Key Determinants Of Student Satisfaction When Undertaking Group Work

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ABSTRACT

The increasing popularity of team structures in business environment coupled with the common practice of including group projects/assignments in university curricula means that business schools should direct efforts towards maximizing team as well as personal results. Yet, most frameworks for studying teams center exclusively on team level outcomes to address organizational needs. Far fewer studies have examined effectiveness at individual team member level in an educational context. The quantitative study on which this paper is based investigated the impact of team process on the effectiveness of individual satisfaction in group work amongst business students in Hong Kong with work group effectiveness and management educational literature providing the theoretical background. The study surveyed 489 university business students and revealed that all three team process factors, namely workload sharing, mutual support and communication play a positive and significant role in individual satisfaction in team settings.

Keywords: Individual Satisfaction; Team Process; Workload Sharing; Mutual Support; Communication; Group Work; Teamwork; Student Project

INTRODUCTION

The increasing popularity of team structures in the business environment coupled with the common practice of including group projects/assignments in university curricula means that business undergraduates should direct their effort towards maximizing team as well as personal results. Equally, identifying the appropriate team factors and their relationship with individual satisfaction is essential for business practitioners and management educators alike.

This research investigated the relationship between team process and the satisfaction of individuals in group work amongst business students in Hong Kong with work group effectiveness and management educational literature providing the theoretical background.

In this paper, we focus on the issues of team process characteristics and satisfaction of student teams. This research extracted constructs from two contemporary input-output based group effectiveness models (Campion, Medsker & Higgs, 1993; Hoegl & Gemuenden, 2001) and applied them in the business education context with data collected and analyzed at the individual level. Our investigation contributes to the knowledge of team process and team effectiveness in group projects. It verified the correlational relationship between three important factors and achieving satisfaction as perceived by individual team members. Academics could consider applying this model to formulate teaching interventions and developmental guidelines, and direct students to develop awareness, attitude, knowledge and skills in group learning activities. Students should recognize the importance of team behaviors to their career in business, and devote their efforts in group work. Education management should acknowledge the important contribution of team skills to students' competitiveness in business, and address the needs by deploying effective pedagogical strategies, devoting adequate resources, and enabling more student team events.

LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESES

Utilization of teams to address changing environment, increase competitiveness and cope with demands for ever-improving performance, have become common in business industry. Team-based structures can be found in industries such as IT, engineering, construction, and health industries (Kang, Yang & Rowley, 2006; Doolen, Hacker & Van Aken, 2006; Ammeter & Dukerich, 2002; Weil, 1995). Devine, Clayton, Philips, Dunford and Melner (1999) in their survey of 128 US organizations found that 48% of organizations use teams. The training profession reported that 82% of organizations in the US with 100 or more employees use a team structure ('Industry Report', 1995).

In response to the increasing practice of using teams as a part of an organizational structure, much of the work done by students in higher education is in teams (Forrester & Tashchian, 2006). Today, business educators have increased the use of student teams in the higher education business curriculum to improve team skills by shifting from lecturing and individual learning to self-directed work teams and cooperative learning (Markulis, Jassawalla & Sashittal, 2006; Druskat, 2000; Shaw, 2004; Deeter-Schmelz, Kennedy & Ramsey, 2002; Livingstone & Lynch, 2000; Levi, Rinzel, Cadiz & Cacapit, 1998; Kunkel & Shafer, 1997; Freeman, 1996). Bolton (1999) found that 72% of faculty used group projects as part of their courses. Group work is widely applied and has become part of the course contents of mainstream business courses (Amato & Amato, 2005; Vik, 2001). It is argued that such team learning methods facilitate the development of knowledge and skills used in the real business world.

However, Gardner and Korth (1998) warned that there are still constant complaints from managers that business schools are not sufficiently emphasizing team-related skills. This raises the question of whether teaching interventions are appropriately directed towards training students in the behavior necessary for achieving effectiveness in team activities. With the increasing popularity of teams in workplace and educational settings, there is clearly a need to pursue research into team experience, especially the impact of team effectiveness on individual members in the business education context.

White and Bassford (1978) investigated the factors that predict and control team success in student projects, and argued that proper identification of these factors in team experience enables educators and students to direct and manage group project work more effectively. To date, although most team research has measured effectiveness at both the team and individual levels (Salas, Stagl, Burke & Goodwin, 2007), the major focus has been on evaluating task performance of the group. Far less attention has been paid to individual member satisfaction with the team (Olivera & Straus, 2004).

As business students become increasingly keen to gain a competitive advantage in the challenging business world, equipping students with team skills becomes a critical pedagogical issue. Taking part in group work and being able to direct efforts to the appropriate dimensions enable students to gain personal satisfaction. Accordingly, this research studied the effect of team process characteristics on member satisfaction in business education in Hong Kong.

Research Questions

To fulfill the purpose of this study, the following research question was developed: What is the relationship between team process and individual satisfaction amongst business students in Hong Kong?

Theoretical Framework

A process-outcome model constituting criteria on an individual level and determining factors that collectively influence the satisfaction of student group work is proposed (see Figure 1). In comparison to the commonly used input-process-output model, this model focuses on the interactivity process and examines how it impacts the satisfaction of individual team members. Given this focus, possible antecedents of the team process are not included in this research. This model offers a simple but essential illustration of several important factors of individual member satisfaction in a team experience.

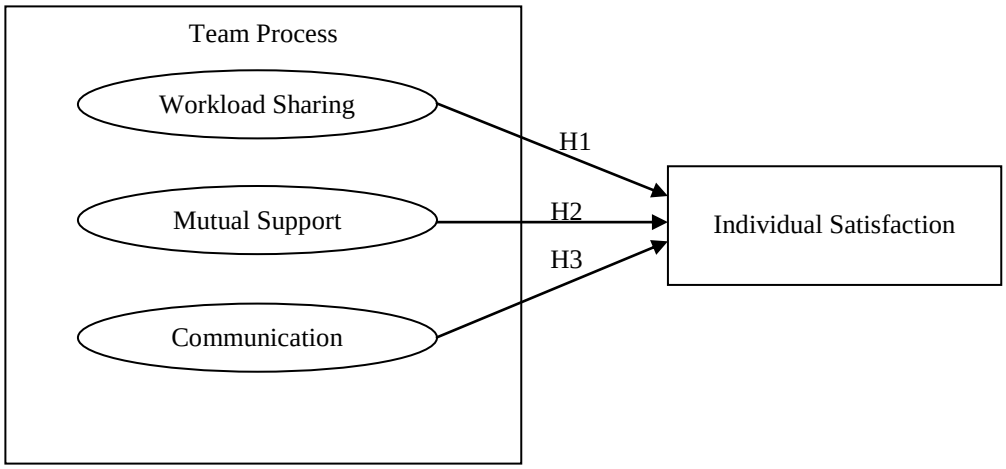

Figure 1: Framework for Evaluating Individual Satisfaction

The model has one key construct, team process, which is hypothesized as having an impact on individual satisfaction. Marks, Mathieu and Zaccaro (2001) argued that the success of a team is a function of the processes team members use to interact with each other. The team process construct of this study consists of three facets, namely workload sharing, mutual support, and communication, which have been found to be amongst the strongest predictors of individual member effectiveness in management and educational settings; e.g. team productivity and satisfaction (Werner & Lester, 2001; Campion et al., 1993).

Workload Sharing

Workload sharing refers to the extent that work is shared within the team. It is the degree to which each team member takes up an equal share of the work assigned to the group (Werner & Lester, 2001). Campion et al. (1993) argued that fair workload sharing enhances team effectiveness by preventing social-loafing or free-riding. Educators use a variety of methods to improve the effectiveness of student groups. Efforts are channeled to maintain a healthy and fair share of workload within student teams. Similarly, through a study of 38 self-managed undergraduate teams, Erez, Lepine and Elms (2002) found that workload sharing was a significant predictor of team performance and member satisfaction. Amongst the four determinants identified, only workload sharing showed a significant relationship with member satisfaction. These initiatives acknowledge the potential importance of workload sharing to the individual satisfaction of student group work. Thus the following hypothesis was proposed:

Hypothesis H1: Workload sharing is positively correlated to individual satisfaction.

Mutual Support

Mutual support is defined as cooperation to achieve common goals (Hoegl & Gemuenden, 2001). Campion et al. (1993) argued that effectiveness of teams can be enhanced if members help each other and have positive social interactions. The presence of social support from supervisors enhances performance of subordinates (Bhanthumnavian, 2003). Competition/conflicts amongst team members bring tension. Hoegl and Gemuenden (2001) asserted that mutual support instead of competition is more productive for interdependent tasks. Social support can enhance team morale (Heaney, Price & Rafferty, 1995). Hence, this study proposed the following hypothesis:

Hypothesis H2: Mutual support is positively correlated to individual satisfaction.

Communication

Communication within a team relates to the frequency, formalization, structure and openness of the information exchange (Hoegl & Gemuenden, 2001). Good communication means that project information is frequently shared, members understand each other more, and information flows more freely. This may result in high satisfaction and greater personal growth by team members and eventually contribute to task outcomes. Buckenmyer (2000) argued that communication is a determinant of successful group formation. In a study of cross-functional new product teams, Lovelace, Shapiro and Weingart (2001) found that the more frequently collaborative communication occurs amongst team members, the more willing they are to express task-related doubts, the more innovative they can be and the more work efficient they become; likewise, contentious communication dampens team performance. Stoel (2002) also found that frequent communication is positively related to members' satisfaction with their teams. Employees who openly communicate their feelings about their jobs can relieve work stress and allow management to tap into the employee's potential and motivation (Perrow, 1986). In the studies by Campion et al. (1993) and Hoegl and Gemuenden (2001), support for a positive association between communication and team effectiveness was also found. Therefore, the hypothesis was established:

Hypothesis H3: Communication is positively correlated to individual satisfaction.

RESEARCH METHODS

The sampling procedures and research measures are described below.

Sampling

Three volunteer universities located in different regions in Hong Kong consisting of government-funding and self-financing institutions consented their students to participate in this research. Self-administered anonymous hard copy questionnaires were distributed to students in a classroom setting to collect data. All items were rated using 5-point Likert scales with the response scale ranges from 1 (strongly disagree) to 5 (strongly agree). 501 questionnaires were distributed to eligible respondents, 492 (98%) questionnaires were collected, of which 3 questionnaires were incomplete, thereby providing 489 usable questionnaires for data analysis.

Independent Variables

Team process as a higher order construct consists of three facets (workload sharing, mutual support, and communication) was examined to identify the impact on individual satisfaction. Workload sharing refers to the extent that work is shared within the team. It is the degree to which each team member takes up an equal share of the work assigned to the group. The three items for studying the workload factor were adapted from those used by Campion et al. (1993) in their studies on job design, interdependence, composition, context, team process, and team effectiveness in group work ($M=3.22$, $SD=0.92$, $\alpha=0.84$). Mutual support concerns the extent of cooperation which targets to achieve common team goals. Six items developed by Hoegl and Gemuenden (2001) were used to assess this variable ($M=4.13$, $SD=0.55$, $\alpha=0.93$). Communication refers to communication within the team relating to the frequency, formalization, structure and openness of information exchange. The seven-item scale from Hoegl and Gemuenden (2001) was used to assess this variable ($M=4.20$, $SD=0.44$, $\alpha=0.94$).

Dependent Variables

Individual satisfaction, which is the perceived level of liking and fulfillment as impacted by the team experience, was measured using three items. Two items came from the team diagnostic survey by Wageman, Hackman and Lehman (2005) with special focus on assessing the general satisfaction of team members ($M=3.89$, $SD=0.84$, $\alpha=0.84$). The remaining item used for measuring individual satisfaction in this study was re-developed by the researcher based on Hackman's (1987) normative group effectiveness model ($M=3.92$, $SD=0.61$, $\alpha=0.85$).

RESULTS

Descriptive Statistics

Descriptive statistics for all variables are presented in Table 1. The descriptive analysis of the measuring variables shows that overall respondents' experience of group work has been positive. They also perceived that team members contributed equally to the project work, and communicated and supported each other well - the highest score was for mutual support (M=3.79) and lowest was for workload sharing (M=3.33).

Table 1: Means, Standard Deviations, Correlation Matrix, and Reliabilities for All Variables

	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Workload sharing						
Everyone on my team did a fair share of the work.	3.41	.908	-.729	.110	-.313	.220
No one in my team depended on other team members to do the work for them.	3.30	1.013	-.309	.110	-.629	.220
Nearly all the members on my team contributed equally to the work.	3.28	.912	-.383	.110	-.641	.220
Mutual support						
The team members helped and supported each other as best they could.	3.76	.779	-.688	.110	.855	.220
If conflicts came up, they were easily and quickly resolved.	3.59	.782	-.703	.110	.550	.220
Discussions and controversies were conducted constructively.	3.67	.710	-.498	.110	.568	.220
Suggestions and contributions of team members were respected.	4.05	.622	-.650	.111	2.120	.221
Suggestions and contributions of team members were discussed and further developed.	3.85	.672	-.834	.110	1.836	.220
Our team was able to reach consensus regarding important issues.	3.81	.657	-.823	.111	2.045	.221

Table 1: Continued

Communication						
There was frequent communication within the team.	3.63	.851	-.483	.110	.200	.220
The team members communicated often in spontaneous meetings, phone conversations, etc.	3.50	.816	-.412	.111	-.044	.221
The team members communicated mostly directly and personally with each other.	3.66	.833	-.556	.111	.197	.221
Project-relevant information was shared openly by all team members.	4.04	.741	-.674	.111	.788	.221
The team members were happy with the timeliness in which they received information from other team members.	3.53	.762	-.685	.110	.797	.220
The team members were happy with the precision of the information received from other team members.	3.66	.691	-.859	.110	1.201	.220
The team members were happy with the usefulness of the information received from other team members.	3.75	.714	-.925	.111	1.495	.221
Individual satisfaction						
I enjoy the kind of work I do in this team.	3.78	.718	-1.007	.110	2.238	.220
Generally speaking, I am satisfied with this team.	3.82	.740	-1.031	.110	2.172	.220
Generally, my personal needs are more satisfied than frustrated by this team experience.	3.63	.725	-.433	.111	.539	.221

HYPOTHESIS TESTING

After a detailed analysis of the data using exploratory factor analysis and reliability analysis, an acceptable level of appropriate validity and reliability of the data was achieved. Multiple linear regression (MLR) analysis was then used to test the three hypotheses H1, H2, and H3, which relate to individual satisfaction as the dependent construct with workload sharing, mutual support, and communication as the independent constructs.

Test of significance

Refers to Table 2 below, the model is:

Individual Satisfaction = 1.18 + 0.187 (Workload Sharing) + 0.273 (Mutual Support) + 0.199 (Communication)

Table 2: Coefficients Table for Individual Satisfaction, Workload Sharing, Mutual Support, and Communication

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.177	.547		2.153	.032		
	Workload Sharing	.187	.029	.251	6.528	.000	.786	1.273
	Mutual Support	.273	.031	.359	8.785	.000	.695	1.440
	Communication	.199	.033	.233	5.943	.000	.752	1.329
a. Dependent Variable: Individual Satisfaction								

The significance of this model was tested using the results in the ANOVA Table 3 below. The following was found.

Testing the significance of the model:

H_0 = model does not fit the data
H_1 = model fits the data

The ANOVA table (3) shows the model is significant as F = 127.6, degrees of freedom (df) = 3, 479 and p-value = 0.0001, which is < 0.05. Therefore, Ho is rejected, showing that the model fits the data.

Table 3: ANOVA Table for Individual Satisfaction, Workload Sharing, Mutual Support, and Communication

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	716.632	3	238.877	127.646	.000[a]
	Residual	896.403	479	1.871		
	Total	1613.035	482			

a. Predictors: (Constant), Workload Sharing, Mutual Support, and Communication

b. Dependent Variable: Individual Satisfaction

Testing the significance of the constructs:

$H_0 : \beta_0 = 0$
$H_1 : \beta_1 > 0$ (one tail test)

Results in the Coefficient table (Table 2) are described below:

For: $b_{0,}$ ➔ t = 0.187, p-value = (0.0001)/2, Workload Sharing is significant construct as H_0 is rejected as p-value < 0.05.
$b_{1,}$ ➔ t = 0.273, p-value = (0.0001)/2, Mutual Support is significant construct as H_0 is rejected as p-value < 0.05.
$b_{2,}$ ➔ t = 0.199, p-value = (0.0001)/2, Communication is significant construct as H_0 is rejected as p-value < 0.05.

Therefore, Workload Sharing, Mutual Support and Communication amongst group members are correlated to Individual Satisfaction. Hence H1, H2, and H3 are supported.

DISCUSSION

The result of this study was consistent with the empirical study by Werner and Lester (2001), who concluded that workload sharing is positively related to team satisfaction. Respondents in this research felt that

team members in their groups did a fair share of the work, everyone contributed equitably to the work, and no member relied on others to do work for them. This suggests that they divided responsibilities fairly within the group, and had confidence and trust in other team members to complete the task and produce high quality work. Such individual attitude and behavior enables the development of friendship within the team and satisfaction with cooperation (Chou, Wang, Wang, Huang & Cheng, 2008).

The influence of workload sharing on individual satisfaction may be explained by free riding behavior. Free riding is one of the focuses of complaints made by students (Hansen, 2006; Brooks & Ammons, 2003; Buckenmyer, 2000). If team members perceive workload is on a fairly shared basis, they tend to develop a sense of belonging to the team and ownership of the responsibility. On the contrary, students' experience of "academic free riding" can produce a negative perception of group work. Hence, workload sharing within the team is an important factor contributing towards the extent of member satisfaction in an educational setting.

The findings of this study also revealed that mutual support had a strong influence on individual satisfaction. It was also consistent with the results of previous studies on team effectiveness that found conflicts and individual satisfaction to be negatively associated, and interpersonal understanding amongst team members to be positively correlated with team learning (De Dreu & Weingart, 2003; Druskat, 2000; Jehn, 1995). Hence, developing mutual support can be an effective way of achieving individual satisfaction in student group work.

The results of this study suggest an association between communication and personal satisfaction in student collective work. The findings confirmed prior studies which argued that communication openness contributes to job satisfaction and team learning (Breen, Fetzer, Howard & Preziosi, 2005; Rogers, 1987); information sharing is positive related to team success (Wittenbaum, Hollingshead, Paulus, Hirokawa, Ancona, Peterson, Jehn & Yoon, 2004); and proactive communication results in better team performance and greater satisfaction amongst teammates (Lancellotti & Boyd, 2008). Thus, the extent of communication appears to enhance students' overall satisfaction.

In conclusion, this study indicates that people working in teams, whether they be permanent or temporary teams, demonstrate behavior that is consistent across both work and non-work teams. This study is one of the few studies of student team work in Asia, and the overall findings are in line with the following studies of Forrester and Tashchian (2006); Erez, Lepine and Elms (2002); Deeter-Schmelz, Kennedy and Ramsey (2002); and Lovelace, Shapiro and Weingart (2001) on team effectiveness/performance for work or student teams in Western countries.

Limitations

Despite of the study's success in producing practical suggestions for enhancing team process and improving personal satisfaction in student teams, the research itself has limitations that need to be identified and explained. Firstly, the data regarding team process and individual satisfaction were collected by a self-reported questionnaire survey only, meaning that the research relied on a single source of data collection. This might raise the question of common method variance.

A second limitation of this study involves its inability to predict causal relationships because the data were cross-sectional rather than longitudinal. The findings can only show the influence between the independent and dependent variables, but no conclusions can be drawn on whether the relationships are causal.

Thirdly, this research applied a quantitative methodology to study team process as a positive and significant influencing factor on individual satisfaction. Specifically, the research examined the positive effect of three team process characteristics on individual satisfaction. Although it is recognized that there might be other contributing factors, this research only studied the effect of these three factors as antecedents to individual satisfaction.

Lastly, since the survey sample was restricted to a business student population in Hong Kong, there is limitations to generalization of the results to more diverse student populations. And, since no other studies have applied the framework and variables used in this study to an educational setting, there are no findings from other similar studies to support the validity of this study carried out in the context of Hong Kong's higher education sector.

Recommendation for Future Research

Based on the findings of the study, several recommendations are made for future research. Firstly, as this study collected data on a cross-sectional basis only, a longitudinal research aimed at investigating the effects over time of a variety of interventions, using multi-method measurements, could further the knowledge of causality of relationships and help determine what strategies enhance satisfaction and learning over time when students undertake group work.

Secondly, as this research was limited to Hong Kong's business students, it is not clear if the factors investigated in this study apply equally to university students of disciplines other than business or indeed to non-university students. Future research is needed to examine this.

Thirdly, only three constructs were examined in this study for the purpose of understanding determinants of student satisfaction in team work. Further studies are recommended to consider other constructs which might also have an impact on individual satisfaction. Such variables might be team diversity, group cohesion, leadership, and potency.

CONCLUSION

Because of changing economics and increasing competition in the business environment, the use of teams to undertake projects are likely to continue to be popular in both business and educational settings. This study makes several contributions to the body of knowledge relating to the effectiveness of such teams and in particular of the individuals within them.

Firstly, although a considerable number of studies have examined the issues of team effectiveness and team performance in work team settings (Kuo, 2004; Holland, Gaston & Gomes, 2000; Gibson, 1999), this research, to the researcher's knowledge, is the first empirical study to validate the relationship between three strong team effectiveness predicting factors and individual satisfaction on student group work in Hong Kong's higher educational sector.

Secondly, this research contributes to business pedagogical research by providing evidence of team process effects on the effectiveness of individual satisfaction. It produced an empirically verified fine-grained model to provide insights for management educators and students on factors contributing to individual satisfaction in a team experience. Results of this research indicate that team process impacts individual satisfaction. The findings of this study indicate that although students are working together on a temporary basis on group assignments, they exhibit behavior consistent with those of permanent teams in the workplace. Given the consistency in members' behavior in both work and student teams, the results suggest that the framework and variables applicable to studying team effectiveness in work settings can also be applied to educational settings.

Thirdly, this study dispels the generally held assumption that students instinctively know how to work together as a team (for instance, that team members will be able to communicate effectively through various channels, team members will share work amongst themselves in an equitable manner) and will find group work a rewarding experience. Identification of the effect of the different dimensions of team process on student satisfaction lays an important foundation for educators and students when considering process interventions for improving team attitude, knowledge and skills in student projects.

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