

# Access and Utilization of Digital Infrastructure for Efficiency: A Comparative Study of Migrated and Local Stakeholders of Higher Educational Institutes of Odisha

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## ABSTRACT

Countries across globe are going digital as digital mode of doing things bypasses many constraints that are prevalent otherwise. Moreover, digital set up facilitates achieving efficiency easily. Thus, most of the countries have been focusing on digital infrastructure. India has joined the trend of late and the usage of digital infrastructure like internet, mobile networks, apps, IoT, etc. in the country has gone up very fast. However, the access of such infrastructure is not uniform across the country. All sections of the country are not at par concerning utilization of digital infrastructure, as proper utilization of such infrastructure depends on need, know-how and mind-set of the users. As such, one section is very much different from another with regard to its motivation, ability and mentality. Moreover, in a particular section of the society, there are in-migrant individuals and local individuals. Thus, the objectives of this paper are; i) to find out the extent of access and utilization of digital infrastructure among the in-migrant and local stakeholders of higher educational institutes (HEIs), and ii) to ascertain whether there is any difference between these two sets of individuals in achieving efficiency through utilization of available digital infrastructure. For this purpose, on the basis of convenient sampling, 'Gajapati' district of the state of Odisha (India) has been considered. Referral sampling has been followed to select 125 stakeholders as sample units from HEIs of Gajapati district of Odisha. Statistical techniques used for the purpose are ANOVA and Regression Coefficients.

**Keywords:** "Digital infrastructure", "efficiency", "In-migrants", "Local individuals", "Access" and "Utilization"

## 1. INTRODUCTION

Digital infrastructure has intervened in the life style of human beings at present. However, it is to be ascertained whether its intervention is for societal good or bad. Access and utilization of digital infrastructure like internet, mobile networks, apps, IoT, etc. is not same for all the sections of the society. Asymmetric access and utilization of digital infrastructure is very much prominent in India like emerging economies. As hypothesized, while metros and big cities have easy access to all types of digital infrastructure, middle-sized cities, small cities, suburban areas and rural areas are lagging much behind. Similarly, in the context of utilization of available digital infrastructure, one section of the society differs from another as they have different sets of need, know-how and mind-set. Furthermore, in a

particular section of the society, there are two groups of individuals; in-migrant individuals and local individuals (Borooah and Mangan, 2007, Ravikumar et al., 2021). Thus, even in a particular section, there is also the possibility of difference between these two sets of individuals concerning the extent of access and level of utilization of digital infrastructure leading to their efficiency (Gibson, John, et al., 2007, Gochhayat et al., 2017, Rout et al., 2014).

In the modern economy, people mobility without any restriction has been given importance. People are searching better livelihood in any parts of the world. We have a perception that people are migrating generally to large cities for getting better income, better education, better health facility etc. But this

may not true in every respect. People prefer to migrate to any part of the world for getting something better as compared to their local area. The place of migration may be Urban one or Rural one or Industrial hub or educational hub or whatever may be. The people first choose the necessity and after that searches where he/she can get it easily with facing least difficulty (Ours and Veenman, 2003). This happens in case of the Gajapati district of Odisha. Gajapati district is one of the backward district not only of Odisha but also of India. Of the total population of 577,817 the district has near about 55% people are tribal. The economy of the district is agrarian in nature. The literacy rate of the district is 45.44%. In Gajapati district there are 7 Blocks, 1534 villages, one municipality with an area of 3850 square kilometer. Here there one District Head quarter Hospital and six Community Health Center located at different place like B. Khajuripada, Chandragiri, Gumma, Gurandi, Kashinagar & R. Udayagiri. The main educational institutions are Centurion University, SKCG Autonomous College, Binodini Science College, Hill Top Degree College, Indira Memorial College, Sri Ram Degree College etc. Banks like State Bank of India, Andhra Bank, Canara Bank, Corporation Bank, IDBI Bank, etc are located at different place of the district. Paralakhemundi is the district headquarters of the Gajapati District. There is no major industrial activity in the district. One of the major industrial activity of the district is horn work which is now reducing its importance day by day. Despite such backwardness, as per Census 2011, total migrants residing in the district is 213,758. So near about 40% migrants living in such a back ward district. So the query may arise to find whether the resources available in this district is fulfilling the needs of the local people and in- migrants staying in Gajapati district of Odisha. Then it is necessary to compare the resource utilization capacity of the local people with that of the in-migrant in one of the backward districts of Odisha. This paper addresses all these points.

## **2. PURPOSE AND FRAMEWORK**

This paper has the following objectives.

- To find out the extent of access and utilization of digital infrastructure among the in-migrant and local stakeholders of higher educational institutes (HEIs),
- To ascertain whether there is any difference between these two sets of individuals in achieving efficiency through utilization of available digital infrastructure, and
- To suggest in what way proper utilization of resource could take place by both local people and in-migrant can be improved in the Gajapati district of Odisha.

Methodology adopted for this study is summarized below.

To compare the utilization of the resource capacity by the local people and the in-migrants in the Gajapati District of Odisha the People those who are working in the district are divided into two groups. One group belongs to local people and another one belongs to in-migrants those who are living here. One sample group are taken as the teacher group. The teacher may be Government employee, Private employee, personally imparting tutition, teacher may be adhoc, teacher may be in contractual, teacher may be posted through consultancy etc. The teacher should have the qualification of Master degree and more. Another sample have been collected from the Student group who have the qualification of graduation and less and pursuing courses in this district. Each group further divided into local and in-migrant people. The sample area has been taken near to the Paralakhemundi area of the district. A structure questionnaire is designed. Primary data collected through mail, whatsapp, personal interview. After that data will be analysed through ANOVA and regression co-efficient technique. On the basis of the finding we may conclude which group have utilized the available resources in a better way. Further, availability of the in-migrant in Gajapati district may be highlighted by the secondary data from the Census 2011.

To suggest in what way proper utilization of available resources could take place among both local people and in-migrants in the Gajapati district of Odisha, besides the data collected from the participants of the survey, opinions of the experts, NGOs, educationists are taken into account.

## **3. INFRASTRUCTURE UTILIZATION AMONG IN-MIGRANTS VIS-A-VIS LOCAL INDIVIDUALS**

In order to assess the utilization of digital infrastructure by in-migrants vis-a-vis local individuals, 125 respondents are selected.

### ***3.1 Demography of the sample study***

Category-wise sample units are presented in table-1.

As per Table-1, total sample have been taken as 125, out of which local people are 64 and in migrants belongs to 61. Further, among the 64 local people 30 people belongs to the teacher community who are locally appointed and other 34 people are students studying in different courses. Among the migrant 61 people 31 people are in-migrant whose profession is teaching and posted in Gajapati district of Odisha. And other 30 people are in-migrant students pursuing different courses in this district of Odisha.

**Table-1:** Details about the category of the Sample Study

Category	No. of Sample
Local Teacher	30
In-Migrant Teacher	31
Local Student	34
In-Migrant Student	30
Total	125

Source: Primary data collection

### 3.2. Availability of Resources in the District of Gajapati

Total number of Samples taken here is 125 which includes both the local people and in-migrants as mentioned in the Demography of the sample. To find the Resources available in the Gajapati District of Odisha, the variables identified are as follows;

I am accessing the learning instruments like computer, laptop, smart phone etc. easily (V1), If the learning instrument needs repairing, I get it repaired easily (V2), I am getting the books, magazines, etc. what I need easily without any difficulty (V3), I am accessing the internet connection without any interruption (V4), I am getting the Xerox or print facility easily when I need (V5), I am getting the research facility without any difficulty (V6), I am getting the transport facility without any difficulty (V7), I am spending the leisure time easily (V8), I am accessing the library easily (V9), I am availing the medical facility easily (V10), I am feeling comfortable staying here (V11), and I am satisfied with the resources available here (V12). Independent variables considered for the study are V1, V2, V3, ....., V11 and the dependent variable considered is V12. Likert scale of 5-point has been used to collect data from 125 respondents, i.e., local and in-migrant people. In order to assess the significant influence of the independent variables on the dependent variable, regression technique is used. Since the Cronbach's Alpha value of the collected data is found to be 0.723, the variables identified and data collected on them are reliable.

Null Hypothesis: Resources available are not helpful in satisfying the needs of the people.

As per the data revealed in Table-2, the null hypothesis is rejected since the level of significance is less than 0.05. So resources available are helpful in fulfilling the needs of the people as per the statement of the local and in-migrant people staying here.

**Table-2** ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	23.970	11	2.179	4.887	.000 <sup>b</sup>
	Residual	50.382	113	.446		
	Total	74.352	124			

a. Dependent Variable: V12  
 b. Predictors: (Constant), V11, V9, V1, V4, V10, V3, V5, V2, V7, V8, V6

**Table-3** - Coefficients<sup>a</sup>

Model		Coefficients (Unstandardized)		Coefficients (Standardized)	t	Sig.
		B	Std. Error			
1	(Constant)	2.056	.614		3.350	.001
	V1	-.091	.071	-.111	-1.292	.199
	V2	-.002	.083	-.002	-.022	.983
	V3	-.233	.097	-.236	-2.404	.018
	V4	.121	.077	.160	1.577	.117
	V5	.214	.104	.202	2.049	.043
	V6	.128	.091	.150	1.402	.164
	V7	.084	.070	.116	1.202	.232
	V8	-.254	.082	-.326	-3.116	.002
	V9	.036	.083	.037	.439	.662
	V10	.017	.075	.020	.228	.820
	V11	.447	.085	.458	5.229	.000

a. Dependent Variable: V12

As exhibited in Table-3, there are four variables such as V3, V5, V8 and V11 out of 11 independent variables that significantly influence the dependent variable. It is because the calculated values of significance of these four Variables V3, V5, V8 and V11 are .018, .043, .002 and .000 respectively, which are less than the presumed level of significance i.e. 0.05. Other seven independent variables don't have significant influence on the dependent variable. So as per the statement of the local and in-migrant people staying in Gajapati district of Odisha they are accessing the books, magazines etc easily when they need. They opined that they are accessing the Xerox and print facility easily. Further as per their view they can easily spend their leisure time staying here. In addition to that they feel comfortable staying here.

**3.3 Resource Utilized by the Master Degree and highly qualified teachers (Local and In-migrant):-**

To explore how the teachers staying here and qualified Master degree and higher than that utilize the resources available here, the variables identified are;

I have performed as per my potential in the number of Publications (V1), I have performed as per my potential in the number of conferences/ workshops/ seminars I participated (V2), I have performed as per my potential in the extra qualification added (V3), I have performed as per my potential in the number of papers I presented (V4), I have performed as per my potential in the number of books I read within the last five years (V5), I have performed as per my potential concerning time spent in the library (V6), I have performed as per my potential concerning time spent for research (V7), It is the best place to utilize time for career advancement (V8), I have performed as per my potential concerning other achievements (V9), I have performed as per my potential concerning number of online classes I am taking (V10), and I am satisfied with my performance concerning utilization of resources and accomplishments (V11). Here V1, V2, V3, ..... , V10 are taken as independent variables and V11 is taken as dependent variable.

**3.3.1. Resouces Utilised by the Local People whose profession is teaching with qualification of Master Degree and more**

In order to ascertain the utilization of resources by the local people, 30 local respondents from teaching profession with educational qualifications of Master Degree or more are interviewed and 5-point Likert scale is used. Regression technique is applied to know the significant influence of the independent variables on dependent variable. Since the Cronbach's Alpha value of the collected data is found to be 0.720, the variables identified and data collected on them are reliable.

Null Hypothesis: Available resources are not properly utilized by the local teachers.

Table-4 shows that the level of significance is less than 0.05 and hence null hypothesis is rejected. So as per the statement of the local teachers appointed at their native place utilizes the available resources properly in the Gajapati district of Odisha.

Table-5 shows that out of the total ten independent variables, the variables V3, V8 and V10

significantly influence the dependent variable. Here the calculated significance value of the Variable V3, V8 and V10 is .042, .024, and .045 respectively which is less than the presumed level of significance i.e. 0.05. Other independent variables don't have significant influence on the dependent variable. So as per the statement of the local teacher they have performed well in adding extra qualification as study center of distance course provided by OSOU and IGNOU available here. Further they feel that it is the best place for their career advancement. Further, they have performed better as per their potential and availability of the network in taking online classes.

**Table-4 ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.689	10	.669	4.521	.002 <sub>b</sub>
	Total	9.500	29			

a. Dependent Variable: V11  
b. Predictors: (Constant), V10, V3, V9, V6, V8, V7, V1, V2, V4, V5

**Table-5 Coefficients<sup>a</sup>**

Model		Coefficients (Unstandardized)		Coefficients (Standardized) Beta	t	Sig.
		B	Std. Error			
1	(Constant)	3.101	.990		3.131	.005
	V1	.066	.096	.132	.686	.501
	V2	-.359	.274	-.493	-1.311	.206
	V3	-.263	.121	-.413	-2.180	.042
	V4	.000	.196	.000	.001	.999
	V5	.192	.189	.370	1.016	.322
	V6	-.177	.099	-.301	-1.799	.088
	V7	-.024	.171	-.024	-.141	.889
	V8	.304	.124	.435	2.444	.024
	V9	-.097	.157	-.176	-.613	.547
	V10	.419	.195	.534	2.144	.045

a. Dependent Variable: V11

**3.3.2. Resource Utilized by the In-migrant teachers having the qualification of Master Degree and more**

Data is collected from the 31 in-migrant, whose profession is teaching and they possess the qualification Master Degree and more than that, through a 5-point rating (Likert) scale and regression technique is applied to know the significant influence of the independent variables on dependent variable. The collected data put in the SPSS to check the reliability and we found the Cronbach's Alpha as

0.9000. And we can settle down that the variables identified and data collected are accepted as reliable for exploring how the available resources are utilized by the in-migrant teachers in the Gajapati district of Odisha.

Null Hypothesis: Available resources are not properly utilized by the local teachers.

Table-6 shows that the level of significance is less than 0.05 and hence null hypothesis is rejected. So as per the statement of the in-migrant teachers appointed here utilizes the available resources properly.

Table-7 shows that out of the total ten independent variables, the variables V1, V2, V4 and V10 significantly influence the dependent variable. Here the calculated significance value of the Variable V1, V2, V4 and V10 is .029, .010, .000, and .017 respectively which is less than the presumed level of significance i.e. 0.05. Other independent variables don't have significant influence on the dependent variable. So as per the statement of the in-migrant teacher they have performed well in the number of publications they have made and they have participated in the number of workshop, seminar, conference they participate. They are satisfied in the number of paper they presented at different workshop, seminar and conference. Further, they have performed better as per their potential and availability of the network in taking online classes.

Table-6 ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14.471	10	1.447	28.588	.000 <sup>b</sup>
	Residual	1.012	20	.051		
	Total	15.484	30			
a. Dependent Variable: V11						
b. Predictors: (Constant), V10, V7, V1, V8, V9, V2, V3, V6, V5, V4						

Table-7 Coefficients<sup>a</sup>

Model		Coefficients (Unstandardized)		Coefficients (Standardized) Beta	t	Sig.
		B	Std. Error			
1	(Constant)	.940	.622		1.513	.146
	V1	-.299	.127	-.272	-2.353	.029
	V2	.219	.077	.261	2.836	.010
	V3	.204	.109	.190	1.881	.075
	V4	.451	.099	.479	4.570	.000
	V5	.084	.067	.128	1.247	.227
	V6	.190	.094	.202	2.010	.058

V7	-.100	.123	-.068	-.817	.423
V8	-.175	.097	-.160	-1.805	.086
V9	-.119	.095	-.123	-1.252	.225
V10	.268	.103	.288	2.590	.017

a. Dependent Variable: V11

After analyzing the utilization of the available resources by the local teacher and in-migrant teacher, we may conclude that both utilize the available resources as per their potential. But the process and pattern of utilization of resource is different between them. The variables utilized by the local teacher is different than the variables utilized by the in-migrant teachers. Local teachers are able to utilize the available resources in three ways whereas in-migrant teachers utilize their resources in four ways. Local teachers consider this place as the best place in their career advancement but in-migrant teachers are not agreed with this view. So here psychological differences arise by taking this place. Local teachers are satisfied in the extra qualification they added here but in-migrants feel they can add more than that if they were posted somewhere else. Similarly, local people are not performed well in paper presentation, publication and participation in the conference, workshop and seminar but in-migrant teachers performed well in this field. Both are satisfied in taking online classes.

### 3.4. Resource utilized by the Students having qualification of Graduation and less

To explore how the students staying here and having the qualification lower than that utilize the resources available here, the variables identified are;

I have performed as per my potential concerning participation in the competition (district/state/national/international) in the last five years (V1), I have performed as per my potential concerning time spent for self study (V2), I have performed as per my potential concerning time spent in the library (V3), I have performed as per my potential concerning number of books I read in the last five years (V4), It is the best place to utilize time for career advancement (V5), I have performed as per my potential concerning extra qualification added in the last five years (V6), I have performed as per my potential concerning other achievements (V7), I have performed as per my potential concerning time spent productively through internet connection per day (V8), and I am satisfied with my performance concerning utilization of resources and accomplishments (V9). Here V1, V2, V3, .....,

V8 are taken as independent variable and V9 is taken as dependent variable.

3.4.1 Resource utilized by the local students whose qualification is Graduation and less

Data is collected from the 34 local students, who are pursuing study here and they possess the qualification Bachelor Degree or less than that. A 5-point Likert scale is used to collect data. Regression technique is applied to know the significant influence of the independent variables on dependent variable. Since the Cronbach's Alpha value of the collected data is found to be 0.766, the variables identified and data collected on them are reliable.

Null Hypothesis: Resources are not properly utilized by the local students.

Table-8 shows that the level of significance is less than 0.05 and hence null hypothesis is rejected. So as per the statement of the local students they utilize the available resources properly.

Table-8 ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14.395	8	1.799	9.894	.000 <sup>b</sup>
	Residual	4.547	25	.182		
	Total	18.941	33			
a. Dependent Variable: V9						
b. Predictors: (Constant), V8, V6, V4, V5, V7, V1, V3, V2						

Table-9 Coefficients<sup>a</sup>

Model		Coefficients (Unstandardized)		Coefficients (Standardized)	t	Sig.
		B	Std. Error			
1	(Constant)	.035	.763		.046	.964
	V1	.007	.150	.006	.045	.964
	V2	.432	.183	.432	2.366	.026
	V3	.202	.103	.280	1.963	.061
	V4	.142	.151	.143	.941	.356
	V5	-.076	.135	-.065	-.558	.582
	V6	-.135	.131	-.146	-1.026	.315
	V7	-.054	.126	-.052	-.426	.674
	V8	.420	.095	.501	4.403	.000
a. Dependent Variable: V9						

As presented in Table-9, there are only two variables V2 and V8 out of the total eight independent variables that significantly influence the dependent variable. It is because the calculated value of significance for the Variables V2 and V8 (i.e., .026, and .000 respectively) is less than 0.05. Thus the remaining six independent variables are not

significant in the context of influencing the dependent variable. As expressed by the local students they perform well in self study and they are productively utilizing the time through internet connection.

3.4.2 Resource utilized by the in-migrant students whose qualification is Graduation and less

Data is collected from the 30 in-migrant students, who are pursuing study there and they possess the qualification of Bachelor Degree and less.

A 5-point Likert scale is used to collect data. Regression technique is applied to know the significant influence of the independent variables on dependent variable. Since the Cronbach's Alpha value of the collected data is found to be 0.879, the variables identified and data collected on them are reliable.

Null Hypothesis:- Resources are not properly utilized by the in-migrant students

Table-10 shows that the level of significance is less than 0.05 and hence null hypothesis is rejected. So as per the statement of the in-migrant students they utilize the available resources properly.

Table-10 ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	13.972	8	1.747	24.545	.000 <sup>b</sup>
	Residual	1.494	21	.071		
	Total	15.467	29			
a. Dependent Variable: V9						
b. Predictors: (Constant), V8, V5, V6, V1, V7, V4, V3, V2						

Table-11 Coefficients<sup>a</sup>

Model		Coefficients (Unstandardized)		Coefficients (Standardized)	t	Sig.
		B	Std. Error			
1	(Constant)	-.798	.588		-1.356	.190
	V1	.267	.121	.248	2.195	.040
	V2	.405	.142	.421	2.843	.010
	V3	-.014	.073	-.022	-.195	.847
	V4	.171	.110	.171	1.553	.135
	V5	.153	.141	.102	1.079	.293
	V6	-.074	.100	-.068	-.743	.466
	V7	.075	.082	.077	.913	.371
	V8	.238	.108	.238	2.211	.038
a. Dependent Variable: V9						

As per Table-11, there are only three variables V1, V2 and V8 out of the total eight independent variables which significantly influence the dependent variable. It is because the calculated value of significance for the Variables V1, V2 and V8 (i. e., 0.040, .010 and .038 respectively) is less than 0.05. Remaining five independent variables are not significant concerning their influence on the dependent variable. Thus, it is inferred that the in-migrant students perform well in participating in different competition. Further, they are satisfied in their self study and they productively utilizing the time through internet connection.

After analyzing the utilization of the available resources by the local students and in-migrant students, we may conclude that both utilize the available resources as per their potential. But the process and pattern of utilization of resource is somewhat different between them. The variables utilized by the local teacher is different than the variables utilized by the in-migrant teachers in one aspect i.e in-migrants perform well in participating in different types of competition which is denied by the local students. Both the group is satisfied in their self study and productively utilizing the internet connection.

#### **4. CONCLUSION**

On the basis of the analysis done in the previous sections, it is concluded that for the improvement of the available resources and also for their proper utilization, in-migrants to Gajapati district needs to be employed by creating new employment opportunity. There should not be a conflict among the local people that in migrants crowd out the employment opportunity of the local people. There needs to be a skill measurement policy among the in-migrant and local people. And accordingly they will be provided employment according to the necessity for the development of the district. Policy measures needs to be taken by the district administration for the efficient utilization of the skill of the in-migrants by creating competitive atmosphere. People will be encouraged through different way to enhance their skill. Target needs to be fixed by the Government with 1 % increase in total population due to in migrants to the district how much the Gross district domestic production needs to be improved , so that economic benefit can reach to the grass root level. Efficient policy needs to be taken in such a manner that in-migrants will not be a burden for the district rather they would become the contributor to the economic development of the district. In Gajapati district there are several cottage industry like Horn

work, Bamboo work, Ganjappa, Siali leaf plate, Pattachitra mukha, etc. are available. There was a day the Horn work of Gajapati district is world famous. Now it is in the redundant stage. So priority needs to be given for the development of such industry. Further as we know there are several other primary based industry with its infant stage available in the district for a long period of time, emphasis may be given for the development of such industry. These primary based industry can be developed to create employment avenues in the district. Accordingly, in the education syllabus industry related course to be added so that students can get better employment.

In Gajapati district improvement in the transportation facility is necessary by which the resource can be utilized properly. The economy in the Gajapati district is agrarian in nature. So priority may be given for introduction of practical oriented course in agriculture. Further special camp is necessary to equip the farmers with modern technology. Similarly, farmers should be supplied subsidy seeds and Government should emphasize in purchasing the agricultural product. Improvement in the education system is necessary by providing sufficient staff, opening research cell, creating awareness about the availability of new Books, Opening of the Public library is highly essential. Since it is a tribal based industry priority must be made according to the needs of the tribal people by untouched their traditional customs and values. Here network interruption is a common problem. So it needs attention to connect the people through network otherwise modern education facility will be unreachable to the student. Health system of the district needs special priority by providing sufficient staff member, advanced technology and opening all the department in the District health hospital.

#### **AUTHORS' CONTRIBUTIONS**

Reviewed the Submission Guidelines of the journal

#### **ACKNOWLEDGMENTS**

We acknowledge the cooperation of the selected migrants and experts whose enlightened responses have been the foundation of this Paper.

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