

Classic Classrooms: Rotation of Seats Keeps Performance Upbeat

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ABSTRACT

Among the several challenges that a classroom teacher grapples with, assigning seats to the students heads the list. Studies have reported that seating arrangements impact the learning process. For learning to be effective it is essential for teachers to understand the factors which affect students' learning in the classroom. The present study endeavored to assess the factors governing students' seating preference and sought to analyze whether positioning of students in the classroom results in differences in their academic performance. Results indicated that front and middle benchers achieved higher grades academically as compared to the back benchers. This study could have useful implications in the field of classroom dynamics and help improving the academic potential of students by resorting to the use of seat rotation techniques in class. Such an endeavor would serve to transform classrooms into active learning hubs where the goal of mastery learning becomes a viable reality.

Keywords: Seating Preference, Physical Needs, Social Orientation, Learning Motivation, Academic Achievement.

Introduction

Seating preference and seating allocation are known to impact the learning process. Seating arrangements may be a cause for the decline of student performance as attention span, concentration, comprehension and the retaining of information can be influenced by where the student chooses to sit. Several studies have investigated the association between students' seating positions and their educational performance. Vander (2011) conducted a study of 373 college students, considering how motivation changed in students at the farther back of the class. The data from this study was collected and then analyzed to determine how the students felt sitting in their allotted seats and how do they feel it impacted their grades. The results show that the closer students got to the front of the class, the higher were their testing scores. Using data on individuals taking principles of economics courses in large lecture rooms, Benedict and Hoag (2004) investigated whether a student's seating preference was related to success in the classroom. They found that individuals who preferred to sit near the front of the room had a higher probability of receiving A grades, where-as those who preferred the back had a higher probability of receiving Ds and Fs. Minchen (2007) studied the effects of a student's location in the classroom versus their retention and application of newly learned material. Results showed that students who sat in the front of the classroom, defined as the first two seats in each row, consistently did better than those towards the back of the classroom. Later, other studies documented that students who sit near the blackboard usually have a better school performance (Levine et al., 1980) and fewer absences (Stires, 1980), in addition to participate actively in class (Sommer, 1967) and pay more attention to the taught subject (Schwebel and Cherlin, 1972).

RESEARCH METHODOLOGY

The research design employed was descriptive and included a survey.

Population and Sample

The sample comprised of 407 students of the secondary section (standards V to IX) of a private-aided English medium school in Mumbai, affiliated to the S.S.C Board of Education selected by the convenience sampling technique.

Research Tools

- The Seating Preference Scale was administered to the students after explaining instructions clearly. The scale comprised of 2 parts.
 - a. A classroom map providing a diagrammatic representation of the physical layout of the classroom. The students were asked to indicate their preference for a seat on the same.
 - b. A 4 point Likert scale comprising of 21 items related to 3 dimensions governing seating preference, namely, Physical Needs, Learning Motivation and Social Orientation.
- The Academic Achievement Score comprised of the grand total obtained by each student in his/her First Terminal Examination. These marks were procured from the respective class teacher. Academic achievement was the Dependent Variable and Seating Preference was the Independent Variable.

Statistical Analysis

- **Descriptive analysis:** It included the summary of the number of students in each category of seating preference and the percentage of students governed by the three dimensions of seating preference.
- **Inferential Statistics:** The One Way ANOVA was employed to compute the difference in the population means of academic achievement of the three groups. When P value was less than 0.05, the difference was considered statistically significant and highly significant when P-value was less than 0.01 and 0.0001.

RESULTS AND DISCUSSION

Table 1 provides a summary of the number of front, middle and back benchers comprising the total sample as indicated by the students on the classroom map.

Table 1
Summary of the Front, Middle and Back Benchers Comprising the Total Sample

Seating Preference	Number Of Students
Front Benchers	152
Middle Benchers	121
Back Benchers	134
Total Sample Size	407

Table 2 summarizes the Percentage of Students Governed by the 3 Dimensions of Seating Preference.

Table 2
Percentage of Students Governed by the 3 Dimensions of Seating Preference

Governing Dimension of Seating Preference	Number of Students	Percentage
Physical Needs	50	12.29
Learning Motivation	278	68.30
Social Orientation	79	19.41

Table 3 shows the data summary of the Academic Achievement of the three groups.

Table 3
Data Summary of the Academic Achievement of the Three Groups

	Front	Middle	Back	Total
N	152	121	134	407
$\sum X$	59984	46621	46637.5	153242.5
Mean	394.6316	385.2975	348.041	376.5172
$\sum X^2$	24891764	18727477	17542790	61162031
Variance	8080.6846	6371.0107	9857.3385	8531.0206
Std. Dev.	89.8926	79.8186	99.2841	92.3635
Std. Error	7.2913	7.2562	8,5768	4.5783

From Table 3 it can be concluded that Mean Academic Achievement was the highest for Front Benchers, followed by Middle Benchers and then Back Benchers respectively. Table 4 shows the ANOVA summary for the given data.

Table 4
ANOVA Summary of the Variables of the Study

Source	SS (Sums Of Squares)	df (Degrees of Freedom)	MS (Mean Squares)	F	p
Treatment (Between groups)	167863.6977	2	83931.8488	10.29	< 0.0001
Error	3295730.6819	404	8157.7492		
Total	3463594.3796	406			

The Tukey HSD Test was conducted for each mean comparison.

HSD (0.05) = 25.96

HSD (0.01) = 32.26

M (Back Benchers) v/s M (Front Benchers) $P \leq 0.01$

M (Back Benchers) v/s M (Middle Benchers) $P \leq 0.01$

M (Front Benchers) v/s M (Middle Benchers) Not significant

Interpretation: The null hypothesis states that the group means for the academic achievement of front, middle and back benchers are all equal. However, the high F and low p values ($p < 0.0001$) observed in Table 4 indicate that the null hypothesis is discredited. Thus it can be asserted that the means of the three groups are significantly different. However, the difference in the academic achievement of front and middle benchers as opposed to the back benchers is highly significant, whereas that between the front and middle benchers is insignificant.

An analysis of the results obtained in Table 3 indicate that there is a significant difference in the academic achievement of front, middle and back benchers; though the difference between front and middle benchers when considered is insignificant. This suggests that optimal learning and academic performance is possible in the front and middle sections of the classroom, while back benchers lag behind. This finding is corroborated by the results in Table 1 and Table 2 which suggest that 278 students' seating preference was governed by learning motivation of which 273 of them were front and middle benchers. This implies that seating preference is a determinant of learning motivation which in turn could influence academic achievement. This potential role of seating preference has significant practical implications for teachers in the area of classroom dynamics. Instead of resorting to the fixed seating allocation followed in most classrooms, school teachers might well benefit from a periodical rotation of seats such that all students are entitled to be front, middle and back benchers by turn. Such an approach will ensure that every student is intrinsically motivated to learn, thus tapping their potential to achieve higher academic scores. Traditional classrooms will be transformed into 'Classis Classrooms' wherein the goal of mastery learning becomes a viable reality. Teachers could also apply the findings of this research study to relocate introverts, distracted students, slow learners and those with physical handicaps in the front and middle zones of the classroom as optimal learning takes place here. Similar findings have been reported by the research conducted by Casey (2014) on students of Dublin Business School. The aim of this study was to test the belief that, seating choices by students are a barometer of their motivation and reflect their personality traits. Results indicated that students occupying seats in the front and middle sections of the lecture hall displayed greater achievement motivation and were more extroverted than those who chose seats towards the back of the hall. One factor associated with improved achievement among learners is known to be the position at which they sit in a classroom. Marx, Fuhrer, and Hartig, (2006) and Tagliacollo et al (2010) have shown that those pupils who sit in the front tend to be more active and have higher achievement scores.

Teachers' instructional space is near the chalkboard and hence those seated in the front are more likely to interact with their teachers. Earlier studies show that teachers tend to direct more questions to students seated in the front rows of the classroom (Juhary, 2012). Students seated at the back interact more with each other, in a disruptive way, thus minimizing their opportunity to learn (Granstrom, 1996). Moses Waithanji Ngware et al (2013) found that seating in the front row in a classroom led to higher learning gains of between 5 percent and 27 percent compared to seating in other rows that are farther away from the chalkboard. Parker et al (2011) found that there was a positive correlation between seating preference and students overall grade point average further distinguishing that motivated students prefer to be seated at the front of the class and had a higher grade point average.

Thus it can be concluded that it is only when students are motivated enough to be an active part of the teaching-learning process that they will evolve from passive recipients of knowledge to active participants helping education find its true purpose and meaning.

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Man is not made for defeat. A man can be destroyed, but not defeated.
~ Ernest Hemingway