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AN ASSESSMENT OF TECHNOLOGY PENETRATION IN THE LIVES OF PEOPLE OF THE ALIGARH DISTRICT

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ABSTRACT

The use of technology plays an important role in saving time, as well as contributing immensely to the quality of life. This research paper is based on a primary survey of the Aligarh district. The primary data was collected during field visit to assess technological penetration/uses in the different spheres of the lives of people. And how technological uses impacting their beliefs and lifestyle. The countries which have a good penetration of technology in lives of their citizens, are more productive compared to other countries with less technological penetration. Hence, this research paper tries to find out the level and accessibility of technology in the lives of people of the Aligarh district and how the use of technology by people contributes to improve their quality of life. A total of 400 samples were collected during a field visit to the district, and findings show very interesting results regarding the penetration/uses of technology in different groups of people. All these results of research findings are discussed subsequently in this paper.

Keywords: Washing Machine, Vacuum Cleaner, Medical Facilities, Mode of Transportation, Computer, Aligarh District

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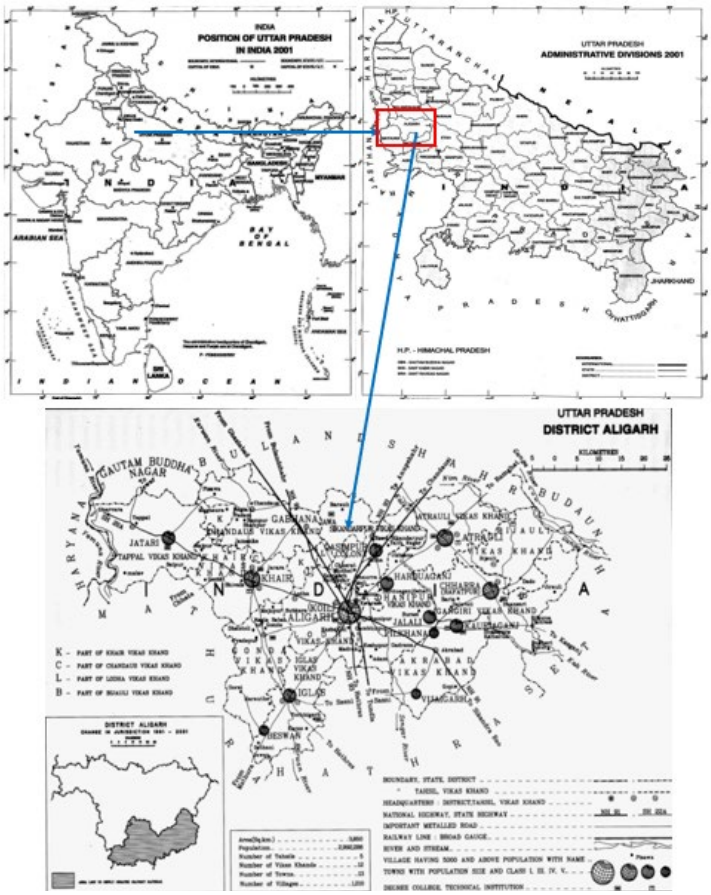
1. INTRODUCTION

Aligarh is one of the 71 districts (2011 Census) of Uttar Pradesh. The city is located about 140 kilometers (90 miles) southeast of New Delhi. Aligarh can be reached by both road and rail networks. The administrative headquarters of the Aligarh district is at Aligarh (Koil). It is also the commissioner's headquarters for an additional three districts. These four districts are: Aligarh, Hathras, Kashganj, & Etah (http://aligarh.nic.in/about_2015/history_english.htm, 2016). Aligarh is well known for the lock industry and Aligarh Muslim University. The fame of the lock industry gives it another name, 'Tala Nagari'. The locks that are produced in Aligarh are exported to different parts of the world. In 1870, Johnson & Co.

was the first English locks firm to be set up in Aligarh. In 1890, Johnson & Co. initiated the manual production of locks on a small scale (District Census Handbook Aligarh, Series- 10, Part XII-B, 2011).

Aligarh district is primarily an agricultural-based economy. All three seasons Ravi, Kharif, and Zaid crops are well cultivated. People generate incomes from animal husbandry, too. The sale of milk, eggs, wool, skin, and other animal products is used for livelihoods. The use of animals in the transportation of goods and services is livelihood sources as well. People who generate income from animal products are generally landless labourers or small farmers. The big farmers engaged in agriculture throughout the year. Big farmers domesticate animals mostly for their consumption. For example, milk from cows and buffalo can be available for domestic needs in their households and if milk production is surplus then they sale it to the local market.



Map 1 Location of Aligarh District in India & Uttar Pradesh

Source Census of India 2001 Uttar Pradesh Administrative Atlas, volume-1

Apart from agriculture, some industries are well developed. For example lock industry, Brass hardware and sculpture, bronze, iron, and aluminum items manufacturing industries are also located here. There are industries related to zinc die casting. A few government undertaking industries are also located in the Aligarh district. Harduaganj Thermal Power Project, located at Kashimpur colony, and Satha Sugar Factory, located at Satha, are state government undertakings. Narora Atomic Power Station, located at Narora, is of the central government. Heinz-sauce manufacturing unit located at Manjoorgari and the cement factory of Ultra Tech Cement company, Wave Distillery (Kingfisher bear) located at Atrauli are private undertakings. Indian Oil Bottling Plant exists at Andla in Khair tahsil. SAC Entertainment, an event and artist management company, which is famous for managing college and school festivals, also has a registered office in Aligarh.

Hence, this district has subsistence livelihood sources to the livelihood from service sectors as well. A wide range of economic spectrum is present here. All 3 economic activities, primary, secondary, and tertiary are present in the economy of Aligarh district. In this economic and infrastructural background, people of the Aligarh district can afford technological advancement in their day-to-day lives and can improve the quality of their lives. Also, a group of people,

who do not have any access to technological affordability is also present in this society. Therefore, study yield a valuable result regarding impacts of technology.

2. LITERATURE REVIEW

In the last few decades, India has emerged as a huge consumer market. This can be traced to a shift in the economic policy from socialist to market economy to tide over the Balance of Payment crisis in 1991. As a part of the bailout plan under the International Monetary Fund, India made certain structural economic reforms. The main thrust of the 1991 economic reforms in India was to allow for the operation of a free market, where the forces of demand and supply could freely compete and the local and national economy could be integrated into the global economy (Kothari 1997).

While on the one hand, there are regions in India which are called 'cybercities' and 'silicon valleys' of India with state-of-the-art technology development centers in Information Technology (Kalra 2006), on the other hand, a large part of India's population lives in poverty and remains untouched and unaware of these technology achievements (Kumar, D.A, 2012)

According to S. Srinath (2008), Women in Workforce: Women account for nearly 30 percent of the burgeoning IT industry workforce in India in 2006, of which 18 percent are in managerial /leadership roles. The total number of people working in the industry has been estimated at 1.28 million this year, and the number of women employees has increased in this sector during the last five years.

Based on above literature review, it has been found that, very little research has touched the penetration of technology in the Indian population. Though the Indian government, since its independence, has been promoting science and technology and scientific temperament in Indian society continuously. But there is still a long way to go in this direction. Thus, study tries to find out the grassroots status regarding people's behavior towards accepting and rejecting technology.

3. RESEARCH QUESTION

The research question has been studied, which are technological penetration in the lives of people and how these technological uses changing the lives of individuals in the Aligarh district. The status and availability of technology to the different groups of people in the district also covered.

4. DATA SOURCES AND METHODOLOGY

The data source was primary data source. Because secondary data sources mostly cover aspects population dynamics through Census of India and other basic means of facilities. The primary data was collected with the help of a structured questionnaire. In this questionnaire, different questions related to the use of technology and its benefits to them has been asked.

A total of 400 samples were collected from the Aligarh district. A total of 400 samples was further divided into different strata based on stratified random sampling. In stratified random sampling, the population is divided into several groups/layers and sub-groups/layers that are individually more homogeneous than the total population of the study area. These 400 samples were divided according to the proportion of the rural-urban population, male, and female population in the total population of Aligarh district according to 2011 census. This grouping of samples helps to draw more accurate results. According to the 2011 census, the division of 400 samples is based on the following totals of population in the Aligarh district.

Table 1 Total Population of Aligarh District of Uttar Pradesh in the 2011 Census

	Total population	**Per cent**	**Total population2**	**Per cent3**	**Total population4**	**Per cent5**
	Person	(%)	**Male**	(%)	**Female**	(%)
		Person		Male		Female
Rural	24,56,698	66.87%	13,08,923	67.06%	11,47,775	66.66%
Urban	12,17,191	33.13%	6,43,073	32.94%	5,74,118	33.34%
Total	36,73,889	100%	19,51,996	100%	17,21,893	100%

Source: Primary Census Abstract (PCA). Series- 10, Part XII- B

Based on the above proportion of the population, the calculation of 400 sample sizes is divided into strata of rural males, rural females, urban males, and urban females. Hence, out of 400 sampled households, the proportion of different strata came, 267 households are chosen from rural households and 133 are selected from urban households. Out of 267 rural households, 143 belong to rural male's households, and 124 were rural female's households. Similarly, the division of urban household samples was made. Out of 133 urban households, 71 were from urban male's households and 62 belonged to urban female's households.

The secondary data sources drawn from different published sources, like:

1) Primary Census Abstracts of Uttar Pradesh and India (Different series)
2) Administrative Atlas of Uttar Pradesh, published in 2011
3) Gazetteer of Aligarh district published at different intervals
4) Government organizations' reports
5) Journals, articles, and books
6) Internet and websites

5. RESULTS AND FINDINGS

This study examines technology penetration in different spheres of life. From domestic use of technology to transportation, health, and professional upgradation. Use of washing machines, vacuum cleaners, medical use, mode of transportation, and computers has been examined in different groups of people in the Aligarh district. The penetration/uses of these technologies have been discussed in detail under each head.

Washing Machine: A washing machine is used for washing dirty clothes. It reduces domestic chores and saves time. Aligarh district lies in the doab of the Ganga and Yamuna rivers. The land cover of the district comprises fine particles of yellow soil. Yellow soil was deposited here over the centuries by these two rivers. Because of fine particles of this yellow soil, they are suspended in the air in large quantities. These suspended particles caused the accumulation of dirt on the clothes every day. Washing clothes is a daily chore. Therefore, females of the district are quite interested in owning a washing machine in their homes.

Primary data confirms that quite a good number of families own a washing machine in urban areas. Table 2 illustrates the exact number of households that own a washing machine. In urban areas, 40.85 percent of households of urban male respondents and 45.16 percent of households of urban female respondents utilized a washing machine for washing their clothes. The rural families of the district also start purchasing washing machines. The purchase of a washing machine also supported by male members of the family because they are also able to get clean clothes every day easily and can operate machine in the absence of female members. Therefore, 5.59 percent of households of rural male respondents and 10 percent of households of rural female respondents owned a washing machine.

Table 2 Total Number & Percentage of Respondents Owning a Washing Machine in their Households (Aligarh District)

	Male				**Female**			
	Urban Male		**Rural Male**		**Urban Female**		**Rural Female**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	29	40.85	8	5.59	28	45.16	13	10.48
No	**42**	59.15	**135**	94.41	**34**	54.84	**111**	89.52
Total	71	100	143	100	62	100	124	100
	Total Urban		**Total Rural**		**Total Male**		**Total Female**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	57	42.86	21	7.87	37	17.29	41	22.04
No	76	57.14	246	92.13	177	82.71	145	77.96

Source: Primary data collected with the help of a questionnaire and a field survey, 2013-16

Plate 1 Photographs showing washing machines in Households of the Aligarh District

However, still many rural households do not own a washing machine, i.e., 94.41 percent of households of rural male respondents and 89.5 percent of households of rural female respondents recorded no use of this machine. In urban areas more than 50 percent of households do not own a washing machine. From Figure 1, it is apparent that 59.15 percent of households of urban male respondents and 54.84 percent of households of urban female respondents are not in possession of a washing machine. The families who own a washing machine find themselves with some liberty in gender-based division of work. It had been observed that male members of these families wash their clothes with the help of washing machine.

This technology for domestic chores has a positive impact on the flexibility of social beliefs. Washing of clothes is liked by male members of the family too. As a result, if female members are not available or busy with other work, male members help them with washing clothes.

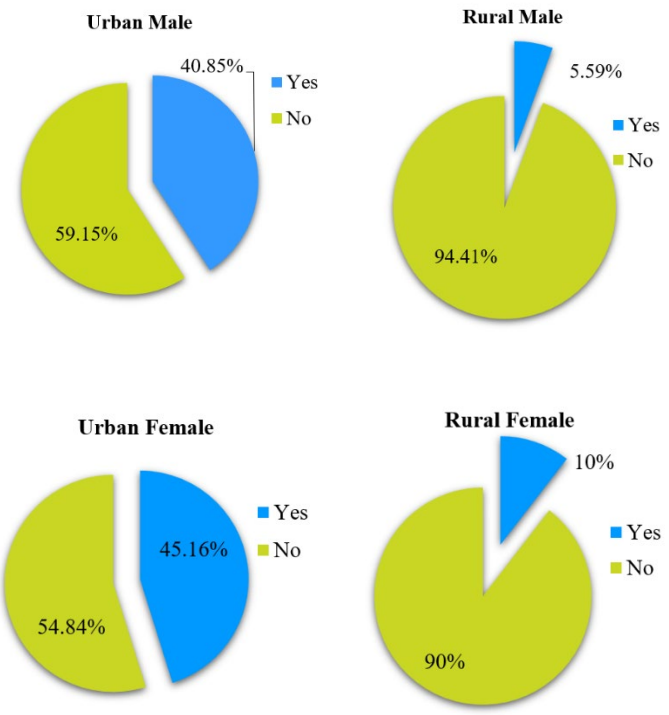


Figure 1 Percentage of Respondents owning a Washing Machine in their Households
Source Primary data collected with the help of a questionnaire and field survey, 2013-16

Vacuum Cleaner: A Vacuum cleaner is utilized in cleaning dust particles from the floor, corners, carpets, furniture, electronic items, etc. Cleaning with the help of a vacuum cleaner is not so popular and liked by people in the district. They love sweeping with the help of a wet cloth. Wet cloth cleaning is more satisfactory compared to cleaning with a vacuum cleaner. The cleaning of floor and walls with the help of a wet cloth is very old and popular in the North Indian plains.

Table 3 Total Number & Percentage of Respondents Owing a Vacuum Cleaner in their Households in Aligarh District

	Male				**Female**			
	Urban Male		**Rural Male**		**Urban Female**		**Rural Female**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	1	1.41	*--	--	1	1.61	--	--
No	**70**	**98.59**	**143**	**100**	**61**	**98.39**	**124**	**100**
Total	71	100	143	100	62	100	124	100
	Total Urban		**Total Rural**		**Total Male**		**Total Female**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	2	1.5	--	--	1	0.47	1	0.54
No	131	98.5	267	100	213	99.53	185	99.46

Source: Primary data collected with the help of a questionnaire and a field survey, 2013-16
No respondent falls in this category for the corresponding column.

Table 3 validates the fact. Only one household in urban male respondents and one household in urban female respondents use a vacuum cleaner in their house. It had been found that 98.59 percent of households of urban male respondents, 100 percent of households of rural male respondents, 98.39 percent of households of urban female respondents, and 100 percent of households of rural female respondents do not own a vacuum cleaner in their households. This advanced technology almost has no existence in the district. Subsequently, the impact of this technology

advancement on social norms cannot be identified. Figure 2 gives a visual interpretation of primary data for vacuum cleaner ownership in the Aligarh district.

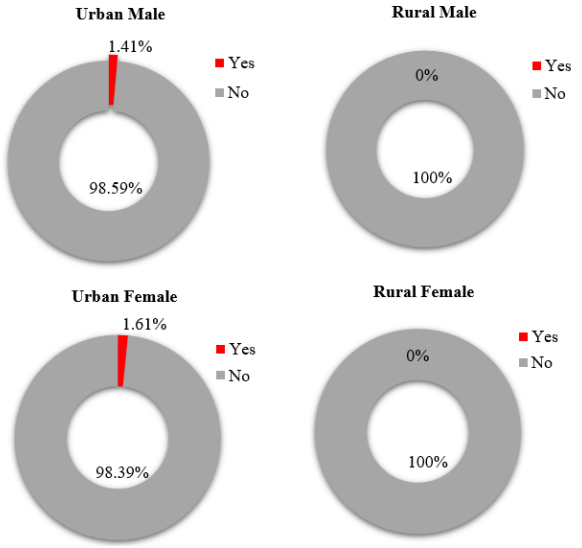


Figure 2 Percentage of Respondents owning a Vacuum Cleaner in their Households
Source Primary data collected with the help of a questionnaire and a field survey, 2013-16

Medical Technology: Control over death and birth can change the way of thinking of any individual and society as a whole. Advancements in medical technologies have been altering people's lifestyles since historical times. The high population growth rate in India and the gradual decline in birth rate are the results of access to highly efficient medical technology by common people.

Primary data reveals that the a large number of people benefiting from medical technologies in the district. 95.77 percent of urban male respondents, 90.91 percent of rural male respondents, 95.16 percent of urban female respondents, and 87.9 percent of rural female respondents got benefits from medical treatments like X-ray, blood tests, urine tests, ultrasounds, etc. Table 4 shows primary data in detail. The maximum number of people in both urban and rural areas prefer to visit doctors rather than a vaidh or home treatment.

Primary data pointed out few respondents did not gain from medical technologies, i.e., 4.23 percent of urban male respondents, 9.09 percent of rural male respondents, 4.84 percent of urban female respondents, and 12.10 percent of rural female respondents. These respondents visit the vaidh/zarakhana for the treatment of sickness. These respondents were very poor and reported that they cannot afford the consultation fees of the doctors and medical tests prescribed by them.

Table 4 Total Number & Percentage of Respondents benefited from Medical Machines/ Technologies in Aligarh District

	Male				**Female**			
	Urban Male		**Rural Male**		**Urban Female**		**Rural Female**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	**68**	**95.77**	**130**	**90.91**	**59**	**95.16**	**109**	**87.9**
No	3	4.23	13	9.09	3	4.84	15	12.1
Total	71	100	143	100	62	100	124	100
	Total Urban		**Total Rural**		**Total Male**		**Total Female**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	127	95.49	239	89.51	198	92.52	168	90.32
No	6	4.51	28	10.49	16	7.48	18	9.68

Source: Primary data collected with the help of a questionnaire and a field survey, 2013-16

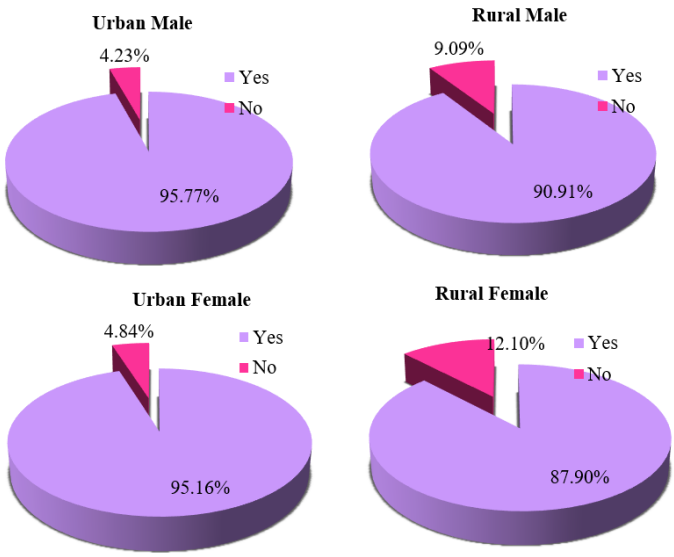


Figure 3 Percentage of Respondents benefited from Medical Technologies in Aligarh
Source Primary data collected with the help of a questionnaire and a field survey, 2013-16

Though the maximum number of people is dependent on allopathic medical treatment but efficient medical treatment facilities are not available in the rural areas of the district. The allopathic treatment is getting costlier day by day and is gradually getting out of the reach of the poor. It may lead to a negative impact on the poor. In high death rates, people try to compensate for it with a high birth rate, which leads to a high population growth rate. Costlier medical facilities may lead to a high crime rate in society as well. Though, majority of respondents listed all positive aspects of allopathic treatment. Fast relief, focused and correct treatment, confirmation of disease easily, etc, are some of the positive benefits of allopathic. Some of the respondents verify that the scientific treatment of allopathic medicine helps in reducing superstitions as well. Plate 2 describes the pitiable condition of available medical treatment in rural areas.

Plate 2 Photographs showing Medical Facilities in Rural Areas of Aligarh District

5.1. TRANSPORT TECHNOLOGY

Fast and comfortable transport has a very positive impact on the development of people. Fast-moving transportation modes with comfortable seating arrangements, available at a cheap price, increase the mobility of people. It also increases the exchange of ideas and practices with other communities/societies. For this purpose, the mode of transport utilized by respondents of the Aligarh district has been studied.

Table 5 Total Number & Percentage of Respondents using Different Modes of Transport in Aligarh District

	Male				**Female**			
	Urban Male		**Rural Male**		**Urban Female**		**Rural Female**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Personal	*--	--	3	2.1	--	--	5	4.03
Public	**38**	**53.52**	66	46.15	**42**	**67.74**	**71**	**57.26**
Both	33	46.48	**74**	**51.75**	20	32.26	47	37.9
No transport	--	--	--	--	--	--	1	0.81
Total	71	100	143	100	62	100	124	100
	Total Urban		**Total Rural**		**Total Male**		**Total Female**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Personal	--	--	8	3	3	1.4	5	2.69
Public	80	60.15	137	51.31	104	48.6	113	60.75
Both	53	39.85	121	45.32	107	50	67	36.02
No transport	--	--	1	0.37	--	--	1	0.54

Source: Primary data collected with the help of a questionnaire and field survey, 2013-16

No respondent falls in this category for the corresponding column.

Primary data reveals that most respondents in the district use public transport for their travelling, i.e., 53.52 percent of urban male respondents, 46.15 percent of rural male respondents, 67.74 percent of urban female respondents, and 57.26 percent of rural female respondents. After public transport, respondent prefer to use a combination of public and private transport according to their convenience. 46.48 percent of urban male respondents, 51.75 percent of rural male respondents, 32.26 percent of urban female respondents, and 37.9 percent of rural female respondents use both public and private mode of transport.

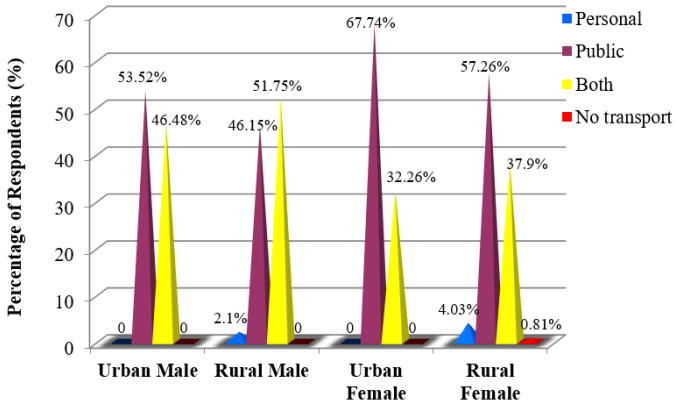


Figure 4 Percentage of Respondents using Different Modes of Transport

Source Primary data collected with the help of a questionnaire and field survey, 2013-16

Only 2.1 percent of rural male respondents and 4.03 percent of rural female respondents fall in the category of using personal transport mode only. Among the urban male respondents, the bus is the highest usable public transport, and the motorbike is the most usable private transport. Similarly, bus is a popular public transport among the rural male respondents as well, and they too use motorbikes for personal transport. Urban female respondents prefer the bus for public transport, as well as a motorbike for personal transport. Rural female respondents also reported the same

preferences. But, this must be noticed that motorbike is not driven by females of the Aligarh district. Females take the support of male members of their family to ride a motorbike to pick up and drop off at any destination.

Table 6: Total Number of Respondents using Different Types of Vehicles in the District

	Male		**Female**	
	Urban Male	**Rural Male**	**Urban Female**	**Rural Female**
Bicycle	4	21	1	8
Motorbike	25	52	11	34
Scooter	*--	--	5	--
Car	1	--	2	2
Auto	--	3	--	4
Zeeap	--	--	--	--
Bus	**44**	**136**	**36**	**114**
Train	8	1	--	--
Tractor	--	--	--	1
Bullock cart	--	1	--	1
Bus & Train	18	1	1	--
Bus & Auto	1	--	2	3
Motorbike & Car	1	--	1	2
Motorbike & Scooter	2	--	--	--
Bus & Rickshaw	--	--	21	--
Train, Bus & Rickshaw	--	--	1	--
Bus, Auto & Rickshaw	--	--	1	--

Source: Primary data collected with the help of a questionnaire and a field survey, 2013-16

No respondent falls in this category for the corresponding column.

Table 5, Figure 4, table 6 and Plate 3 explain the condition of transport facilities available in the Aligarh district. Railway station, bus stands, auto stands, e-rickshaw, manual rickshaw, bicycle, etc, almost all modes of transport are available in the Aligarh district. However there is no airport in the Aligarh district. So people of the Aligarh district are not enjoying this mode of transport to reach their city.

Plate 3: Photographs showing Some Modes of Transport in Aligarh District

Computer in Offices: Availability of computers in the offices is a sign of the application of advanced technology in contemporary times. Primary data depicts that urban male and female respondents are not very fond of using computers in their offices. Table 7 and Figure 5 show primary data related to the computer use in the offices of the Aligarh district.

Table 7 Total Number & Percentage of Respondents using Computers in their Office

	Male				**Female**			
	Urban Male		**Rural Male**		**Urban Female**		**Rural Female**	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Yes	19	26.76	9	6.29	11	17.74	3	2.42
No	**52**	**73.24**	**134**	**93.71**	**51**	**82.26**	**121**	**97.58**
Total	71	100	143	100	62	100	124	100
	Total Urban		**Total Rural**		**Total Male**		**Total Female**	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Yes	30	22.56	12	4.49	28	13.08	14	7.53
No	103	77.44	255	95.51	186	86.92	172	92.47

Source: Primary data collected with the help of a questionnaire and a field survey, 2013-16

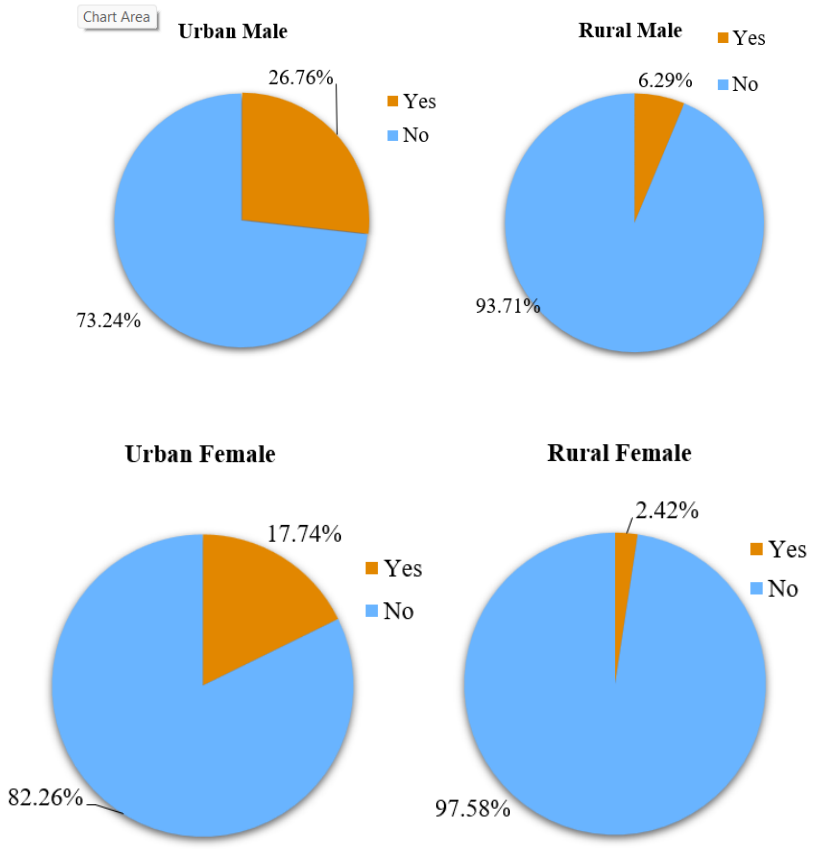


Figure 5 Percentage of Respondents using Computers in Aligarh District
Source Primary data collected with the help of a questionnaire and a field survey, 2013-16

Scenario or penetration of computers in the masses of the Aligarh district, use of computers and computers with internet facility have been studied both in the office and in households. It has been found in the field survey, 73.24 percent of urban male respondents, 93.71 percent of rural male respondents, 82.26 percent of urban female respondents, and 97.58 percent of rural female respondents do not use computers either in their office or in their households. Only 26.76 per cent of urban male respondents, 6.29 per cent of rural male respondents, 17.74 per cent of urban female respondents, and 2.42 per cent of rural female respondents use a computer either in their office or in their home. The reason of less use of computer in their offices is that most of them were engaged in primary and manufacturing sectors. Computers are mostly use in service sector industries.

6. CONCLUSION

After analyzing above primary data related to technology uses, it can be concluded that many people still have a long way to achieve technological advancement in their daily lives. The affordability, productive use of technology, over population, low literacy rate, less knowledge about handling of machines, maintenance of machines etc. are some reasons of limited penetration of technology in the Aligarh district. It has been noticed that, when it comes to invest in technology, people examine input and output ratio of its monetary investment. Thus, most of them prefer to invest in purchasing of that technology, which gives them economic gain. An inclination of social gain also seen, when it comes to purchase home appliances. Mostly home appliances were purchased to give them to daughter during marriage in the form of dowry by family for maintaining social status in the society. A wide spectrum of preferences from economic to social has been noticed during study and results are providing a great help to understand the people's perception about technological advancement.

CONFLICT OF INTERESTS

None.

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