

# Team Approach Or Individual Approach: A Statistical Analysis Of The Impact Of Socioeconomic Heterogeneity On Students' Preference In Writing Term Papers In Management Courses

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## ABSTRACT

*The purpose of this paper is to examine students' preference in writing term papers in management courses. Specifically, students' attitudes and preferences toward the choices, i.e., whether it is written as an individual effort, or as a team effort, are examined. These choices (individual approach, team approach, freedom of choice and indifference) are then tested against a set of socioeconomic factors to see if there are significant relationships among the variables. The paper reports the empirical findings of the study.*

## INTRODUCTION

Although team-building and teamwork are concepts, which had been previously utilized and institutionalized by successful companies such as Volvo, Toyota and General Foods, the mid-1970's witnessed a heightened interest in the use of teamwork and team-building in organizational processes and structures. Subsequently, teamwork and team-based structures gained significant popularity and acceptance in the business world during the 1980s and 1990s, (Applebaum and Blatt, 1994). Generally, empirical studies contend that team approaches typically do better than individual approaches for tasks and circumstances requiring multiple skills, judgment and experience (Katzenbach and Smith, 1993).

As team-structures and team-based work forces gained popularity within the corporate environment, business schools started their own crusade preaching the importance of teamwork and emphasizing team-based pedagogical approaches in business education (Bolton, 1999). The goal of such pedagogical approaches is to better prepare the students for the real business world. In pursuing this goal, it is generally postulated that students also prefer such an academic approach or they are insouciant about the alternatives. This is especially the case with the increasing number of "non-traditional" students, who may have to assume different roles in life—parents at home, employees in organizations, and students in the business education programs. All these roles consume and compete for their time.

In a majority of business degree programs, it is a common pedagogical approach to require students to write term papers for partial fulfillments of course requirements. When doing so, students are either required to write their papers individually, or as a team or group. Sometimes, professors will permit freedom of choice. Although "group" and "team" are sometimes used interchangeably, there are differences between the two. This paper uses the following definitions. A work group is defined as two or more individuals getting together to achieve particular objectives, while a work team is designed to create positive synergy (Robbins, 2000). A team, not a group, should be used as a substitute for individual effort in term paper writing because to some level of synergy can be created with such a team

approach effort. Of course, in reality, that is not always the case. A work group's synergy can be positive, neutral or even negative (Robbins, 2000).

## **PURPOSE AND OBJECTIVES**

The purpose of this paper is to examine students' preferences for different methods of writing term papers. The primary question is which approach do students prefer: team or individual? A concomitant question, equally important, is what factors affect their preferences and choices, and how significant are these effects?

For this study, a survey was designed to examine the relationships between the common choices (individual effort, team effort, or indifferent) and a set of socioeconomic factors (age, gender, race/ethnicity, marital status, work experience, employment status, income level and educational level). Then, a survey result will be reported on the basis of descriptive and probabilistic statistical analyses. A series of hypothesis tests using  $\chi^2$ -statistic was conducted to determine the statistical significance of the impact of these factors on the choices of writing term papers.

## **REVIEW OF LITERATURE**

Business research literature has offered ideas, suggestions and study results regarding the use of team or group projects in business education. In one aspect, researchers have conducted studies to examine the evolution of pedagogical approaches designed to help students learn team-building skills in business programs. In a case study conducted with MBA students as a sample, Tonn and Milledge (2002) described the obstacles they had to overcome to achieve their goals in teaching team-building skills in a new capstone course for an MBA program serving largely part-time working professionals at the University of Massachusetts, Boston. The critical components to teambuilding, according to the authors, are 1) managing students' expectations, 2) addressing challenges and opportunities posed by diversity, and 3) supporting and rewarding team development. Another study, also treating MBA students as its sample, was conducted in the College of Business Administration at the University of Tulsa. The purpose of the study was to identify measures that could be used to harness the vexing problems of failing teams or teamwork, social loafing, slacking, and lack of commitment. A new method called "Team Frame" was designed to with the dual purposes of introducing students to the concept of framing, while providing a teambuilding experience. In the study the team frame exercise contributed to the development of more effective teams (Bowen, 1998).

Ettington and Camp (2002) proposed several principles that can be and should be used to facilitate the transfer of skills between group projects and work teams. For example, the authors suggest that an assessment of students' skills using development needs be conducted before attempting to develop their skills using group projects. The study contends that instructors must be mindful when using group projects of how their actions affect final objectives. If the objective is for students to develop transferable skills, then professors should assess the probability of success by applying the proposed principles of transfer. The authors, using their experience, made six recommendations related to the transfer principles.

Also with regard to research methodology, Chatman and Flynn (2001) examined the influence of demographic heterogeneity on the emergence and consequences of cooperative norms in work teams. In designing their study, the authors utilized 119 students enrolled in a two-year full-time MBA program at a major American university as their sample. The students were first divided into groups doing experimental consulting work. Then, a survey was conducted to collect data regarding team experience.

A group of studies was conducted to examine different aspects of team/group approaches in business practice. Bingham and Quigley (1989) presented a new product implementation process, which was designed to reduce the risk inherent in new product design and development. A team approach is one that combines decision makers from key areas within the firm. A continuous team that assumes responsibility for implementing the new product development process characterizes the new team approach. A case study was conducted to look at the role of social style as a technique that could be used to facilitate teambuilding in small business firms (Darling, 1990). Moreover, according to the study, social style, which has two critical dimensions of interpersonal behavior—assertiveness, and responsiveness—is the key to organizational effectiveness and goal achievement in the small

business setting (Banner *et al*, 1992). Organizational structure changes, including self-managing work teams (SMWT), have created challenges to the traditional role of human resource functions. The new role of supervisors will be more one of “facilitators and coach rather than one of “rule enforcer/nay sayer.” Thus, the human resource function can become a true support unit to the SMWTs.

**ANALYSIS**

The characteristics of the sample used in this study resemble the ones used by previous studies. The student sample is composed of students who attend a business school in a major metropolitan area in the Southeast. The students are non-traditional, adult learners. Nearly 80% of these students are enrolled in MBA and/or MS in Healthcare degrees on a part-time basis and are employed full-time in the metropolitan area. The remaining student body, mostly international students, do not work and pursue degrees full-time. Therefore, courses are scheduled only in the evenings and on Saturdays. The students are diversified in terms of gender (about 50% women and 50% men), educational background (*e.g.*, arts and science, engineering, business, and education), and national origins (about 20% are international students from various countries in Europe, South America and Asia).

The following constitutes the analysis of 248 observations in a survey concerning the students’ preference toward the approaches to writing management term papers. In the survey, eight variables were taken into consideration to examine students’ attitudes toward writing term papers: age, gender, race or ethnicity, marital status, employment status, income level, work experience, and educational background. The following tables demonstrate the joint and marginal probability analysis of the variables selected for this study.

**Table 1: Age**

	<b>22-32</b>	<b>33-42</b>	<b>43-52</b>	<b>Over 52</b>	<b>Total</b>
<b>Individual</b>	0.2571	0.0857	0.0448	0.0040	0.3877
<b>Team</b>	0.2734	0.0734	0.0244	0.0000	0.3755
<b>Choices</b>	0.1306	0.0204	0.0163	0.0040	0.1714
<b>Indifferent</b>	0.0448	0.0163	0.0000	0.0040	0.0653
<b>Total</b>	0.7061	0.1959	0.0885	0.0122	1.0000

The marginal and joint probabilities from Tables 1, 2, and 3 show the joint and marginal probabilities derived for age, gender, and race/ethnicity. For instance, the probability for a person to be between 22 and 32 *and* prefer team approach is 25.71 percent. Given that the person is between 33 and 42, the probability for that person to prefer individual approach to term paper writing is 43.74% (0.0857/0.1959). The probability for a person to prefer team approach *and* to be female is 16.32 percent. The probability for a person to be male *and* to prefer individual approach is 17.14 percent. Given that the person is a male, the probability for that person to be indifferent to the choices is 9.07% (0.0489/0.5387). Given that the person is a female, the probability for that person to prefer freedom of choice 14.15 percent (0.0653/0.4612). Using the marginal and joint probabilities from tables 5 and 6, the following conclusions can be drawn. The probability for a person to be white *and* to prefer individual approach is 18.36 percent. The probability for a person to be black *and* to prefer individual approach is 17.95 percent.

**Table 2: Gender**

	<b>Male</b>	<b>Female</b>	<b>Total</b>
<b>Individual</b>	0.1714	0.2163	0.3877
<b>Team</b>	0.2122	0.1632	0.3755
<b>Choices</b>	0.1061	0.0653	0.1714
<b>Indifferent</b>	0.0489	0.0163	0.0653
<b>Total</b>	0.5387	0.4612	1.0000

Table 3: Race/Ethnicity

	Black	White	Hispanic	Asian	Total
<b>Individual</b>	0.1795	0.1836	0.0204	0.0163	0.3877
<b>Team</b>	0.1877	0.1714	0.0081	0.0571	0.3755
<b>Choices</b>	0.0693	0.0816	0.0000	0.0204	0.1714
<b>Indifferent</b>	0.0244	0.0204	0.0040	0.0040	0.0530
<b>Total</b>	0.4122	0.4571	0.0326	0.0979	1.0000

Table 4: Employment Status

	Full time	Part time	Not working	Total
<b>Individual</b>	0.3061	0.0285	0.0530	0.3877
<b>Team</b>	0.2326	0.0408	0.0938	0.3755
<b>Choices</b>	0.1428	0.0081	0.0285	0.1795
<b>Indifferent</b>	0.0571	0.0000	0.0081	0.0653
<b>Total</b>	0.7387	0.0775	0.1836	1.0000

Using the marginal and joint probabilities displayed in Tables 4, 5 and 6, some relationships between factors of employment status, income levels and marital status and students’ attitudes toward approaches of writing term papers in management courses can be shown. For example, the probabilities for a person to be employed full-time or not employed *and* to prefer team approach are 23.26% and 9.38%, respectively. The probabilities of full-time employed people preferring individual approach or freedom of choice are 30.61% and 14.28%, respectively. In terms of income, the probability for a person to have an income between 35k to 75k *and* to prefer team approach is 20.00 percent. The probability for a person to have an income 35k or less *and* to consider individual approach as the best choice is 11.02 percent. Given that a person has an income between \$35K and \$75k, the probabilities that such a person prefers an individual approach or a team approach are 38.25% (0.2326/0.6081), or 32.88% (0.2000/0.6081), respectively. In Table 6, various marginal and joint probabilities showing the relationship between marital status and preference toward term paper writing approaches are estimated and demonstrated. Slightly more singles prefer team approach than married people, 18.75 % versus 18.36 percent, respectively.

Table 5: Income

	35k or less	35k –75k	Over 75k	Total
<b>Individual</b>	0.1102	0.2326	0.0448	0.3877
<b>Team</b>	0.1102	0.2000	0.0514	0.3673
<b>Choices</b>	0.0408	0.1265	0.0122	0.1795
<b>Indifferent</b>	0.0040	0.0489	0.0122	0.0653
<b>Total</b>	0.2853	0.6081	0.1265	1.0000

Table 6: Marital Status

	Married	Single	Total
<b>Individual</b>	0.1877	0.2122	0.4000
<b>Team</b>	0.1836	0.1918	0.3755
<b>Choices</b>	0.0816	0.0897	0.1714
<b>Indifferent</b>	0.0408	0.0122	0.0530
<b>Total</b>	0.4938	0.5061	1.0000

Table 7: Experience

	5 yrs or less	5 – 10 Yrs	Over 10 Yrs	Total
<b>Individual</b>	0.0816	0.1673	0.1387	0.3877
<b>Team</b>	0.1959	0.1142	0.0612	0.3714
<b>Choices</b>	0.0734	0.0612	0.0448	0.1795
<b>Indifferent</b>	0.0244	0.0285	0.0081	0.0612
<b>Total</b>	0.3755	0.3714	0.2530	1.0000

Tables 7 and 8 show the impact of work experience and educational background on students’ attitudes toward term paper writing approaches. For instance, the probability for a person with 5-10 years experience *and* to prefer team approach is 11.42 percent. The probability for a person with over 10 years of experience *and* to consider individual approach as the best way to write management papers is 13.87 percent. Given that a person has less than five years of experience, the probability for that person to be indifferent to the choices is 6.50 percent (0.0244/0.3755). As shown in Table 8, the probability for a person to have a business education *and* to consider the team approach as the best way to write management papers is 26.53 percent. The probability for a person to have an arts and science degree *and* to consider team approach as the best way of writing management term paper is 7.75 percent. Given that a person has an undergraduate education in business, the probability for that person to consider an individual approach as the best way is 36.02% (0.2367/0.6571). Given that a person has an arts and science background, the probability to consider an individual approach as the best method is 47.15% (0.1020/0.2163). Given that a person has an engineering background, the probability for that person to consider the individual approach as the best way to write management term paper is 36.60% (0.0448/0.1224).

Table 8: Educational Background

	Arts and Science	Engineering	Business	Education	Total
<b>Individual</b>	0.1020	0.0448	0.2367	0.0040	0.3877
<b>Team</b>	0.0775	0.0285	0.2653	0.0000	0.3714
<b>Choices</b>	0.0285	0.0326	0.1183	0.0000	0.1795
<b>Indifferent</b>	0.0081	0.0163	0.0367	0.0000	0.0612
<b>Total</b>	0.2163	0.1224	0.6571	0.0040	1.0000

**HYPOTHESIS TEST**

**Theoretical Framework**

A test of independence will be used to determine if the students’ attitudes and preference toward the choices in term paper writing are significantly related to the selected variables. For example, are students’ attitudes and preferences toward the choices in term paper writing strongly influenced by gender difference? Whether there is a difference between males and females with regard to their attitudes toward the method of writing term papers is a question answered with the aid of the  $\chi^2$  test. The null and alternative hypotheses (Ho and Ha) are as follows:

**Ho:** the row variable (male or female in Table 2) is independent of column variable (students’ attitude toward term paper writing approaches, *i.e.*, individual, team, freedom of choice, and indifferent)

**Ha:** the row variable (male or female) is not independent of column variable (students’ attitude toward term paper writing approaches, *i.e.*, individual, team, freedom of choice, and indifferent)

The test statistic for independence is the  $\chi^2$  test, which is stated as

$$\chi^2 = \sum \sum (f_{ij} - e_{ij})^2 / e_{ij}$$

where

$f_{ij}$  is observed frequency for contingency table category in row  $i$  and column  $j$

$e_{ij}$  is expected frequency for contingency table category in row  $i$  and column  $j$  based on the assumption of independence.

The null hypothesis will be rejected if the  $\chi^2_{\text{calculated}} > \chi^2_{\text{table}}$ .

**Data and Model**

Data were collected using a survey distributed to students enrolled in the MBA and MSHCA degrees at a business school in a major metropolitan area in the Southeast. As a result of the survey, a sample of 257 observations was used to formulate and test the hypotheses in the study. Specifically, the impact of the following elements on students’ attitudes and preferences toward the approaches of term paper writing in management courses were examined: age, gender, race/ethnicity, marital status, employment status, income level, work experience, and educational background.

**Empirical Results**

The test of independence was performed on each of the elements listed above. The  $\chi^2$  statistic was used to test the significance of independence. At the 95% level of confidence, the test results reveal that students’ attitudes toward the different approaches used in term paper writing are more significantly related to some of the demographic and socioeconomic factors such as gender, experience, and income. Meanwhile, the attitudes toward different approaches in term paper writing are independent of other factors, namely, age, marital status, employment status, race/ethnicity, and educational background. Table 9 shows the summary of the test results.

**Table 9: Summary Of The Test Results Of Independence**

<b>ELEMENTS</b>	<b><math>\chi^2</math> calculated</b>	<b><math>\chi^2</math> table</b>	<b>Decision On Ho</b>	<b>Impact On Attitude</b>
<b>Age</b>	5.3496	16.9190	Fail to reject	Insignificant
<b>Gender</b>	8.8159	7.8147	Reject	Significant
<b>Race</b>	12.3649	16.9190	Fail to reject	Insignificant
<b>Marital Status</b>	5.8494	7.8147	Fail to reject	Insignificant
<b>Employment</b>	8.2650	12.5916	Fail to reject	Insignificant
<b>Experience</b>	27.6489	12.5916	Reject	Significant
<b>Income</b>	16.0773	12.5916	Reject	Significant
<b>Education</b>	8.2194	16.9190	Fail to reject	Insignificant

## CONCLUSIONS

The implications of the empirical findings of the study may be bifurcated into two interrelated aspects: pedagogical approaches and diversity management. Overall, the former indicates that about 37.14% of students prefer the team approach to writing term papers in management courses while 38.77% prefer the individual approach. Approximately 17.00% of the students would prefer to have the freedom of choice. The remaining seven percent of the students are indifferent as to which approach to use.

The latter aspect, i.e., the implication to diversity management, is an important issue in pursuing institutional effectiveness of higher education and in achieving optimality of pedagogical approaches. This study examined one of the aspects of this issue: how to approaches term paper writing in a diverse academic environment. From the diversity management perspective, the empirical results indicate that the team approach is positively related to the following diversity factors: younger student, male students, African-American students, students with incomes from 35k to 75k, single students, students with five years' work experience or less, full-time working students, and students with an undergraduate engineering background. The analyses of these diversity factors also suggest that students' attitudes toward the approaches used in writing management term papers are affected by age, gender, race/ethnicity, employment status, income, career levels, and educational background. Specifically, According to the results of the tests of independence, the impact of gender, work experience and income are more significant than the other factors selected in the study.

It will be the challenge of future studies to examine more thoroughly the mix and strength of diversity factors significantly affecting the attitudes of students toward specific methods of paper writing. Additional data on this subject would assist professors in identifying and executing a more targeted and efficacious pedagogy for achieving course objectives. In writing term papers, whether to use a team approach or an individual approach may also be a cultural issue. As aptly stated by Harrington-Mackin (1994): "Americans don't grow up learning how to function in teams. In school we never receive a team report and/or learn the names of the team of sailors who traveled with Columbus to America" (p. 43). Teams blend in better with cultures that score high on collectivism than those high on individualism, such as the ones in U.S., Canada, U.K. and Australia. It is important for us to know if this is also true in terms of term paper writing. Therefore, as a part of a series of studies, the next logical step will be to survey students in different cultures, in different countries and use the data collected to conduct international comparative studies of cultural impact on pedagogical approaches.

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**NOTES**