

Original Article

Student's Placement by First Choice and Without at Mekelle University: The Impact on Academic Performance

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Students usually take their ability into consideration when they choose higher institutions. They do such choices so that they can successfully complete courses and secure good jobs after graduation. However, students' placement to different departments in Ethiopia higher institutions does not solely depend on the interest (choice) of students. Thus, the placement mechanism may have an impact on their performance. The main objective of this study is to evaluate whether there is a significant difference in academic performance (CGPA) between students who are placed in their respective departments by their first choice (Group A) and students who are placed without their first choice (Group B). Among the total students of the first four batches of Mekelle University, only 172 graduates fulfill the selection criteria. For these students, their code number, their freshman CGPA, the departments they chose, the department they were placed, their status and their final year CGPA were registered. Descriptive and nonparametric statistics of Sign test and Wilcoxon Composite rank sum tests were used to evaluate the performance difference between the two groups of students. Among the 172 students, most (140) were placed in different departments by their first choice, while 32 of them (18.6%) were placed without their first choice. In all the first four batches of Mekelle University, the results revealed that there was no statistically significant difference of academic performance between the students who were placed by their first choice and those who were placed without ($P < 0.05$). This study showed that the placement of students into different departments with/without considering their first choice has no statistically significant impact on the academic performance of students. The findings of this research disagree to the logical expectation that "the main possible reason for low academic performance (CGPA) of students to be placement of students in different departments without their first choice or without giving priority to their interest of choice".

INTRODUCTION

In earlier times, after completing high school, students would usually join university considering their ability to complete the courses successfully, but these days students' focus has shifted to getting good jobs after graduation (PRLog, 2009). They choose their department based on this.

The problem of placing high school students to colleges/universities and to

departments has always taken the attention of the public. There is little academic consideration while placing students to colleges/universities.

A student's choice of department or course of study is determined by the availability of good jobs which indirectly determine the student's career path for the rest of his/her

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life. Thus, because of these and other reasons most students choose competitive and rewarding fields of study such as Engineering and Medicine (Cooper, 2009).

It is believed that students must choose different fields of studies/ departments by their interest (without influence of external force). However, students are placed to different departments on a competitive basis in most of the Ethiopian higher institutions. Hence, the interest of low performing students is not taken into consideration. This in turn, is thought to have a negative impact on the students' academic performance. This is because, if students express lack of interest in the field they are placed, it affects the way they react or listen to the instructor (Ayotola, 1998). Thus, it can be said that interest and attitude of learners towards the subject plays a decisive role for the success of the learner. Students joining a particular department by their interest are believed to be highly motivated to learn than students placed in a department without their interest. High motivation is a factor which can lead students to a better achievement. Studies done by different authors disclosed that motivated students perform better academically than unmotivated ones (Bank and Finlapson, 1980; Broussard and Garrison, 2004; Sandra, 2002). Therefore, this paper was intended to investigate whether such a student placement mechanism has a significant negative impact on the students' performance or not.

The study was conducted in Mekelle University. Currently, the university encompasses eight colleges and two institutes. In the previous times, students, after completing freshman program, were placed according to their choice. However, some departments set criteria for placing students; students join the departments on competition basis. Students who were

excelled by others were placed in departments against their selection priority.

In Mekelle University, the placement of students into different departments according to their first choice is possible as far as the number of first choice is less than or equal to the number of vacancies available in the department. Whenever the number of places available in a department is smaller than the number of students whose first choice is to be considered, such students are placed on the basis of their cumulative grade point averages (CGPA). Thus, students with a higher grade point average (GPA) in the freshman program have had the advantage of being placed in departments according to their first choice. The remaining students have been placed in departments of their second, third, etc. preferences on the basis of the criteria set such as the availability of spaces, choice, ethnic group, gender and CGPA.

Students completing preparatory program and fulfilling the university entrance criteria are placed into different departments on competitive basis. Currently in Ethiopia, because of lack of budget, trained man power, facilities, etc., it is difficult to assign all students into different departments by their first choice. Depending on the capacity of the department to accept students and the number of applicants, some or most students would be assigned by their first, second, third, etc. choice on competitive basis.

After students are placed in different departments, their CGPA may increase or decrease compared to their CGPA of the end of freshman program. Following low performance in sophomore and above grades of students there is a common sense, which says, "The main reason for low performance of sophomore and above

students is due to their placement into different departments without their first choice". Thus, to test this common sense, the researcher has tried to find answers to the following research questions.

Research Questions

- Did the criteria used by Mekelle University for placement of students into different departments affect the academic performance of students?
- Is there significant difference in CGPA between students placed into different departments by their first choice and without?

The objective of this study is therefore to evaluate whether there was significant difference in academic performance between those who were placed in different departments by their first choice and without.

METHODOLOGY

The study was conducted in Mekelle University. Of the then Mekelle University College students of two faculties namely Faculty of Dryland Agriculture and Natural Resources and Faculty of Science and Technology were included in the study.

Subjects and Procedure

Data was obtained from Mekelle University Registrar Office. Student scholastic records and individual student files were used. All students except readmitted or advanced ones and students with incomplete records were included in the study. From the total number of 205 first four batch graduates, 172 students who satisfied the sampling selection were selected for this study and their documents were analyzed. Students' code number, their freshman CGPA, the departments they chose, and were placed in, their final year CGPA were registered. In this study

academic performance was defined by students' CGPA.

For analysis purpose, students of the same batch, year and department were categorized into two groups:

Group A: Students who were placed in their respective departments according to their first choice.

Group B: Students who were placed in their respective departments without their first choice.

In this grouping, the researcher considered the difference among individuals which could contribute to the difference in academic performance. Also taken into consideration was the fact that individuals differ in intelligence, interest, commitment, level of involvement, resource, assessment ability, (subject matter difference) etc. Thus, to accommodate such variations, instead of treating individuals as subjects such grouping was used to analyze the results obtained.

Data Analysis

Three different statistical methods were employed to analyze the data.

Test 1. General comparisons were made for all batches with respect to Group A and B, and the statistical method used was descriptive statistics.

Test 2. Comparison of CGPA before (X_1) and after placement in the department (X_2) was made. The statistical method used was inferential statistics, Sign Test (New mark, 1988; Wonnacott, and Wonnacott, 1982). Since the normality of the population was not known, the researcher chose a nonparametric method, sign test to analyze the data obtained.

The Sign Test

- a) Small two paired samples (
- $n \leq 10$
-)

$$P(x) = n_{(x)} p (1-p)$$

- b) Large two paired samples (
- $10 < n < 30$
-)
- $Z = \frac{D \pm 0.5 - 0.5n}{0.5\sqrt{n}}$
- D= number of positive difference

n = number of paired samples

Exact P value can be calculated by $P(x)$

$$= 2 * P(\sum n_{(x)}) * (0.5)^n$$

Test 3. Comparison of performance (achievement difference between group A and B) was made. The difference in CGPA was obtained by subtracting the CGPA of end of freshman (X_1) from that of CGPA end of fourth year (X_2). The statistical test used to compute the data was inferential statistics, Wilcoxon Composite Rank Sum test (Das, 1981). This test is chosen because it is efficient non-parametric counter part of paired t-test and of ANOVA with only two samples. It is particularly used for testing the significant differences between unpaired and un-correlated observations.

Quantitative data, in this case, the difference ($X_2 - X_1$) was transformed into ranked data. Continuous ranks were assigned to all observations of both samples taken together, in an ascending order of value of the observations and basic questions raised in the methodology section average ranks were given to tied observations. The sums of the ranks of the Group A and B were then calculated.

Determination of H_0 and H_a

H_0 = assumes that the two rank sum (T_1 and T_2) of the two samples are identical, i.e., the observed difference is not significant.

H_a = the observed difference is significant.

Formula

H_0 was accepted if T is less than T_u and greater than T_l , that is, $T_u > T > T_l$,

otherwise reject the null hypothesis and accept the alternate hypothesis.

T_u = T-upper value and T_l = T- lower value.

Both T_u and T_l were obtained from the table, which depend on the number of two samples (N_1 and N_2). T was computed from rank sum total (T_1 or T_2) and its value was the lowest rank sum total for different value of T_1 and T_2 . Value of T for equal T_1 and T_2 is the value of either of the two rank sum total.

RESULTS

This section presents the results of statistical analysis carried out to answer the basic questions raised in the methodology section.

Back ground information of the students

Generally student's of the first four batches of the three departments of the then College of Arid Zone Agriculture and Natural Resources and later Faculty of Dryland Agriculture, and the first batch from three departments of Faculty of Science and Technology of the then Mekelle University College were involved in the study. Soil and Water Conservation (SWC), Animal and Range Sciences (ARS), and Dry land Crop Sciences (DLCS) departments were the first departments established. Thus, from the four batches a total of 99 students who fulfilled the selection criteria were selected (Table 1 and 2). Faculty of Science and Technology was established two years later and students stayed for five years in the campus. Thus out of one batch of the three departments namely, Civil Engineering, Industrial Engineering and Applied Geology, 26, 24, and 23 students were selected, respectively (Table 1 and Table 2).

Table 1. Graduates of the first four batches of Mekelle University and sample population

Batch	Number of Graduates	Sample population	Percent sampled
1993/94	27	27	100
1994/95	32	28	87.5
1995/96	35	16	45.71
1996/97*	111	101	90.99
Total	205	172	83.90

* 1996/97 batch = Includes 28 graduates from both Faculty of Dryland Agriculture, and 73 from Faculty of Science and Technology

From the total number of 205 of the first four graduate batches of Mekelle University the documents of 83.9% (172) students who satisfied the sampling selection criterion (all students except the readmitted, advanced standing and students with incomplete documents (grades)) were analyzed. From a total of 172 students, 140 were placed into different departments by their first choice and the rest 32 students were assigned without their first choice (Table 2) being considered.

General Comparison of CGPA of all batches and departments

In all of the four batches and departments, the number and percentage of students showing increasing and decreasing grade points (CGPA) after being placed in the respective departments were calculated for both Groups A and B, and the results tabulated in Table 2.

Table 2. Comparison of CGPA of all batches and departments

Batch year	Department	CGPA of Group A				CGPA of Group B				Total sample
		Increase		Decrease		Increase		Decrease		
		No	%	No	%	No	%	No	%	
1993/94	SWC	3	30	7	70	–	–	–	–	10
1994/95	SWC	4	40	6	60	–	–	–	–	10
1995/96	SWC	11	68.75	5	31.25	–	–	–	–	16
1996/97	SWC	8	88.89	1	1.11	–	–	–	–	9
1993/94	DLCP	1	12.29	6	85.71	–	–	1	100	8
1994/95	DLCP	6	100	–	–	3	100	–	–	9
1996/97	DLCP	4	66.67	2	33.33	3	100	–	–	9
1993/94	ARS	3	60	2	40	3	75	1	25	9
1994/95	ARS	1	16.67	5	83.33	2	66.67	1	33.33	9
1996/97	ARS	7	100	–	–	1	33.33	2	66.67	10
1996/97	Civ. Eng	2	7.7	24	92.3	–	–	–	–	26
1996/97	Ind. Eng	2	10.53	17	89.47	–	–	5	100	24
1996/97	App. Geo	5	38.46	8	61.54	7	70	3	30	23
Total		57	40.71	83	59.29	19	59.37	13	40.63	172

ARS = Animal and Range Sciences, SWC = Soil and Water Conservation, DLCS= Dryland Crop Sciences

Of 172 (81.4%) students, 140 of them were placed by their first choice and 32 (18.6%) of them were placed without conservation of their first choice (see Table 2). Out of 32 students who were assigned to different departments without their first choice 19 (59.37%) showed improvement in CGPA after they joined their respective departments ($\chi^2 = 3.677$ and $P < 0.05$). On the other hand, out of 140 students who were placed in their respective departments

by their first choice, 57 (40.71%) showed increment in CGPA and 83 (59.29%) of them decreased their CGPA after they were placed to the departments.

Comparison of CGPA before and after placement

The data of the two groups, that is, Group A and Group B, were separately analyzed. The statistical method used was Sign Test

Table 3. Comparison (by Sign Test) of CGPA before and after joining department

Batch year	Department	Group	No of students	No positive D=x2-x1	No negative D=x2-x1	P value
1993/94	DLCS	A	7	1	6	0.992
1993/94	DLCS	B	1	0	1	-
1994/95	DLCS	A	6	1	5	1.000
1994/95	DLCS	B	3	0	3	1.000
1996/97	DLCS	A	6	3	3	0.344
1996/97	DLCS	B	3	3	0	0.125
1993/94	ARS	A	5	3	2	0.5
1993/94	ARS	B	4	3	1	0.312
1994/95	ARS	A	6	2	4	0.891
1994/95	ARS	B	3	2	1	0.5
1996/97	ARS	A	7	7	0	0.008*
1996/97	ARS	B	3	1	2	0.875
1993/94	SWC	A	19	7	12	0.746
1995/96	SWC	A	25	19	6	0.038*
1996/97	Geology	A	13	5	8	0.709
1996/97	Geology	B	9	6	3	0.377
1996/97	Ci. Eng.	A	26	2	24	0.005*
1996/97	In. Eng.	A	19	4	15	0.997
1996/97	In. Eng.	B	5	0	5	0.968

Level of significance was considered at 95% confidence interval.

* = Significant difference

Only in "Group A" batch 1996/97 of Animal and Range Sciences (ARS) and in batch of 1995/96 of Soil and Water Conservation (SWC) was there a significant increase in performance achievement after placement into the departments, while in other batches there was no significant performance difference (Table 3). On the contrary, in Civil Engineering in "Group A" batch 1996/97, there was a significant decrease in performance achievement after placement into the department. In the others, however, there was no significant difference in CGPA before and after placement in the departments.

Comparison of the Difference in CGPA

In departments of SWC and Civil Engineering, all students joined their respective departments with their first choice; hence, Wilcoxon Composite Rank Sum Test was not applicable.

Department of DLCS

- **Batch 1993/94**

In Department of Dryland Crop Sciences (DLCS) Wilcoxon Composite Rank Sum Test was not applicable because the sample number in Group B was only one. This statistical method does not work for samples less than three.

- **Batch 1994/95**
 $N_1=6, N_2=3, N=9, T_1=23, T_2=16,$
 $T=16, T_u=23, T_1=7$
 $T_{u(23)} > T_{(16)} > T_{1(7)}$

There was no significant difference in performance between Group A and B.

- **Batch 1996/97**
 $N_1=6, N_2=3, N=9, T_1=27, T_2=18,$
 $T=18, T_u=23, T_1=7$
 $T_{u(23)} > T_{(18)} > T_{1(7)}$
 There was no significant difference in performance between Group A and B.

Department of ARS

- **Batch 1993/94**
 $N_1=5, N_2=4, N=9, T_1=23, T_2=22,$
 $T=22, T_u=28, T_1=12$
 $T_{u(28)} > T_{(22)} > T_{1(12)}$

There was no significant difference in performance between Group A and B.

- **Batch 1994/95**
 $N_1=6, N_2=3, N=9, T_1=25, T_2=20,$
 $T=20, T_u=23, T_1=7$
 $T_{u(23)} > T_{(20)} > T_{1(7)}$

There was no significant difference in performance between Group A and B.

- **Batch 1996/97**
 $N_1=7, N_2=3, N=10, T_1=45, T_2=9,$
 $T=9, T_u=27, T_1=7$
 $T_{u(26)} > T_{(9)} > T_{1(7)}$
 There was no significant difference in performance between Group A and B.

Department of Applied Geology

- **Batch 1996/97**
 $N_1=13, N_2=10, N=23, T_1=138, T_2=138,$
 $T=138, T_u=152, T_1=88$
 $T_{u(152)} > T_{(138)} > T_{1(88)}$

There was no significant difference in performance between Group A and B.

Department of Industrial Engineering

- **Batch 1996/97**
 $N_1=19, N_2=5, N=24, T_1=233.5, T_2=66.5,$
 $T=66.5, T_u=98, T_1=27$
 $T_{u(98)} > T_{(66.5)} > T_{1(27)}$

There was no significant difference in performance between Group A and B.

Batches of 1996/97 of the Faculty of Dryland Agriculture and Natural Resources chose departments twice; that is, when they joined the University for the first time and after they completed freshman program. In their first choice, when they joined the University, it was found that the first choice of all students was Pre- Engineering and Mining Geology. After completing freshman, they joined their respective departments without their first choice, but their performance achievement was significantly higher after joining the department in both ARS and SWC and no significant performance difference with DLCS department students.

DISCUSSION

In this section, the major findings of the study reported in the result section are interpreted and discussed briefly. From a total number of sample students, only 18.6% (32/172) of them were placed without their first choice. Among these students placed into different departments without their first choice being considered most (about 60%) of them were academically successful (showed improvement in their CGPA after joining the departments). On the other hand, about 60% of the students joining departments by their first choice showed a decreasing grade point in their academic performance when compared with their CGPA before and after joining the new departments. Motivation is the key factor that enables individuals to make *decision* and *choice* in their daily life activity (Dornyei, 2000). Accordingly, students who were placed according to their first choice are considered as motivated while those who were placed outside their first choice are considered as unmotivated.

The current finding is contrary to the findings of different researchers, which demonstrated that motivated students (in our case students joining departments by their first choice) academically perform better academically than unmotivated students (students forced to join the department without their first choice) (Bank and Finlapson, 1980; Broussard and Garrison, 2004; Sandra, 2002).

In such results, there was no evidence that showed the impact of placement on academic performance of students. Similar findings were obtained by Daniel, *et al.* (1999), showing that school choice had no effect on academic performance of students. On the other hand, there was no statistically significant difference in final exam results between students who undertook placement and those who did not, contradicting with the argument that placement will enhance performance (Duignan, (2002).

Further analysis of academic performance of students by separately observing group A students (students placed in the department by their first choice) that were placed in Dryland Agriculture particularly in the two batches of Animal and Range Science (ARS) and Soil and Water Conservation departments (SWC) showed better performance. This was in accordance with the findings of Bank and Finlapson (1980); Broussard and Garrison (2004) and Sandra (2002). In such comparisons the findings were not uniform. Other batches of the departments of ARS and SWC didn't show significance difference. On the contrary, the performance of Civil Engineering "Group A" batch 1996/97 showed significant decrease after being placed in the department. This finding of contrasting results might be attributed to the nature of field of study which could also be explained by the mixture of

students of different levels of background and computation.

The performance evaluation of the difference in CGPA before placement in the department and at the end of fourth year/ fifth year using Wilconxon Composite Rank Sum Test of Group A and Group B revealed that there was no significant difference in performance between students enrolled by their first choice and those placed without.

Thus, the overall findings in all statistical tests of this paper were similar to that of Daniel *et al.* (1999) and Duignan (2002), which disclosed placement by first choice alone has no effect in students' academic performance evaluation.

CONCLUSION AND RECOMMENDATION CONCLUSION

In this comparative study of the two groups of students, placed in different departments with their first choice and without, attempt was made to find out whether or not the placement preferences had impact on student academic performance.

In general, placement by first choice has no effect in students' academic performance. Thus, it can be concluded that the criteria used by Mekelle University for placement of students into different departments did not affect the academic performance of students. The findings of the study are against the common sense which says "The main reason for low grade performance (CGPA) of students is the placement of students into different departments without their first choice or without giving priority to their interest of choice."

RECOMMENDATIONS

Placement of students into different departments and/or colleges/universities all

over Ethiopia is based on demand and supply. In a specific case departments such as medicine and engineering are highly demanded. Both departments/colleges are almost the first choices of all students. On the other hand, education and agriculture fields of study are not the first choices of most students. Thus, to satisfy the need of trained man power in different field of specialization, the researcher recommends placement of students into different fields of studies must continue based on agreed criterion (which might slightly differ from university to university).

A clearly explained and accessible academic advising system shall also be available for all students before they make choice of department/colleges. The author also recommends that universities/colleges prepare placement tests that are designed for the purpose of placing students into departments/colleges. The questions on the placement tests should be specifically intended as part of the information to be used by placement committee for enrolling students into the appropriate departments/colleges.

The findings of this research pose a basic question: "Do students really choose the college/department by their interest? Or do they choose the area in which they can find work opportunity? Or do they consider other benefits for choosing the fields of study? The researcher recommends further research to find answers to the above questions and for better understanding of the subject.

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