

Analysis on Polytechnic Colleges of TamilNadu using SPSS and Tableau Software

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Abstract: This research work is about analyzing the facilities available in various polytechnics of Tamil Nadu, their placements status, their fee structure and their student's admissions. The study is done using the data of all the 519 polytechnics that are functioning now in Tamil Nadu. The details of factors that determine the admission level is worked out using SPSS package. The variations on fees, facilities and placements with the type of institute are done using business analytic software Tableau. The results obtained from the study are discussed.

Keywords: SPSS, Business Analytic software, Paired sample T test, Linear Regressions Analysis.

1. Introduction

As on date there are 519 Polytechnics Colleges in Tamil Nadu providing technical educations to students. They can be classified as Government Polytechnic, Government Aided Polytechnic and Self financing Polytechnic Colleges. The problem identified in this work is that currently the admission levels in most of the polytechnic colleges are low. Although AICTE is insisting on NBA quality standards and restricting the commencements of additional Polytechnic colleges and Engineering Colleges, there is no improvement in the admission levels of the students in technical courses. This paper makes a statistical analysis of all the Polytechnic Colleges and suggests appropriate solutions to this problem.

2. Literature Reviews

When analyzed the literatures for any related study made in the polytechnics of TamilNadu, no previous works were identified in this area. Study has been made on areas such as Internet use behavior of Civil Engineering students at Thiruvalluvar Polytechnic College [1], use of open source software amongst library professionals in Polytechnic College of Tamil Nadu [2] and so on. Hence this study is original and this is a new area identified for analysis. The analysis has been classified as

- Distribution of Polytechnics in Tamil Nadu
- Analysis of Polytechnics from Internet Data
- Comparative study on Polytechnics using Govt. Data
- Student's admission analysis using Tableau software
- Student's admission analysis using SPSS software

3. Analysis on Polytechnics of Tamil Nadu

3.1 Distribution of Polytechnics in Tamil Nadu

The authentic data on various polytechnics in the state with the address is obtained from open government data platform.[3]. These data are provided by the government of India as an Initiative towards digital India scheme. The data is utilized for this study.

From the data, the location wise plots of Polytechnic colleges are made using Tableau software. It is shown in fig1 below.

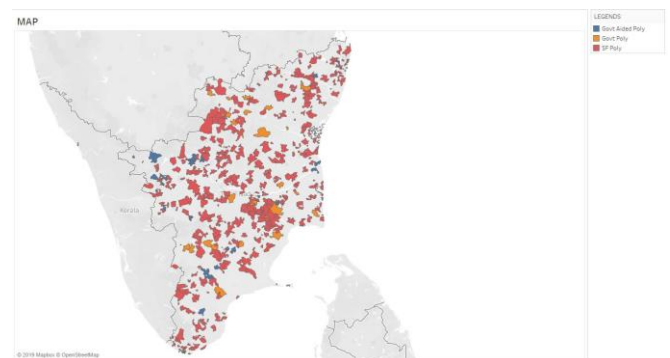


Figure 1: Polytechnic Colleges in Tamil Nadu

The plots show that there are more Polytechnic Colleges in Coimbatore and Trichy zone and less Polytechnics Colleges in Paramakudi and Ramnad zone.

The number of Government, Government Aided and Self Financing Polytechnics in each district is shown in fig2 below.

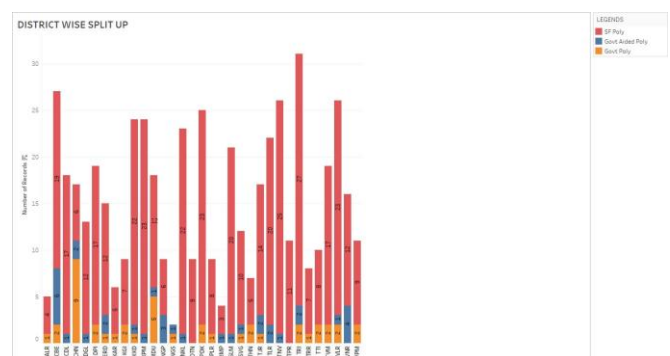


Figure 2: District wise split up of Polytechnics

From the District wise split of Polytechnic Colleges it is clear that CBE (Coimbatore) has the highest number of Polytechnics and PMK (Paramakudi) has the least number of Polytechnics, next to Kothagiri which is a hill station.

3.2 Analysis of Polytechnic from Internet Data

When goggled for the best polytechnics of TamilNadu in internet, the following results shown in Fig 3 and Fig 4 were obtained.

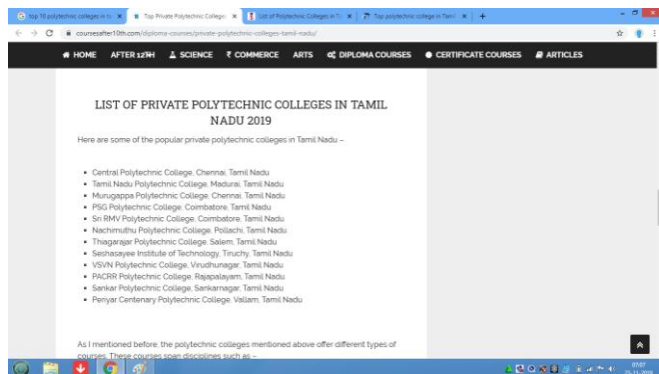


Figure 3: List of Popular Polytechnic in Tamil Nadu

This is the details obtained from internet when referring site [6] given in reference.

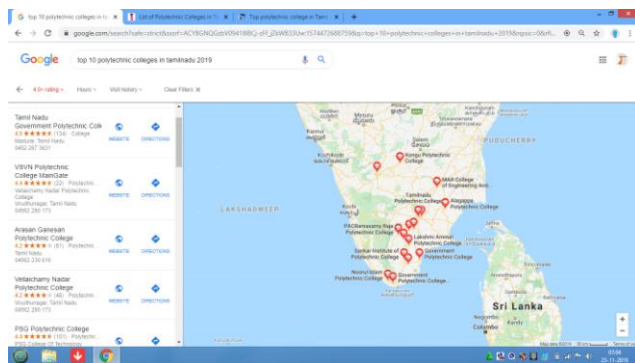


Figure 4: Top 10 Polytechnic of Tamil Nadu

This is the details obtained from internet when referring site [7] given in reference.

The study is done to confirm if the above polytechnics as given in the internet are the top polytechnics in Tamil Nadu. To validate the internet data, the Polytechnic College facilities, fee structure, admission strength and placement status are analyzed.

3.3 Comparative Study on Polytechnics using Govt. Data

The data about polytechnics are available on DOTE website. It is also available in Govt. data [3] website. The details regarding, facilities, placement and admission are obtained from each institute and are converted to 5 point scale.

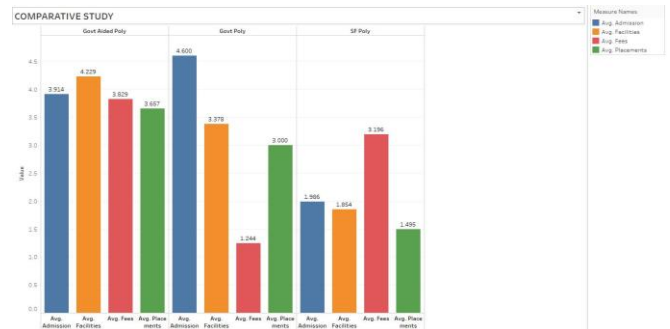


Figure 5: Comparative Study on Polytechnics of Tamil Nadu

From the fig 5 it is evident that

- In Government Polytechnics the fees are low and the admission is high.
- In Government Aided Polytechnics the facilities are high.
- In Self Financing Polytechnics the facilities and the fees are moderate.

3.4 Students admission analysis using Tableau software

Graphical 3 D analysis was done using Tableau software from the data obtained. Analysis was done to determine the deciding factor for admission from among the main factors which include Facilities, Placements and Fees.

Plot was done using Facilities and Placements as independent factors and the Admission as dependant factor. But this plot does not reveal a good result as shown in left of Fig 6.

Plot was again done using Fees and Placements as independent factors and the Admission as dependant factor. This plot reveals a good result as shown in right of Fig 6.

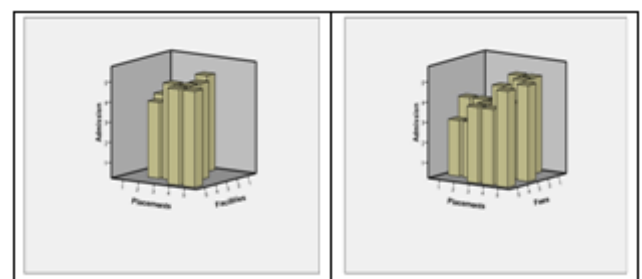


Figure 6: Graphical 3D analysis of Data

Hence it is evident that Fees is an important criterion in determination of Admission strength.

3.5 Students admission analysis using SPSS software

Paired sample T test is performed between the facilities with admission and placements with admission to determine the relationship between the availability of lab facilities in the Polytechnic & admission and similarly the availability of Placements in good companies & admission.

Table 1: Paired Sample Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Facilities	2.15	518	1.115	.049
	Admission	2.34	518	1.028	.045
Pair 2	Placements	1.77	518	.905	.040
	Admission	2.34	518	1.028	.045

Table 2: Paired Sample Correlations

		N	Correlation	Sig.
Pair 1	Facilities & Admission	518	1.115	.000
Pair 2	Placements & Admission	518	.905	.000

From Table 1, it can be concluded that admission is more related to the placements rather than facilities. This is because the standard deviation for placement (0.905) is less than the standard deviation for facilities (1.115).

From Table 2, it can be noted that the correlation coefficient between Placement and Admission (0.704) is more than that of correlation coefficient between Facilities and Admission (0.674). Hence placement plays a vital role in determining the Admission strength.

Linear regression analysis is done with Facilities, Placement and Fees as dependant factor and Admission as independent factor.

Table 3: Co efficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.907	.162		11.798	.000
	Facilities	.235	.045	.255	5.185	.000
	Placement	.484	.055	.426	8.723	.000
	Fees	-.302	.041	-.228	-7.422	.000

a. Dependent variable Admission

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimates
1	.758 ^b	.574	-.571	.673

b. Predictors: (constant), fees, placement facilities

From Table 3, it is clear that the Facilities and Placement have positive coefficient and fees have a negative coefficient. It indicates that with increase in facilities and placement the admission will increase and with increase in fees the admission will decrease.

From Table 4, Model summary it is evident that all the factors including facilities, placement and fees are deciding factors that determine the admission level in an institute.

Of these the Placement has the highest positive correlation factor (0.434) and the Fees has the highest negative correlation factor (-0.302).

4. Conclusion

It is evident from the study that main deciding factor for polytechnic admission is the fees. If the fees are low and affordable and if they are able to get scholarship then more

students join the institutions. If the fees are high, in spite of enhanced facilities available, most of the parents do not have the capacity to spare the fees. But regarding the placements are considered, company require students who are skilled and employable. The skill can be enhanced only if there are adequate facilities in the Institution.

Hence it is put forward to the government that more Government Institutions with adequate lab facilities and faculties have to be started in the place of Self financing institutions with in adequate lab facilities and less qualified staff members. This can lead to reduction of Polytechnic College numbers but enhanced admission and the outcome would be employable and skilled diploma graduates.

References

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Author Profile



Saravanan. B received the B.E., (Distn) in Mechanical Engineering and M.E.,(Distn) degrees in Industrial Engineering from Thigarajar College of Engineering, Madurai in 1992 and 1994 respectively. During 1994-1996, he has worked in Kalasalingam Engineering College. From 1996 to 2002 he has worked in VHNSN Arts and Science College and from 2002 to till date he working in Virudhunagar S. Vellaichamy Nadar Polytechnic College as Senior Lecturer. He has rich experience in teaching and has involved himself in all the activities of the Institutions. He has contacts in various Polytechnics Colleges which helped him in this research work.