

## Internet Usage among University Students of Paschim Medinipur district of West Bengal: Challenges and Attitudes

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### Abstract

*Nowadays there is a radical change in the way how information is shared as well as networking and socializing take place in every society. No doubt that the internet has turned out to be a powerful tool for communication purposes, to exchange ideas and has become the backbone of the information economy. The present paper analyses the challenges and attitudes of the post graduate students from different faculties towards internet usage based on primary data from Paschim Medinipur district of West Bengal for the year 2021-22. It also explores the factors behind hours of internet usage for low, medium and high category internet users i.e. to get the internet usage specific determinants using Multinomial logit regression analysis. The result indicates a positive attitude towards Internet for all students considered. Few students' internet usage pattern can be considered as a move towards an addictive attitude. Above 90% students of all streams used internet for academic purpose. All stream students generally use their own smartphone and personal computer for accessing the internet. Network problem and data costs are some of the challenges the students are facing. Using mlogit model it is found that the determinants for diverse categories of internet users are not same. Nature of mother's job and network issue are the common variables found to affect high and low category internet users.*

**Keywords:** *Internet Usage, Attitudes, Challenges, Post graduate students, Paschim Medinipur, West Bengal*

### 1. Introduction

Internet usage is registering huge and rapid growth, which is continuing at significant rates at a global scale. The internet is one of the most powerful information tools present in the world today. Internet usage and developments in technology growth around the world have grown rapidly and changed the lives of millions of people during the last decade. There are numerous benefits to using the internet for students, and it has proven to be one of the best places to learn. Internet use for education is very important. Internet usage is most prevalent among young students and teachers and for educated people; the internet is becoming an increasingly

important part of the educational process. The digital age has changed all aspects of our lives. It changes how we live, work, travel, socialize and, more importantly, learn and educate. Although the concept of Technology-Enhanced Learning (TEL) was prevalent in the late 90s, it was only during the 2020 Covid-19 outbreak that the education industry faced its real challenge. COVID-19 lockdown made us all reliant on the internet like never before, work from home became the norm, even school kids, who had their classes shifted to an online platform and this saw a crazy growth in the number of internet users in India. But internet can have side effects on students, such as addiction, distractions, misinformation, cyberbullying, health issues, and online privacy and security risks. It is important for students to be aware of these risks and take steps to mitigate them.

Education for all is a challenge in the pandemic-ridden world. Online mode of teaching has gained importance and students now devote more time to internet use as compared to pre-COVID-19. A rapidly increasing number of colleges and universities are looking for ways to deliver course content online. Almost every student is now aware of online education and distance learning, both of which have been the most significant benefits of the internet during the pandemic. Education institutions especially universities have started to offer online programs and courses such as MOOCs and Value-Added Course among others. Nowadays, most assignments are completed on computers with the use of the internet. The successful implementation of this online mode requires access to technology devices and steady internet services

The present study area is Paschim Medinipur district of West Bengal. Here students face many challenges when they use the internet specially in the rural areas may be because of isolation, lack of communication facilities, poor health conditions, hostile environment, poor economic conditions, and superstitious beliefs.

Thus, this paper aims to investigate the attitudes and challenges towards using internet particularly the post graduate students in Paschim Medinipur district of West Bengal.

The survey of literature reveals that there are studies to assess several issues on internet use in education at different levels in India and around the globe. Ani (2010) examined the extent and level of internet access and use by under graduate (UG) students in three Nigerian universities and findings reveal that there is inequitable access to the internet through private internet cybercafes. Access to the internet in the university libraries, departments, and university ICT centers is grossly poor which is due to a lack of poor internet infrastructure and connectivity and non-sustainable internet services in these universities. Khan, Khan & Bhatti (2011) worked on the attitudes of students at the Islamia University of Bahawalpur, Pakistan towards learning through the Internet and showed that their attitude towards the Internet was very positive and they used it mainly for study purpose. They used online databases, dictionaries, encyclopedias and online courses. Whereas Cepar & Bojnec (2012) analysed the UG and post graduate (PG) higher education participation determinants in Slovenia and showed that the two most important determinants are the availability of internet access in a household and the education of parents at UG level of education and the most important determinant is personal income at PG level of education. Riliskis & Osipov (2013) worked on Information Technology (IT) Infrastructure in Higher Education and the pedagogical aspect of the learning process of different courses in different disciplines of natural and engineering sciences analyzed from the perspective of students and teachers. Deniz & Geyik (2015) explained the patterns of Internet use by UG students and showed what students use from Internet sources for educational purposes for reflecting their practices towards internet use. Ahmed, Vveinhardt & Ahmad (2016) examined the relationship between Internet usage and university students' performance in Pakistan, identifies the attitude of students towards information technology, and also whether the use of Internet improve the academic performance of the students or not. Results of the

research showed that internet is primarily for educational and research purposes and get benefited and also playing a positive role and participation in society. Emeka & Nyeche (2016) showed the impact of internet usage on the academic performance of UG students of the University of Abuja, Nigeria. The findings express that internet is one of the beneficial tools in this era of IT not only for business but for academics. Dziuban et al. (2018) examined several implications, outcomes, and possible future directions for blended learning in higher education in a world where ICTs increasingly communicate with each other. Vaithianathan, Hool, Hurd & Rohwedder (2018) studied on high-frequency Internet survey using monthly data on a panel of Singaporeans aged between 50 to 70 years from 11,500 households. Asarta & Schmidt (2020) examined the effects of online and blended experience on outcomes in a blended learning environment and explore whether any significant gains accrue to students due to previous experience. Mishra, Gupta & Shree (2020) aimed to address the required essentialities of online teaching-learning in education amid the COVID-19 pandemic and with virtual classes and examine how the existing resources of educational institutions can effectively transform formal education into online education and the result found that the ongoing online teaching-learning activities during the lockdown, including the process of managing change in the education system and the process of online teaching-learning to overcome the Covid-19 outbreak. Zhu et al. (2020) studied the effect of internet usage on perceptions of social fairness in rural China. The results indicate that, in general, Internet use has a statistically significant and negative impact on farmers' perceptions of social justice. Asanov et al. (2021) state how students spend their time during the period of quarantine, examine their access to remote learning, and measure their mental health status. They found most of the students have both an internet connection and devices. Closure of schools and social isolation are the two main problems students say they face, and while the majorities are mostly happy, 16% have mental health scores that indicate depression. Roman & Plopeanu (2021) tried to identify the determinants of online effective learning in the emergency situation created by covid-19 pandemic. The result of the work found that psychological distress and increased concerns about COVID-19 have a negative effect on learning effectiveness. Singh et al. (2021) tried to understand E-learning methods in nursing and medical education during COVID-19 Pandemic in India and analysis of their feasibility of online classes, health issues from online classes, current methods for e-teaching, and student attitudes and preferences. Whereas Martínez-Domínguez & Fierros-González (2022) attempted to examine the determinants of internet access, use and productive uses for school-age children in households of different socioeconomic levels. The results show that the probability of having children's internet access and usage patterns depends on the level of schooling, Income, skills, place of residence, and presence of electronic devices.

There are studies on school students' internet use, and also at the college and university level mostly in the global context. But there is a dearth in the study on internet usage at the university level in the Indian context and specifically at the district level. Thus, the present study aims to investigate the challenges and attitudes of students particularly the post graduate students in Paschim Medinipur district of West Bengal towards using internet.

The format of the paper is as follows:

The major objectives of the present paper related to the post graduate students in Paschim Medinipur district of West Bengal are as follows:

- To analyse the attitude and challenges towards internet usage
- To understand the major factors behind the variation in their internet usage

The rest portion of the present paper can be structured as follows:

Section 2 sketches the methodology and the data to analyse the attitude and challenges towards internet usage as well as the determinants of internet usage of the post graduate students. The results of estimation and discussion are conveyed in section 3 and Section 4 concludes.

## 2. Methodology and the data

The present paper analysed the attitude and challenges towards internet usage of post graduate students. Also, it tried to understand the major factors behind the variation in their internet usage. Primary data has been collected through survey via questionnaire and 315 samples have been collected from Post Graduate students of Vidyasagar University during 2021-22 covering all the three streams, Science, Arts, and Commerce and Management from various departments namely, Mathematics, Zoology, Anthropology, English, Philosophy, History, Economics, Commerce, and Business Administration.

To analyse Internet usage by post graduate students and to understand and identify their challenges and attitudes, different dimensions have been considered such as Hours of internet usage, perception about usefulness of Internet for different purposes, Preference for online education to formal education, Preference for online classes to classroom lectures, Type of device used, Type of data used, different problems related to internet and whether internet usage adversely affected due to COVID-19. Of these eight variables, the first four variables i.e. Hours of internet usage, perception about usefulness of Internet for different purposes, Preference for online education to formal education, Preference for online classes to classroom lectures, indicate attitude of the post graduate students towards internet usage whereas the last four variables namely Type of device used, Type of data used and different problems related to internet and whether internet usage adversely affected due to COVID-19 points towards their challenges of internet usage. The variable, Hours of Internet usage is divided into three categories, low (upto 1 hour/day), medium (2 to 10 hours/day) and high (more than 10 hours/day). Perception about usefulness of Internet for different purposes is categorized under academics, recreation, and communication. Whether internet usage is adversely affected due to COVID-19 is further classified into increase in internet expenditure after COVID-19 and family income got affected due to COVID-19.

All the variables are analysed using percentages and comparison is made among the three streams.

To find out the major factors behind Hours of internet usage, three categories i.e. low, medium and high has been used (as explained before).

The variables considered as possible determinants of Hours of internet usage are Number of siblings, number of young siblings, stream, Gender, caste, Area, nature of father's job, nature of mother's job, father's education level, mother's education level, Device, Data source, Internet based source during study, knowledge improvement through internet, internet use improved educational performance, network issue, data cost, family income got affected due to COVID-19 and increase in internet expenditure after COVID-19. For this purpose, categorical variable for internet users have been created for all the variables except number of siblings and number of young siblings.

The categorical variables are defined as follows:

Stream= 1 for Arts, 2 for Commerce and 3 for Science

Gender= 1 for Male, 0 for Female

Caste= 1 for General, 2 for SC, 3 for ST and 4 for OBC

Area= 1 for Rural, 2 for Urban and 3 for Semi-Urban

Nature of father's job= 1 for Business, 2 for Farmer and Unemployed, 3 for Government Jobs and 4 for private jobs

Nature of mother's job= 1 for House wife and Unemployed, 2 for Business, 3 for Government Jobs and 4 for private jobs

Father's education level= 1 for Uneducated, 2 for up to 10 standards, 3 for 10 to 12 standard and 4 for above 12 standard

Mother's education level= 1 for Uneducated, 2 for up to 10 standards, 3 for 10 to 12 standard and 4 for above 12 standard

Device= 1 for Mobile/ PC/ Laptop, 2 for friend's Mobile/ PC/ Laptop, 3 for Internet Café and 4 for College/ University computer laboratory

Data source= 1 for only mobile data, 2 for only Wi-Fi, 3 for only Broad Band and 4 for at least any of the two sources

Internet Based Source during Study= 1 for Yes users and 0 for No

Knowledge improvement through internet= 1 for improved and 0 for otherwise

Internet use improved educational performance=1 for Yes and 0 for otherwise

Network issue= 1 for Yes and 0 otherwise

Data cost problem= 1 for Yes and 0 otherwise

Family income got affected due to COVID-19= 1 for Yes and 0 otherwise

Increase in Internet expenditure after COVID-19= 1 for Yes and 0 otherwise

To get the internet usage specific determinants, Multinomial logit regression analysis is used employing STATA 15 software. The significance of using mlogit model is to get different types of determinants for different categories of internet users.

### **3. Results of estimation and discussion**

This part of the study discusses the results and observations of the analysis. The results of analysis of the Attitude and Challenge of students towards internet usage can be found in subsection 3.1. Sub-section 3.2 presents and discusses the results of mlogit regression.

#### **3.1 Analysis of Attitude and Challenge of students towards internet usage**

Altogether eight variables have been considered for analyzing attitude and challenge of post graduate students, of which the first four variables i.e. Hours of internet usage, perception about usefulness of Internet for different purposes, Preference for online education to formal education, Preference for online classes to classroom lectures, indicate attitude whereas the last four variables namely Type of device used, Type of data used, different problems related to internet and whether internet usage adversely affected due to COVID-19 points towards their challenges of internet usage. The results are presented in Table 1.

Table-1 Internet usage by Post-Graduate students in Paschim Medinipur

A. Hours of internet usage						
	Don't use	Up to 1 hour	2-10 hours	More than 10 hours		
Arts (%)	0.00	47.47	46.47	6.06		
Commerce & Management (%)	0.00	4.92	70.49	24.59		
Science (%)	0.00	9.03	85.81	5.16		
B. Perception about the usefulness of Internet for different purposes						
	Academic		Recreation			Communication
	Studying	Library Access	Online Shopping	Playing Games	Beauty Purpose	Social Media
Arts (%)	91.92	1	1.02	1	1.02	4.04
Commerce & Management (%)	95.08	0.38	0.5	0.02	0.02	4
Science (%)	96.13	0.25	0.25	0.25	0.25	2.87
C. Preference for Online education to formal education						
	Yes		No			
Arts (%)	69.70		30.30			
Commerce & Management (%)	72.13		27.87			
Science (%)	78.06		21.94			
D. Preference for Online Classes to Classroom Lectures						
	Yes		No			
Arts (%)	53.54		46.46			
Commerce & Management (%)	75.41		24.59			
Science (%)	42.58		57.42			
E. Type of device used						
	Own Smart Phone/ PC/ Laptop	Friend's PC/ Laptop	Internet Cafe	Institution Lab		
Arts (%)	98.99	0.00	0.00	0		
Commerce & Management (%)	95.00	1.64	1.64	1.72		
Science (%)	95.71	0.20	0.22	3.87		
F. Type of Data used						
	Mobile Data	Wi-Fi	Broad Band			
Arts (%)	81.82	16.16	2.02			
Commerce & Management (%)	93.44	6.06	0.50			
Science (%)	96.77	0.23	3.00			
G. Different problems related to Internet						
	Network	Data Cost	Hacking	All		
Arts (%)	60.61	30.30	0.00	12.12		
Commerce & Management (%)	50.82	63.93	1.64	16.39		
Science (%)	58.71	49.03	1.29	25.81		
H. Whether internet usage adversely affected due to COVID-19						

1. Increase in internet expenditure after COVID-19		
	Yes	No
Arts (%)	66.67	33.33
Commerce & Management (%)	72.13	27.87
Science (%)	92.90	7.10
2. Family income got affected due to COVID-19		
	Yes	No
Arts (%)	74.75	25.25
Commerce & Management (%)	80.33	19.67
Science (%)	79.35	20.65

Hours of internet usage: All the students considered uses internet. Most of the Arts students (47.5%) uses internet upto 1 hour a day. Most of the students of commerce (70.49) and science (85.81) uses internet ranging from 2 to 10 hours a day. 24.6% of the Commerce & management students use internet for more than 10 hours whereas the figures are 6% and 5% respectively for arts and science. This means that these students' internet usage pattern can be considered as a move towards an addictive attitude since more than 10 hours of internet usage in a day is stated as an addictive behavior attitude. Thus among the three streams, commerce students are more addicted towards internet usage.

Perception about the usefulness of internet for different purposes: While analyzing the purpose of internet usage it is seen that the majority of arts students, i.e., 91.92% of the arts students use the internet for academic purposes (Studying and library access), Whereas 95.08% and 96.13% of commerce and science students use the internet for academic purposes. So above 90% students of all stream uses internet for academic purposes but among them science students mostly use internet for academic purpose.

Preference for online education to formal education: The percentage of science students preferring online education over formal education is 78.06% and it is 72.13% for commerce students. Preference for online education over formal education is more for all stream students. But science students' preference is more compared to Commerce and Arts students.

Preference for online classes to classroom lectures: Most of the commerce students are found to prefer online classes to classroom lectures. But the picture is just reverse for science students as most of the science students prefer classroom lectures to online classes. Preference for online classes over classroom lectures is found to be more for commerce students compared to other streams.

Type of Device used: All stream students generally use their own smartphone and PC for accessing the internet. Some commerce and science students used friends' computer and internet cafe for accessing the internet.

Type of Data used: The information regarding the source of internet data reveals that around 81.82% of arts students used mobile data for accessing the internet but 93.44% of commerce students use the internet through mobile data whereas 96.77% of science students use the internet through mobile data. Hence Arts, Commerce, and Science students mostly use the internet through mobile data.

Different problems related to internet: While analyzing the problem arising during internet use, it is found that, 60.61% of Arts students responded to network problems. But Commerce students mostly faced data cost problems i.e., 63.93% of students. Whereas Science students like arts students mostly faced network problems i.e., 58.71% of students. So, network and data costs are common problems which dominates other problems for all stream students.

To understand whether internet usage is adversely affected due to COVID-19, two variables like increase in internet expenditure after COVID-19 and family income got affected due to COVID-19 have been considered.

**Increase in internet expenditure after COVID-19:** Information regarding the Increase in internet expenditure after covid-19 indicates that most of the science students (92.9%) agrees. But arts students use less internet than commerce and science students. Expenditure incurred by the science stream students is maximum.

**Family income got affected due to covid-19:** Commerce students' family income got most affected due to covid-19 (80.33%). Then science students' family income was affected by 79.4% due to COVID-19. 74.75% of Arts students' family income got affected due to covid-19. This means all stream students' family income is highly affected due to covid-19 among which commerce and management is maximum.

### 3.2 Result of Determinant Analysis

Employing mlogit, the effect of different explanatory variables on different internet users taking into account varying level of hours of internet use are studied and the results are represented in Table 2. Here medium category internet users are considered as benchmark.

For high category internet users, the significant variables found are area, Nature of mother's job, device, and network issue. Whereas for low category internet users, the significant variables are stream, nature of father's job, nature of mother's job, internet based source during study, knowledge improvement through internet, network issue, data cost and increase in internet expenditure after COVID-19. Nature of mother's job and network issue are the common variables affecting high and low category internet users although their results are opposite.

In case of high category internet users, Urban and Semi-Urban area students are found to use internet more than rural area students. This result is quite obvious as network and speed of internet are better in urban and semi urban area than the rural area. Also students whose mothers are involved in Government Jobs are found to use internet more compared to those whose mothers are housewife may be due to the reason that working mothers can afford the internet cost more and also may provide more information to their offsprings leading to more use of internet. Institution computer laboratory Internet users uses more internet compared to those who uses his/her own Mobile/ PC/ Laptop as device as for institution laboratory students do not have to bother about the cost. Network issue is found to be a problem for internet users as those students who are facing network issue are found to use less internet compared to those who do not face network problem as network problem hinders the internet speed and thus students are reluctant to use internet and uses lesser hours of internet.



Table 2: Results of Determinant Analysis

		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Multinomial logistic regression							
Log likelihood = -109.04839							
Number of obs = 229							
LR chi2(70) = 177.75							
Prob > chi2 = 0.0000							
Pseudo R2 = 0.4490							
IU1		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
H							
	NOFSIB	-.3511791	.4886967	-0.72	0.472	-1.309007	.6066488
	YSIB	1.748898	1.201581	1.46	0.146	-.6061564	4.103953
S							
	2	.5421178	1.44486	0.38	0.708	-2.289755	3.373991
	3	-.3618088	1.521711	-0.24	0.812	-3.344307	2.620689
	1.GENDER	-1.613631	1.2451	-1.30	0.195	-4.053981	.8267198
CAST							
	2	.9391792	1.532412	0.61	0.540	-2.064293	3.942651
	3	-.3287934	2.166487	-0.15	0.879	-4.575029	3.917442
	4	2.383052	1.980852	1.20	0.229	-1.499346	6.265449
AREAS							
	2	5.557896	1.62866	3.41	0.001	2.365781	8.75001
	3	2.770053	1.503864	1.84	0.065	-.1774664	5.717572
NOFFATHERJOB							
	2	3.003672	2.308888	1.30	0.193	-1.521665	7.529009
	3	2.177042	2.215889	0.98	0.326	-2.166022	6.520105
	4	-18.82475	2751.69	-0.01	0.995	-5412.039	5374.389
NOFMOTHERJOB							
	2	1.048784	4.163492	0.25	0.801	-7.11151	9.209079
	3	3.89197	2.162928	1.80	0.072	-.3472917	8.131231
	4	-10.06587	20921.85	-0.00	1.000	-41016.15	40996.01
FEL							
	2	-.0169131	3.984882	-0.00	0.997	-7.827138	7.793311
	3	.5767937	3.917801	0.15	0.883	-7.101954	8.255542
	4	1.249173	4.037451	0.31	0.757	-6.664086	9.162432
MEL							
	2	-2.286937	3.872243	-0.59	0.555	-9.876395	5.30252
	3	-6.121858	4.119124	-1.49	0.137	-14.19519	1.951477
	4	-6.537705	4.201349	-1.56	0.120	-14.7722	1.696789
DEVICE							
	2	-14.76537	20921.85	-0.00	0.999	-41020.85	40991.31
	3	-10.81427	20921.85	-0.00	1.000	-41016.9	40995.27
	4	5.735592	2.678129	2.14	0.032	.4865559	10.98463
DATASOURCE							
	2	.6187144	1.312016	0.47	0.637	-1.952789	3.190218
	3	2.367624	2.134856	1.11	0.267	-1.816617	6.551865
	4	-20.31781	20921.85	-0.00	0.999	-41026.4	40985.76
	1.FORMERTOINFORMAL	2.075633	1.419088	1.46	0.144	-.7057286	4.856995
	1.IMPROVEKNOWLEDGE	2.652209	1.75287	1.51	0.130	-.7833529	6.08777
	1.INTERNETUSEIMPROVED	-2.188263	1.343175	-1.63	0.103	-4.820838	.4443108
	1.NETWORK	-2.441907	1.367711	-1.79	0.074	-5.122573	.238758
	1.DATACOST	-2.318858	1.084681	-2.14	0.033	-4.444793	-.1929227
	1.FIAC	-1.913737	1.390269	-1.38	0.169	-4.638615	.8111404
	1.IICDC	-3.36116	1.542664	-2.18	0.029	-6.384726	-.337594
	_cons	-2.089726	4.707545	-0.44	0.657	-11.31634	7.136892

L							
	NOFSIB	.3076997	.2066471	1.49	0.136	-.0973212	.7127206
	YSIB	-.4152799	.4925914	-0.84	0.399	-1.380741	.5501815
	S						
	2	-3.567752	.8988293	-3.97	0.000	-5.329425	-1.806079
	3	.5660724	.5811797	0.97	0.330	-.573019	1.705164
	1.GENDER	.0335683	.5136596	0.07	0.948	-.9731859	1.040323
	CAST						
	2	-.3946806	.6223205	-0.63	0.526	-1.614406	.8250451
	3	-.5558871	.9803615	-0.57	0.571	-2.47736	1.365586
	4	.3531249	.6342595	0.56	0.578	-.8900008	1.596251
	AREAS						
	2	-.1058892	.5320157	-0.20	0.842	-1.148621	.9368423
	3	.4503507	.664325	0.68	0.498	-.8517024	1.752404
	NOFFATHERJOB						
	2	-1.151252	.6777809	-1.70	0.089	-2.479678	.177174
	3	-1.713089	.6906327	-2.48	0.013	-3.066704	-.3594734
	4	.6203843	1.101525	0.56	0.573	-1.538565	2.779334
	NOFMOTHERJOB						
	2	2.424523	1.32844	1.83	0.068	-.1791718	5.028218
	3	-.0611006	.9497258	-0.06	0.949	-1.922529	1.800328
	4	-20.03324	9475.734	-0.00	0.998	-18592.13	18552.06
	FEL						
	2	.8103515	1.291504	0.63	0.530	-1.720951	3.341653
	3	.2438797	1.286414	0.19	0.850	-2.277445	2.765204
	4	.0566877	1.374497	0.04	0.967	-2.637277	2.750652
	MEL						
	2	-1.0485	2.549938	-0.41	0.681	-6.046286	3.949286
	3	-.6010443	2.566992	-0.23	0.815	-5.632257	4.430168
	4	-1.433048	2.590588	-0.55	0.580	-6.510507	3.64441
	DEVICE						
	2	-19.41345	9475.734	-0.00	0.998	-18591.51	18552.68
	3	-22.45866	9475.734	-0.00	0.998	-18594.56	18549.64
	4	.5660918	1.692228	0.33	0.738	-2.750615	3.882798
	DATASOURCE						
	2	.0902065	.5451436	0.17	0.869	-.9782553	1.158668
	3	-.3828097	.948839	-0.40	0.687	-2.2425	1.476881
	4	-16.34237	9475.734	-0.00	0.999	-18588.44	18555.75
	1.FORMERTOINFORMAL	.907144	.5031509	1.80	0.071	-.0790138	1.893302
	1.IMPROVEKNOWLEDGE	1.610668	.5191796	3.10	0.002	.5930948	2.628242
	1.INTERNETUSEIMPROVED	-.860823	.6530816	-1.32	0.187	-2.140839	.4191934
	1.NETWORK	.7758963	.449691	1.73	0.084	-.1054818	1.657274
	1.DATACOST	-1.211053	.4479446	-2.70	0.007	-2.089008	-.333098
	1.FIAC	-.3870738	.5741047	-0.67	0.500	-1.512298	.7381507
	1.IICDC	-1.309219	.5911985	-2.21	0.027	-2.467947	-.1504915
	_cons	1.541004	2.64056	0.58	0.559	-3.634398	6.716406
M		(base outcome)					

For low category internet users, it is found that Commerce Stream students are found to use less internet compared to Arts stream. Arts students need more internet based information or study material or are more engaged in recreation and communication. Fathers who are farmer and unemployed or those who are engaged in Government Jobs are found to use less internet compared to those who are engaged in business. Also students whose mothers are involved in business are found to use internet more compared to those whose mothers are housewife. The reason may be that business people may afford more internet cost. Students who are using internet based source during their study or believes that their knowledge improved through internet are found to use more internet compared to those who do not use internet source in their study or believes that internet do not improve their knowledge. Those students who are facing network issue are found to use more internet compared to those who do face network problem as network problem hinders the internet speed and thus takes more hours to do the same work compared to those who do not face network issue. Students who are facing data cost problem or those whose internet expenditure increased after COVID-19 are found to use less internet compared to those students who do not face data cost problem or their internet expenditure have not increased after COVID 19.

#### 4. Conclusion

The present paper analyses the attitude and challenges towards internet usage of post graduate students of Paschim Medinipur district of West Bengal and also tried to understand the major factors behind the variation in their internet usage.

Within this scope, primary data have been collected through field survey from Vidyasagar University for the year 2021-22 and analysis is done with 315 cross section data covering all the three streams, Science, Arts, and Commerce and Management from various departments namely, Mathematics, Zoology, Anthropology, English, Philosophy, History, Economics, Commerce, and Business Administration.

First of all, attitude and challenge of post graduate students are analysed considering the variables, hours of internet usage, perception about usefulness of Internet for different purposes, preference for online education to formal education, preference for online classes to classroom lectures, Type of device used, Type of data used, different problems related to internet and whether internet usage adversely affected due to COVID-19. It is found that all the students considered uses internet. Few students from different streams' internet usage pattern can be considered as a move towards an addictive attitude and among the three streams, commerce students are more addicted towards internet usage. Above 90% students of all stream uses internet for academic purposes but among them science student's percentage is highest. Preference for online education over formal education is more for all stream students and is maximum for science students. Most of the commerce students are found to prefer online classes to classroom lectures but the picture is just reverse for science students as most of the science students prefer classroom lectures to online classes. Preference for online classes over classroom lectures is found to be more for commerce students compared to other streams. All stream students generally use their own smartphone and PC for accessing the internet. Along with it, commerce and science students used friends' computer and internet cafe for accessing the internet. The information regarding the source of internet data reveals that Arts, Commerce, and Science students mostly use the internet through mobile data. Arts and science students responded to network problems whereas Commerce students mostly faced data cost problems. So, network and data costs are common problems which dominates other problems for all stream students. Information regarding the increase in internet expenditure after COVID-19 indicates that it is maximum for science stream students. All stream students' family income is highly affected due to COVID-19 among which commerce and management is maximum.

The above results motivated us to find out the factors behind Hours of internet usage for all three categories i.e. low, medium and high i.e. to get the internet usage specific determinants, Multinomial logit regression analysis is used. Using mlogit model, different types of determinants for different categories of internet users can be obtained. Here medium category internet users are considered as benchmark. The variables as possible determinants considered are number of siblings, number of young siblings, stream, gender, caste, area, nature of father's job, nature of mother's job, father's education level, mother's education level, device, data source, internet based source during study, knowledge improvement through internet, internet use improved educational performance, network issue, data cost, family income got affected due to COVID-19 and increase in internet expenditure after COVID-19.

In case of high category internet users, Urban and Semi-Urban area students are found to use internet more as network and speed of internet are better than rural area students. Students whose mothers are involved in Government Jobs are found to use internet more as working mothers can afford the internet cost more and also may provide more information to their offspring leading to more internet use compared to those whose mothers are housewife. Institution computer laboratory Internet users uses do not have to bother about the cost as so can use more internet compared to those who uses his/her own Mobile/ PC/ Laptop. Network issue, which hinders the internet speed, and thus students are reluctant to use internet, are using lesser hours relative to those students who are not facing network issue.

For low category internet users, Arts stream students may need more internet based information or study material or are more engaged in recreation and communication and thus use more internet than Commerce Stream students. Father and mother who are involved in business may afford more internet cost and thus their offspring uses more internet. Students who are using internet based source during their study or believes that their knowledge improved through internet are found to use more internet compared to those who do not use internet source in their study or believes that internet do not improve their knowledge. Network problem hinders the internet speed and thus takes more hours to do the same work leading to more hours of internet usage compared to those who do not face network issue. Students who are facing data cost problem or those whose internet expenditure increased after COVID-19 are found to use less internet compared to those students who do not face data cost problem or their internet expenditure have not increased after COVID 19.

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