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The Influence of Group Selection Method on Grades, Performance and Group Outcomes

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ABSTACT

Group formation method is an important aspect of student evaluation. In this paper we concentrate on an issue that the student's self-selected group's experiences have impact on grades positively. If the self-selected groups' results in good grades, then to what extent and why these groups are perceived more productive. In this study we tried to provide a student characterization of group formation and their respective percentage scores. Results reveal that the self-selected groups communicate better, have much resemblance and are achieving higher grades. The implications of the study are given for the instructors and further research.
KEYWORDS*:* university students, group selection, group experiences, students' grades.

1. INTRODUCTION

Aptitude and capacity to work with others in a group in an efficient and effective manner is considered to be the most important or obligatory attribute in today's business world. According to employers the ability to work in a group is believed to be the key feature for the management graduates.Group is defined as two or more individuals who are connected to one another by social relationships.Teamwork is given a vital importance in working environment, and because of its possible demand businesses are also laying more stress on the teamwork skills, competencies etc., which are injected in the workplace with the arrival of new comer.Keeping in view this development in mind educationalists especially those who are affiliated with the management institutions lays more importance on incorporating teamwork experiences in the classroom settings. The main theme behind the group work is that students are involved in a variety of special or non routine scenarios that entails considerable amount of information in a problem solving situation.

"Learning to work together in a group may be one of the most important interpersonal skills a person can develop since this will influence one's employability, productivity, and career success."

—Johnson and Johnson (1989, p. 32)

In business management studies, instructors allow students to form their own groups. Previous researches have examined that the group formation affect the students' performance and effectiveness. According to Hackman (1987) and Guzzo& Dickson (1996) the results obtained by the group are the objective measures of effectiveness while satisfaction and development output of the group are found to be the subjective measures.

Swanson et al. (1998) and Lejk (1999) observe that when the groups are formed and the grades on exams, projects and tests are compared with each other it affects the group experience and attitudes. Miglietti (2002) research also showed the same findings of affect on the group experience.These results were deduced by Chapman et al (2006) and Dyball et al (2007) by examining the students on the basis of primary data collected through questionnaire, and blending the results of past psychology and organizational behavior research (Bryant &Albring, 2006).

While forming the project groups, choices (perspectives and dynamic, motivation, pedagogy, social relations, heterogeneity and coordination) should be considered. (Stefan & Ulf, 2006) it has beenfound that it is better to have a hierarchical relationship within the group if the group encounter with the tasks involving effective and efficient coordination. According to Caspersz, Skene& Wu (2002) team related concerns/issues holds an eminent position as it leads to effective team performance among students. Barbara et al (2004) found that cooperative learning has a positive impact on conceivable/plausible learning outcome.Previous studies mostly dealt with those groups which were formed with the perception of instructor. Contrasting to these previous researches, this study focuses on the effects of groups formed according to the students' choice.Sandy& Fred (2008) found that the group formed by the students choice were similar in different aspects including backgrounds, interests, project commitment and aptitude to thrive as a group.The characterization of student groups is resulting from a qualitative analysis of experiences of students in groups by questionnaire survey in management studies for the purpose of projects, thesis and research papers.

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The objective of this study was to investigate the group formation effects on student effectiveness in terms of the percentage scores of the students in the final exams of semester system. The percentage is used in analysis due to different methods and criterions of the different universities. Also, we want to investigate the object of groups which have different behavior, their effectiveness in groups and address those experiences that took place within groups.

The rest of the paper is organized as follows. Literature review is provided in section 2, estimation methodology used in this study is presented in section 3, and empirical findings are depicted in section 4 of the paper, while section 5 consists with conclusion and recommendations.

2. LITERATURE REVIEW

In business management studies, almost all students are engaged in project/research work due to dynamic and practical field of study. In these days of globalization universities are paying greater attention to group work for the objective to prepare the skilled dynamic and innovative graduates to perform well in diversified cultures and organizations. For example several professional institutions including the Financial Executives Institute, International Federation of Accountants, Institute of Internal Auditors, and Institute of Management accountants are interested in the group studies (Bryant et al, 2006). The papers presented in recent AAA annual meeting forums suggest that accounting educators are also interested in group work (Carla et al, 2006). According to Ballantine &Larres (2007) the importance of group working is also attracted in a range of facets of group work, as well as system of assessment, responsibilities in a group (Miglietti, 2002), and reward structurewhich was highlighted by Ravenscroft et al, 1995 &Ferrante et al, 2006. Those groups which comprise of strong students usually go for the strategy of divide and conquer. On the other hand groups having weak students put efforts ineffectually or reinforce each others misapprehension.The other aspect of research is the methods of formation of groups. However we use student self-selected groups in our study, which is the divergent issue from the previous researches.

There are three methods of group formation. The first is randomly selected group formation; the second is student self-selected group formation and third is the group formed according to the guidance of instructor. Student- selected groups are that which are formed according to the choice of students, and in this sort of group choice of instructor is not involved at all. These students have aforementioned social or academic interactions with each other. According of Van der Laan, Smith & Spindle (2007) the group formation is with the aim of establishing reasonable groups including members having competencies, cultural background. Carolyn, Gray & Rebecca (2002) found that the team formation sources being taught to students have significant impact on their satisfaction level and students usually observe these methods.

Prior studies regarding group formation revealed that the main predictor of group GPA is the variation in approaches and behaviors towards the work among high and low performing groups with the time involvement in group work. Some studies also revealed that the tests, project scores are the predictors of performance outcomes (Lejk, 1999; Miglietti, 2002; Swanson et al, 1998). The more examplesshow that elevated ratings are given to the impact of cooperative learning on learning and development of team skills by a lot number of students. Generally, these studies concluded that group project scores in semester exams are higher among student self-selected groups than groups formed by other methods.

In a recent study by Sandy and Fred (2008), found that there is a lot commonalities and resemblance among the groups according to the selection of students. The resemblance is on the basis of interests, backgrounds, project commitment aptitude to thrive as a group. Student selected groups have a smooth and swift starting as compared to other groups because there are emotions of trust and comfort shared by the group members of self-selected groups. Among these groups it's quite an ease to program any meeting and there is a lot of contribution by the members and the behaviors exhibited by the members are very supportive.Dyball et al (2007) investigated the opinions of respondents regarding the view about the knowledge and skills development in working in groups selected by students themselves and compared the responses with the studies conducted earlier by the methods of assignment were different. Similarly a study conducted on students taking different courses and has different forms of grouping by Chapman et al (2006) to investigate the range of experiences comprising group dynamics, behaviors, attitudes, perceived outcomes. Results showed the groups which were selected by students themselves had better communication, more excited about working with each otherbut in which the members are randomly selectedare found less task oriented.Talking about the features of group experience, it comprises of group inputs (commitment to goal, group homogeneity and potency), group processes (sharing of workload, degree or level of participation, task interdependence and supportive behavior) and group outcomes (perceived performance and group viability). In light of the above review of prior researches we focus to investigate the various aspects of group experiences of student-selected group and the effectiveness of the each and every object of the group.Our emphases in this study will largely remain on to test the impact of group study on effectiveness in terms of exams scores.

3. METHODOLOGY

3.1 Sample

In this study we have selected the business management students of university level. The students in the sample were self-selected groups. The numbers of students in groups were not fixed. These groups were engaged in the various activities of the courses and examinations. The objects of groups were surveyed though questionnaire. They were asked about the various aspects of group experiences and their final percentage score in the semester.

3.2 Measures

In the sample of 280 students of various universities, 152 students participated actively. The response rate was 54 %. Other students were not participated due to different schedules, lack of interest and geographical limitations. It is important to note that a large number of students were working individually.

3.3 Procedure

The instrument used in the study was developed by Aube and Rousseau (2005). The instrument contained various aspects of group experiences, including group inputs (group homogeneity, goal commitment, group potency), group processes (degree of participation, workload sharing, task interdependencies, and supportive group behaviors), and group outcomes (perceived performance and group viability). These parameters in the instrument were consisting of 26 statements. Five point likert scale was used and respondents were asked to rate their responsesabout group experiences for 26 items. By using group average rating, the data aggregation method recommended by Aube and Rousseau, (Sandy and Fred) is followed to make nine measures from each of the 26 items.

According to them there were three categories of group features (Group Inputs, Group Process And Group Outputs). The measures of group inputs were represented by *group homogeneity*, which was indicated by the average rating given in response to two statements about the similarity of group members and how well they fit together, *goal commitment* was represented by the average rating for three statements about the importance, concern, and commitment to pursuing the team's goal, *group potency* was represented by the average rating for three statements about team spirit, confidence, and willingness to take on any task. Measures of group processes were similarly constructed by combining responses to two statements about the *degree of participation*, three statements about *workload sharing*, three statements about *task interdependencies*, and five statements about the *supportive behaviors* displayed by group members. Finally, perceptions about group outcomes were represented by average ratings in response to two statements about *group performance* and three statements about *group viability*. Questionnaire used in this research is available on request. Table 1 represents the above discussed items and construction of the variables with their respective Chronbach Alpha. The values of Chronbach Alpha are encouraging, acceptable and are consistent with previous researchers. We have used primary data in our study as major tool for data collection method. The data was obtained through questionnaire survey. Most of the questionnaires were distributed personally among the respondents. Some questionnaires were sent through e-mail .We have used connivance sampling for our study. As we have multiple independent variables therefore we have used multiple regressions for our analysis.

Table-1: Chronbach Alpha

Variables	Chronbach Alpha
Group Inputs (GI)	
Group Homogeneity (GH)	0.681
Goal Commitment (GC)	0.753
Group Potency (GPt)	0.740
Group Process (GPS)	
Degree Of Participation (DOP)	0.797
Workload Sharing (WS)	0.762
Task Interdependencies (TI)	0.746
Supportive Behaviors (SB)	0.774
Group Outputs/Outcomes (GO)	
Group Performance (GP)	0.746
Group Viability (GV)	0.749

3.4 DATA ANALYSIS

In measurements one dependent variable (Percentage Score of The Students) is used. The percentage score was used as assessment tools rather than GPA because the universities have different criteria for GPA measurements. For example some universities offer GPA=3 on 65 % while some on 70 %.Therefore we use the percentage score as student's effectiveness in self-selected groups. The percentage score was measured on five Point Likert-Scales.

Table -2: Percentage Score					
Range	60-64.9	65-69.9	70-74.9	75 -79.9	≥ 80
Scale	1	2	3	4	5
Note: Range of percentage is selected following the common practice of literature regarding group's performance.					

There were nine independent variables. These variables are the group features which were further categorized in to 26 statements regarding to objects' attributes. The responses of the students were recorded on questionnaires. These responses were measured on five point Likert-Scale (1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Disagree) for each of the 26 items. The reliability of fit together (Scale Reliability) was good as showed above. The responses of the variables consist of 26 statements of group features were transformed in nine variables by computing mean. After completing this section we used multiple regression analysis to estimate the impact of groups on performance of students. Following regression equations are designed to investigate the underlying possible effects of student selected-groups.Three models are estimated using ordinary least square regression. In equation (i) all the explanatory variables are used to estimate the possible effects of group characteristics on performance of students measured in terms of percentage score. Second equation is based on estimating the group performance with group inputs and group processes as independent variables. Equation (iii) is modeled to measure the performance of students, by transforming all items of explanatory variables. These models are estimated as:

$$PS = \alpha + \beta GH + \beta GC + \beta GPt + \beta DOP + \beta WS + \beta TI + \beta SB + +\beta GP + \beta GV + \mu \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$$

$$GO = \alpha + \gamma GI + \gamma GPS + \mu \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (ii)$$

$$PS = \alpha + \delta GI + \delta GPS + \delta GO + \mu \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iii)$$

Where (*PS*) is the performance of students, (*GH*) denoted for group heterogeneity, group commitment is coded as (*GC*), (*GPt*) represent group potency, (*DOP*) was taken on for degree of participation, (*WS*) stands for work schedule, *(TI*) in denoted for task interdependencies, student behavior is (*SB*), while (*GP*), (*GV*) represents group performance and group variability respectively. And μ is an error term in all the above equations.

4. RESULS AND DISCUSSION

Regression results indicate that the student's performance is strongly affected by self-selected groups. Almost all variables under consideration have significant impact on student's effectiveness except *Group Performance (p>0.05).*The other variables were consistent and have significant impact onstudents' performance.

The first category is consisting of three variables, *Group Homogeneity (p=0.004), Goal Commitment* and *Group Potency*. The results indicate that there is more resemblance in group members regarding attributes, behaviors, attitudes and activities. The *p value* is quite good which indicates that the group homogeneity is an important factor of student groups. The second variable *Goal Commitment (p=0.039)*. The p value in not good but still it is very important for *group effectiveness (t=2.*085*)*. Students in the groups have less care about goal achievement. The result indicates that these features have positive impact on the group performance*Group Potency (p=0.00).*

Table 3: Regression Results of model I

Constant	GH	GC	POG	DOP	WS	TI	SB	GPt	GV
6.936	-0.273	0.187	-0.461	0.189	-0.469	-0.369	-0.323	-0.108	0.60
(0.471)	(0.093)	(0.090)	(0.093)	(0.073)	(0.085)	0.081	0.119	0.075	0.075
[14.725]	[-2.950]	[2.085]	[-4.939]	[2.595]	[-5.524]	[-4.545]	[-2.720]	[-1.441]	[6.345]
0.000	*0.004*	*0.039*	*0.000*	*0.010*	*0.000*	*0.000*	*0.007*	*0.152*	*0.000*
Regression-Co-Efficient () β, Standard Error in ( ), t Value in [ ] and P Value is in Italic Dependent Variable: %age Scores of The Students R^2=.521 F statistics=17.158									

The second category is group processes which consist of four variables, *Degree of Participation, Workload Sharing, Task Interdependencies and Supportive Behavior*s. The first variable *Degree of Participation* (p=0.010). The study reveals that the group members really take part in the decisions making regarding working in groups. The importance of the decisions making in group study is very important (t=2.595).The second variable in this category is *Workload Sharing*(p=0.00). This show that the students really work hard and share their experiences to solve problems. Every member of the groups takes part actively and

they are not dependable to other members. The third of this heading is *Task Interdependencies*(p=0.000). These attribute shows that the team members help and get together to accomplish a job. The fourth and last variable of this heading is *Supportive Behaviors (p=0.007).* The significant measure shows that these parameters are also contribute in group performance.The third and last category is group outputs including *group performance (p=0.152).* Results show that there is no significant impact of these features on group performance. The second variable of the category is *group viability*(p=0.00). These measures reveal that there is strong impact on the group performance, because the members of the teams manage to changes, accommodate these changes and act if necessary. As a whole all these parameters have positive impact on the group commitment, performance and effectiveness.

Table-4: Regression Results of model II and III

	B	SE(B)	β*	*t*	Sig.(*p*)
Model: II					
GI	.134	.021	.511	2.474	.000
GP	.020	.012	.132	1.679	.096
Model: III					
GI	.31	.032	.184	1.70	.004
GP	.087	.019	.394	4.672	.000
GO	.562	.172	.327	3.269	.002

Note: Dependent variable is group outcome (transformed by combining its two items). And performance of the students measured in terms of percentage.
R^2 for Model: 2 and 3 = .35, .40, (*ps*<.05)
*** indicate the coefficients i.eβ, δ and γ.**

Regression results of model II and III are presented in table 4.Group inputs after transformation showing positive statistical significant impact ongroup outcomes, where coefficient is also positive and t-value is almost significant. Group process also shows a positive significant impact but the value of coefficient is very nominal and is significant at 10% level of significant. In model III performance of the students was used as dependent variable and transformed variables are used on the right hand side of the equation,which are separately used in model I, to estimate the transformed parameters as a group. All the transformed variables show positive and statistically significant effect on performance of the students. So our results from the transformed variables are also consistent with the model I which shows the parameters in segregated form.

Our objective was to test whether the students self-selected group's features impact on their grades. The above analysis is consistent with prior studies regarding group studies Chapman et al (2006) which also determines that the groups which were selected by students themselves had better communication, more excited about working with each other.Only one parameter of group features is not consistent in our study which may be due to student's lack of interest in these features. As Sandy and Fred (2008) concludes that the groups selected by students themselves have many commonalities among them and these are on the basis of interests, backgrounds, project commitment aptitude to thrive as a group. And these groups have a smooth and swift starting as compared to other groups because there are emotions of trust and comfort shared by the group members.

5. Conclusions and implications

As we noticed that our study is consistent with prior studies, we concluded that there is a positive impact of self-selected groups on grades. All the parameters of the group studies which are included in this study are relevant. Students can form their own groups without the intervention by the instructors, which will be result in higher homogeneity, resemblance, cooperation and higher grades. The self-selected students groups communicate better, easily get to gather, share their ideas without any hesitation as their minds are prepare for working together. There are some implications for instructors and for further researchers. The instructors are advised to allow the students to form their own groups and do not impose their interventions. These types of groups are very productive and manage to work in any conditions. They have homogenous qualities which results in synergy and co-operation. They start their projects quickly and accomplish the assigned goals easily. The groups are diverse in different dimensions including culture, ethnic background, gender etc and many of these factors have shown a great impact on the perceptions of the individuals and also on their decision of choosing their working partner or affiliate. It will be a productive step if further studies should address that how these factors transform the relationship which was investigated in this study.

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