience of group work assessment at university were perception of learning outcomes gained from group work, and satisfaction with workload within groups. Achievement orientation and leadership roles were not associated with decreased satisfaction, contrary to expectations. Satisfaction with marks was also not associated with overall group work satisfaction in the regression model. Also, there were no differences in overall satisfaction based on student characteristics (gender, age or status), average group size or number of times students participated in group work.

The results from the content analysis of respondents' reported best and worst aspects of group work confirmed the importance of workload and learning, as well as the positive social consequences of group work. However, they also suggested interdependence of workload, achievement and marks, with the latter being subsumed within workload, such that unequal distribution of work led to

dissatisfaction with the equal distribution of marks. Such a contention is supported by the moderate correlation between the mark and workload satisfaction measures, and the consistent link between the two in the open-ended comments.

While personal desire for achievement did not predict overall group satisfaction, achievement was an issue that appeared strongly in both the best and worst aspects of group work reported by students. Specifically, groups collectively aided achievement through sharing ideas and through matching goals and standards. In contrast, individuals who had differing expectations of achievement, or lacked commitment and contribution to the task, threatened achievement. These issues connect with workload; while not explicitly stated, such differences would presumably lead to other group members shouldering the shortfall to achieve their individual goals, because others lacked concomitant skills or desires.

Resolving the Issue of Workload

Respondents' overwhelming concerns with workload were consistent with previous research, confirming that this is the most common complaint expressed by students working in groups (e.g., Payne & Monk-Turner, 2006; Pfaff & Huddleston, 2003). More motivated students resent the additional work demands placed on them by the lack of commitment and contribution to the task and the group by others and their lower standards. In concert with finding a lack of impact for marks, this suggests that the oft-reported student dissatisfaction with assessment in group work is due to a lack of distributive justice (where efforts match rewards) and procedural justice (where means by which rewards are allocated are justified), rather than the marks themselves. Research suggests that satisfaction with procedural and distributive justice procedures can predict students' levels of identification with their academic department, and thereby their commitment and persistence (Lizzio, Wilson, & Hadaway, 2007). Hence, it is important that students feel that group work assessment procedures deliver both types of justice.

Faculty must ensure that student workload within group assessments is evenly distributed and that opportunities for learning of group work skills are maximised. Group assignment tasks must be designed to require genuine collaboration and be manageable. Workload issues related to time can be managed by allowing in-class group meetings. This also provides opportunities for staff to support, direct and monitor progress. Coordinating the scheduling of group work assignments across courses can avoid simultaneous group projects. This is likely to be easier in some degrees than others though, depending on the level of structure: when coordination is required across a restricted range of courses versus degrees with more diverse choices of courses in any given teaching period. Also, individual contribution and accountability can be improved by implementing peer assessment (Hansen, 2006) and by ensuring group numbers do not exceed four (Scott-Lad & Chan, 2008). Staff must communicate information that assures students that procedural and distributive justice will be accomplished, particularly regarding marks. This may include giving group members the right to opt out or to expel those who do not contribute (Farrell & Farrell, 2008) or a mechanism for adjusting group marks based on peer assessment of contribution (see Sharp, 2006).

Achieving Learning Outcomes

Students' perception of their learning of group work skills positively predicted satisfaction with their group work experience, as anticipated. While satisfaction with workload and perception of learning outcomes separately predict satisfaction, they are related, as suggested by their moderately positive correlation. Those who perceive workload more positively are more likely to have the time and motivation to engage more fully in the group activity. This increased involvement should lead to enhanced learning opportunities and achievement (Lizzio, Wilson, & Simons, 2002).

As this was a cross-sectional research design though, there is no way of knowing whether perceptions of learning were actually responsible for feelings about group work. Perhaps the experience is more likely to be seen as worthwhile if it is also enjoyable, hence positive experiences of group work lead to both overall satisfaction and higher perceptions of learning.

Future Research

A longitudinal study would allow confirmation of the effects observed, as well as possible evidence of causal relationships. Also, experiences linked to a specific project could be examined, providing an opportunity to examine particular aspects of workload, such as amount of time spent working as a group versus separately, and time on content/learning versus organizing meetings or contacting recalcitrant group members. This would also provide the opportunity for comparing the effects of various interventions, to allow the development of evidence-based best practices. It may also be the case that different factors impact on the satisfaction of students at different stages of their university career. Research including students from all year groups would be beneficial for determining if this is the case.

Conclusion

Students perceive a number of benefits to group work, including learning and achieving as a group, as well as positive social interactions. However, some students' experiences of group work are unsatisfying. This research confirms that workload issues are the major contributor to dissatisfaction with group work assessment. The amount of work an individual undertakes and the level of responsibility s/he assumes appear to be associated with questions of fairness and justice. Results also suggest that it is not marks *per se* that lead to dissatisfaction with group work, as is often assumed. In contrast, perceptions of learning group work skills strongly predict satisfaction with the group work experience, so increasing opportunities to learn such skills should enhance student satisfaction. It is critical that faculty provide support to students and that they explain how procedural and distributive justice issues will be addressed through workload and assessment procedures. This should lead to greater satisfaction among students, as well as improved learning outcomes.

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