

Public Access Venues for ICTs:

Connecting People for Bangladesh's Development

Global Impact Study | Bangladesh Report

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Public Access Venues for ICTs

Connecting People for Bangladesh's Development

Global Impact Study | Bangladesh Country Report

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Executive Summary

This report compiles the findings of a nationwide survey that was carried out in Bangladesh as part of the Global Impact Study (GIS) to assess the performance and impacts of Public Access Venues (PAVs) in Bangladesh. The study highlights the key findings and challenges related to public access to ICTs in Bangladesh and identifies a number of intervention priorities. The report draws on data gathered from three separate surveys (venue survey, user survey, and non-user survey), and an in-depth study which included 30 ethnographic case studies, 7 focus group discussions (FGDs) and 10 in-depth interviews. A representative sample of 250 venues (cybercafés, telecenters, and libraries) and 1,000 PAV users (4 respondents from each of the 250 PAVs) was selected respectively for the venue and user survey from 25 districts under all seven divisions. In addition, 400 non-users were surveyed from 10 districts (40 respondents from each district), within the vicinity of a PAV.

The report illustrates how Public Access Venues are playing a vital role in providing ICT access to the general population. In particular, it shows that telecenters and UISCs are bringing ICT to the reach of the marginalized with the help of infomediaries, minimizing the ‘digital divide’. The report also illustrates that public access has positive impacts in a number of areas including communication and leisure, education and employment while impacts related to traditional development goals are somewhat mixed.

The findings from the non-user survey indicate that those non-users who do not have private access to ICT are mostly computer illiterate and have little or no familiarity with ICTs, as opposed to users. In general, the respondents in this group are less privileged than the respondents of the user survey, and they represent the marginalized community that PAVs are yet to connect.

Research findings also indicate that the venues face a number of infrastructure related challenges, such as interrupted electricity, lack of computers, poor internet connectivity, etc., that interrupt the smooth operation of venues.

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List of Acronyms

FGD	–	Focus Group Discussion
GIS	–	Global Impact Study
HIES	–	Household Income and Expenditure Survey
ICT	–	Information and Communication Technology
IDRC	–	International Development Research Centre
IID	–	Institute of Informatics and Development
kBps	–	Kilo Byte per Second
LDC	–	Least Developed Country
PAV	–	Public Access Venue
PC	–	Personal Computer
TASCHA	–	Technology and Social Change Group
Tk	–	Bangladeshi Taka
UISC	–	Union Information Service Centre
UN	–	United Nations
UPS	–	Uninterrupted Power Supply

1. Background

Public Access Venues (PAVs) are non-profit and for-profit initiatives that offer public access computing and other related ICT services to communities through telecenters, libraries and cybercafés. These venues have been widely hailed as an innovative model of ICT-based development for serving the needs of marginalized population who do not always have adequate access to information and communication technologies. Despite many benefits, PAVs frequently face various technological, financial and social limitations. To ensure sustainability, PAVs need to explore strategies to overcome the existing and future challenges.

This report draws on the findings of a nationwide survey, which was carried out in Bangladesh as part of the Global Impact Study (GIS), to assess the performance and impacts of PAVs in Bangladesh. It also compares some of the findings with results drawn from the GIS Final Report[1] to see where Bangladesh stands globally with regard to PAVs. The report highlights the key findings and challenges related to public access to ICTs in Bangladesh and draws some recommendations for resolving these challenges.

1.1. Research Questions

This research aims to address a number of questions regarding the usage of PAVs and their impacts. The following are the key research questions of interest addressed in this report:

- 1) What is the demographic profile of public access ICT users and non-users?
- 2) What are the ICT skills and levels of familiarity with ICT of public access users and non-users?
- 3) Why do people go to public access venues?
- 4) What are the important domains of interest to public access users with regard to PAV use?
- 5) What do public access users see as the impacts of using public access ICTs?
- 6) What are the outcomes of their use of PAVs within different domains of interest?
- 7) How important is public access ICTs to users?
- 8) What are the reasons for non-use of public access ICT?
- 9) Are there any indirect impacts to non-users due to PAVs?
- 10) Is there any kind of digital divide or ICT access gap between the users of the PAVs?

The last research question is rather broad, and attempted answers usually result from a combination of cross-references between the previous questions. For example, we find that users of different demographic categories have different skills with ICTs, and also perceive impacts differently, suggesting the existence of some form of digital divide.

1.2. Global Impact Study

The GIS spanned 8 countries; out of which, 5 core countries were chosen in which to carry out detailed surveys and in-depth studies. The five core countries are Bangladesh, Brazil, Chile, Ghana and the Philippines. It is worth noting that Bangladesh is the only low-income country in this group, according to the World Bank Country Classification[2], and the only LDC, according to UN's classification[3]. A particular finding of the GIS study reflects this fact: the population of Bangladesh is the least ICT resourced of all countries studied, that is, this country has the lowest percentage of households that own a computer or have internet connection.

The study comprised three separate surveys (venue survey[4], user survey[5], and non-user survey[6]) and an in-depth study which included 30 ethnographic case studies, seven focus group discussions (FGDs) and 10 in-depth interviews. For the venue and user surveys, a representative sample of 250 venue operators (from cybercafés, telecenters and libraries) and 1,000 users (4 respondents from each of the 250 PAVs) was selected respectively from 25 districts under all seven divisions. In addition to that, 400 non-users were surveyed from 10 districts (40 respondents from each district), within the vicinity of a PAV. This report shall mainly focus on the findings of the three surveys [7-9] in the context of Bangladesh, occasionally supplemented by other sources of data.

1.3. The Venues

There are three major types of public access venues: public library, cyber café and telecenter. However, during the venue selection, only three public libraries were found with public access[10]. As telecenters and cybercafés constitute the largest source of public access to ICT, this report will primarily draws comparisons between these two venues. Telecenters are also of particular interest as 64 percent of all telecenter users in the GIS survey are from Bangladesh.

Both these venues offer access to computers, internet and a host of other facilities, usually for a fee. The main difference between a cybercafé and a telecenter in the context of Bangladesh is that telecenters provide assistance to users in searching for information via an infomediary (venue staff whose job is to assist users with information search). Telecenters also tend to be cheaper than cyber-cafés and less commercial, with a large number of them being partially funded by the government. The infomediary may assist users in a variety of ways, such as translating pages, searching for information related to users' problems, suggesting solutions based on online search, etc. The existence of an infomediary makes it possible for computer-illiterate or educationally disadvantaged people to avail of ICT services that they would otherwise be alienated from. This feature of telecenters is deemed critical, as they are mostly located in or near rural areas where a large portion of the population belong to this marginalized group who have little or no prior experience with computers or the internet. In fact, one of the major findings of this report is that telecenters are more frequented by the underprivileged groups of society than other PAVs are.

1.4. Definition of 'Users'

During the user survey in Bangladesh, 47 percent of the respondents were located in a cybercafé, while 52 percent were located in a telecenter. When asked where the respondents generally use a computer, telecenter and cybercafé combined accounted for 67 percent of the total responses, while home, school, workplace and other locations accounted for the remaining 33 percent.

Throughout this paper the term 'users' is used to refer to the respondents of the user-venue survey of the GIS, unless otherwise stated. This broad group is divided into four categories, according to their response to the question, "Where do you usually use a computer?"

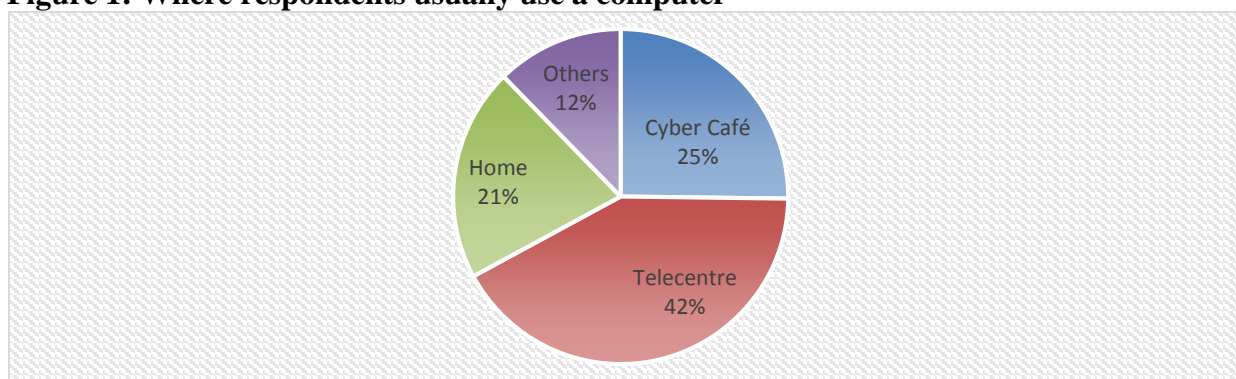
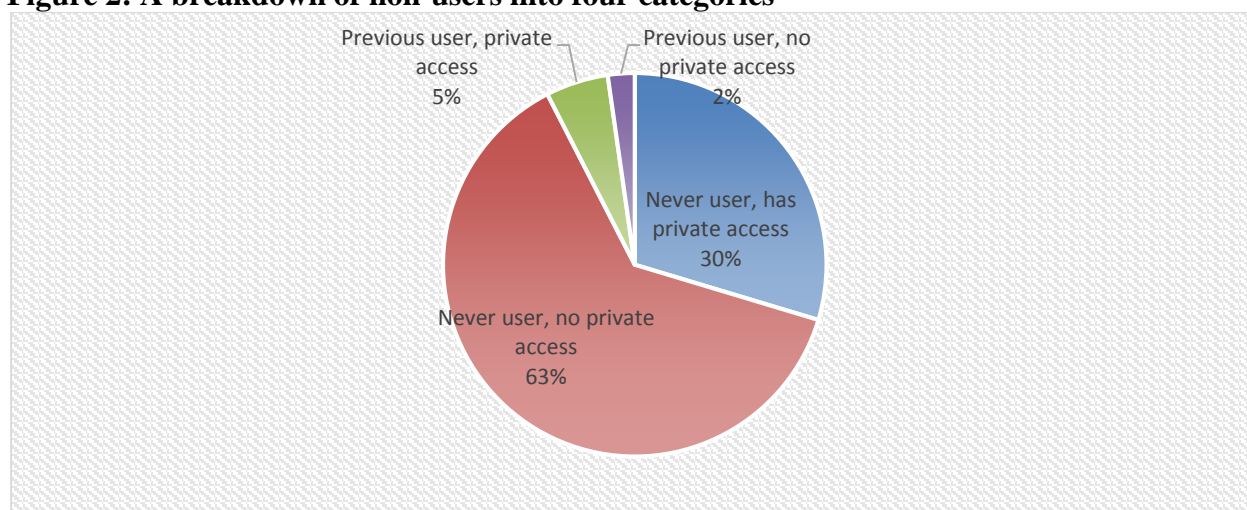
Figure 1: Where respondents usually use a computer

Figure 1 shows the summary of the responses to this question. Throughout the paper, the term ‘telecenter users,’ ‘home users,’ ‘cybercafé users’ and ‘other users’ will refer to those respondents that answered ‘telecenter,’ ‘home,’ ‘cybercafé’ and other venues respectively in response to the question above. This not to be confused with the location of users during the time of the survey, as many of them are multiple venue users. Rather, the terms derive from their preference of location or venue for computer usage (*not* internet usage, however).

1.5. Definition of ‘Nonusers’

The survey of non-users classified the respondents into four major categories: never-user¹ with private access, previous-user² with private access, never-user with no private access, and previous-user with no private access. A breakdown of non-users is given in Figure 2.

Figure 2: A breakdown of non-users into four categories

¹ Never-user is defined as someone who has used a PAV less than 3 times in their lifetime and do not plan on using one in the next month.

² Previous-user defined as someone who has used a PAV more than 3 times in their lifetime, but less than three times in the last 12 months, and do not plan on using one in the next month.

A large portion of the non-users are never-users without private access. This means they never use PAVs, nor plan on doing so, despite having no private access. These are the people who are completely alienated from ICT, whether by choice or not. Thirty-five percent of the non-users have private access, so they belong to a group of people that have access to ICT without the use of PAVs. These two groups constitute more than 90 percent of the non-user population, therefore, we shall primarily draw findings from them.

1.6. The Significance of Public Access Venues

The significance of public access ICTs is demonstrated in the finding that these venues provide many people with their first opportunity to enter the digital age and gain experience with computers and the internet. Sixty percent of the users reported that they have used computers for the first time at a public access venue and 75 percent have used the internet for the first time at such a place. Users also develop digital literacy in public venues: 60 percent indicated that public access venues were the “most important place” to develop their computer skills and 48 percent found these venues to be the “most important place” to develop their internet skills.

Figure 3: Where users first used computers and the internet

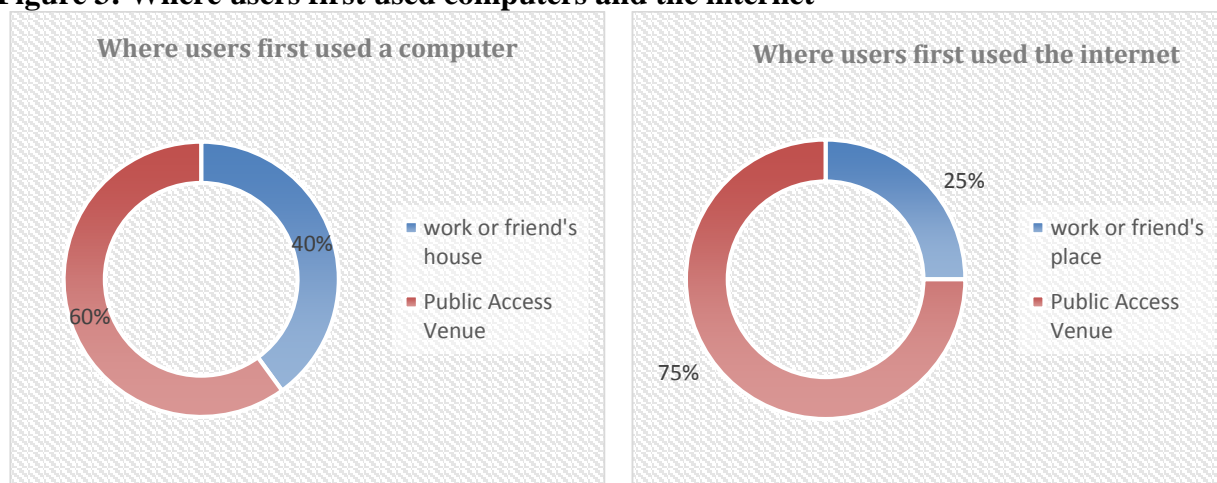
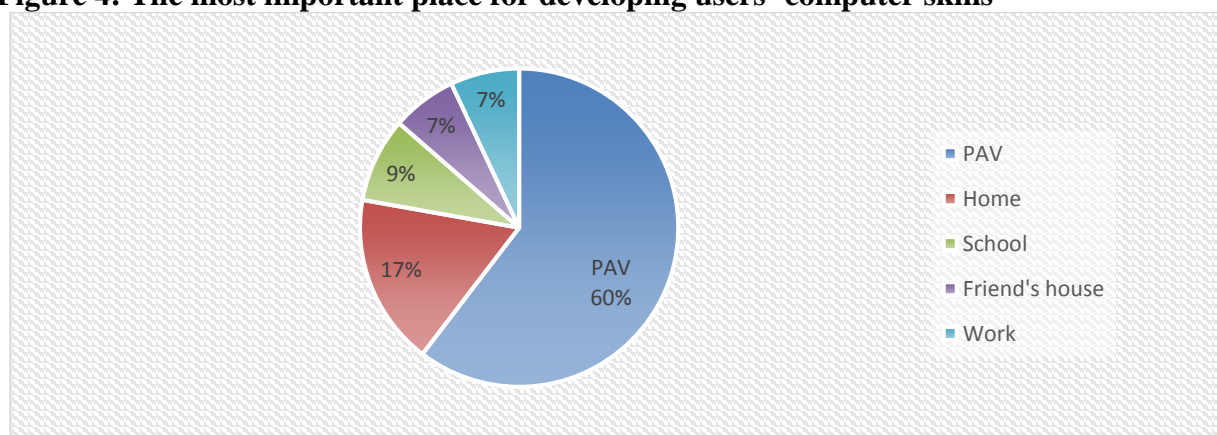


Figure 4: The most important place for developing users' computer skills



1.7. More than Just a Substitute to Private Access

Public access venues have more to offer than just access alone. Even people who have access at home prioritize venues for other reasons, such as access to the internet, faster connections, being with friends, or access to help from venue staff. For instance, when asked “where do you usually use the internet,” 54.6 percent of home users (i.e. those who usually use computers at home) answered that they use a PAV.

Figure 5: Where home users usually use the internet

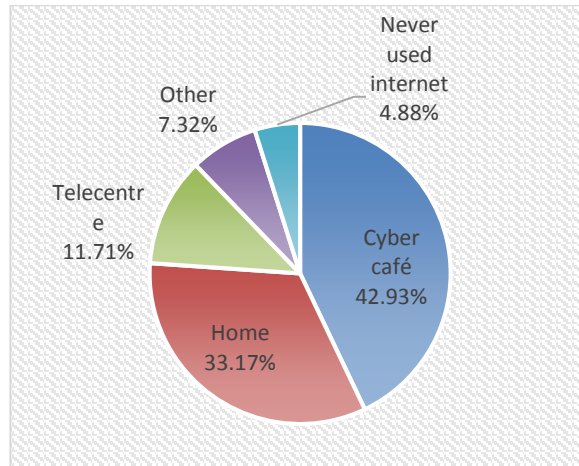
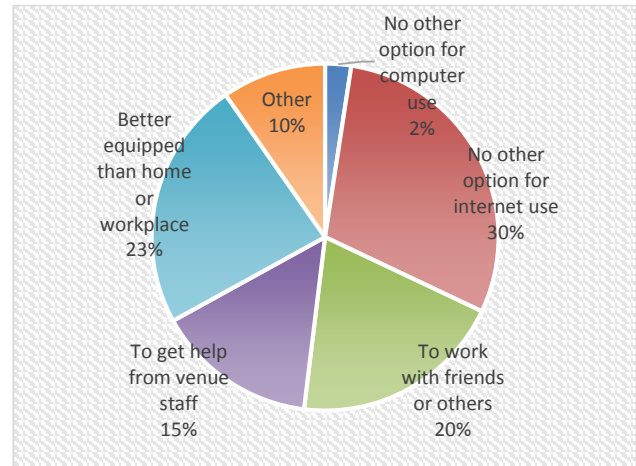


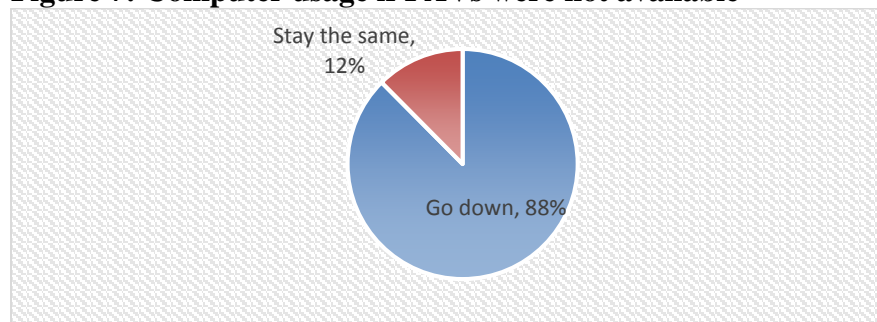
Figure 6: Reasons for PAV use by home users



Even with computers at home, some home users use PAVs for facilities that they cannot avail of otherwise. For instance, 30 percent of these users use PAVs as they have no other option for internet use, and 23 percent go to PAVs as they have better equipment. Furthermore, about a fifth of the home users go to PAVs to meet friends or other people, suggesting that social activities are a priority among some users.

The most direct indication of the impact of public access venues on technology access can be seen in users’ response to the possibility of losing this access. Almost all respondents stated that their use of computers would decline if public access venues were no longer available (88 percent of all users, including 93 percent of telecenter users). In the GIS final report, it is seen that this is generally the case for most countries (with the exception of Chile)[1]. However, the numbers are most extreme in the case of Bangladesh.

Figure 7: Computer usage if PAVs were not available



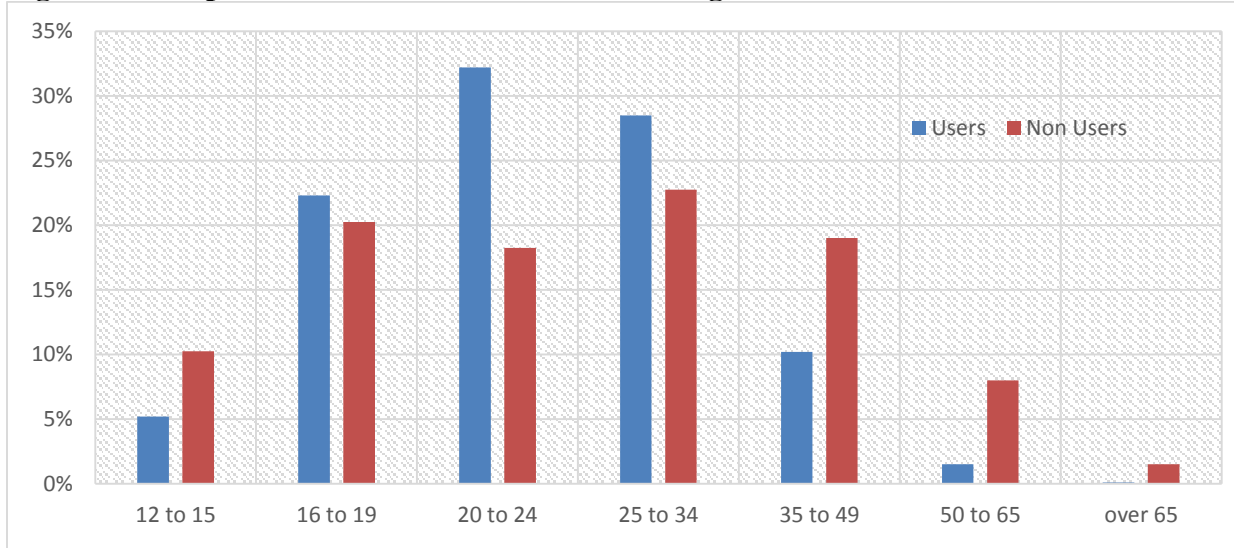
In order to better understand the situation of PAVs, and how to move forward with policies, funding and further research, it is crucial to understand who uses public access venues and for what purposes. In the following sections, we examine how public access venues play a critical role in extending the benefits of ICTs to large sections of the population. In addition, we discuss the main findings in relation to the users of public access venues, particularly in relation to gender, age, education, skill and experience with computers, and income.

2. Profile of Public Access Venue Users and Non-users

The composition of public access users is diverse, with youths, adults, males, females, workers, and others represented in varying degrees. Moreover, the composition of users is different for different types of venues, namely cybercafés and telecenters, particularly in relation to users' income level, computer skills, English skills, gender, etc.

2.1. Age Distribution of Users and Nonusers

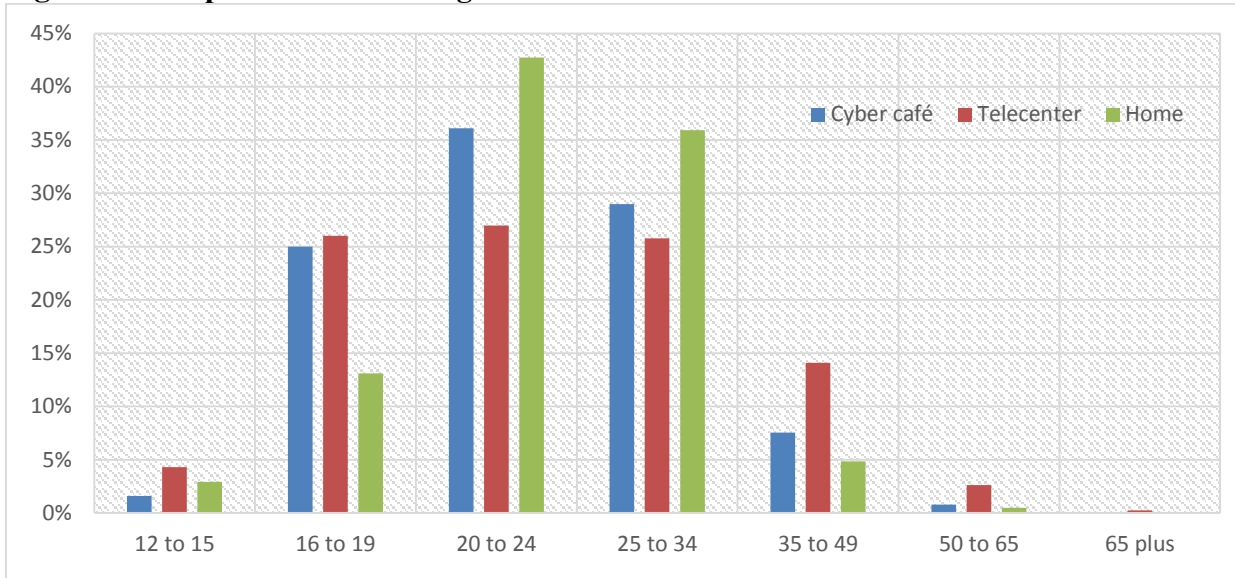
Figure 8: Comparison between non-user and user age distribution



From Figure 8 we see that the dominant age group among users is between 20 and 34 years, and the age distribution tilts somewhat towards the younger ages. Those aged above 35 comprise a much lower percentage of users. This pattern is prevalent in other countries surveyed by the GIS. In fact, there is a slightly higher percentage of older users in Bangladesh than for any other country.

The age distribution varies somewhat across different types of venues (Figure 9). The highest concentration of users for all venues is in the 20 to 24 age range, but it is particularly high for cybercafé and home users. Telecenters have a more diverse set of users in terms of age, compared to other venues. They have a higher percentage of younger users (12 to 19 years of age) and older users (above 35) than other venues.

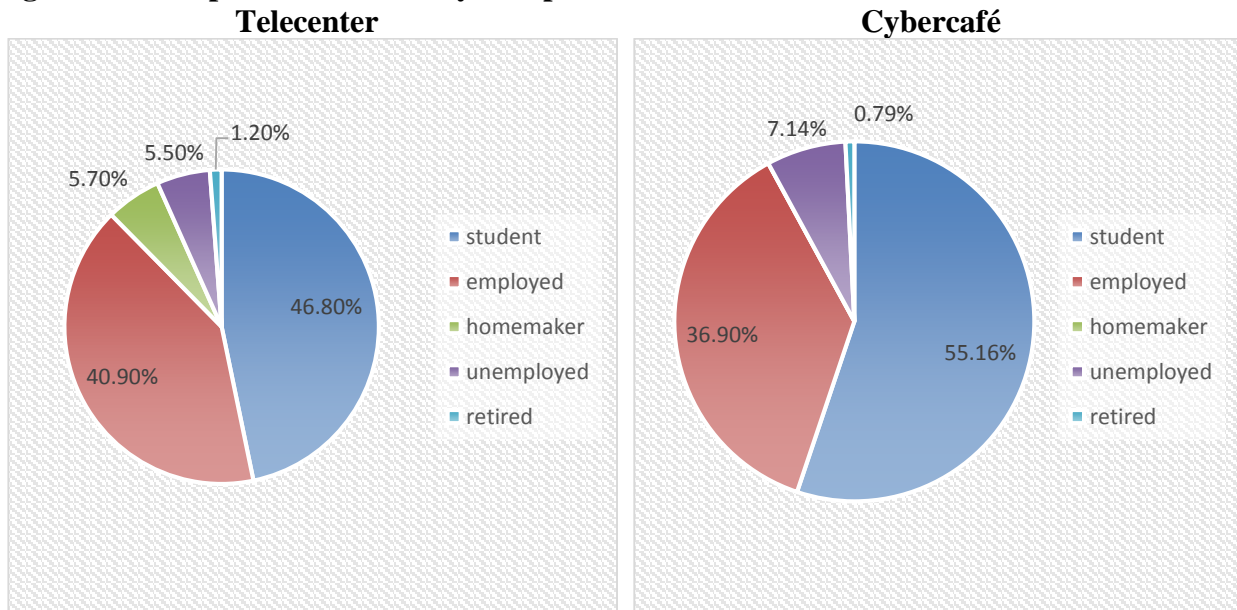
Figure 9: Comparison of users' age distribution across venues



2.2. Occupation of Users across Venues

Survey findings reveal that in both cybercafés and telecenters students comprise majority of users, followed closely by vocational users. There is little difference between the occupational distribution of telecenter users and cybercafé users. However, we see the emergence of a new group among telecenter users: homemakers. Out of 25 **homemakers** surveyed, 24 (96 percent) are telecenter users. This might be because homemakers, all of whom are women, prefer to use telecenters due to the presence of an infomediary, particularly a female infomediary.

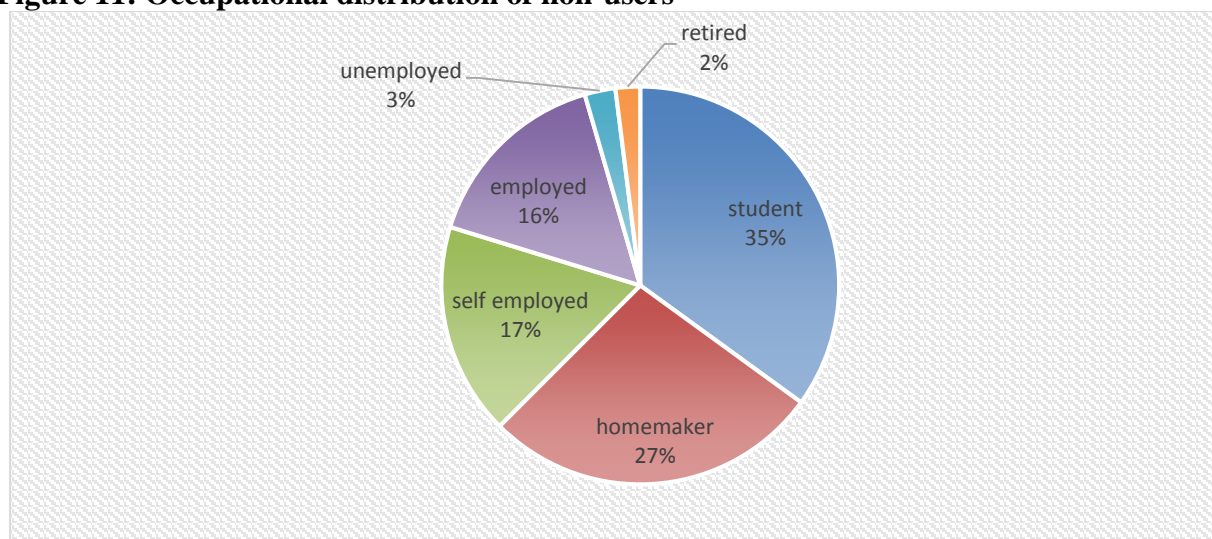
Figure 10: Composition of users by occupation



Non-users are comprised of 2 major groups: students and homemakers. Students comprise 35 percent of the non-user population, as opposed to about 51 percent for users. The biggest

difference, however, is in the proportion of homemakers. This is the second largest group of non-users (27 percent), but among users this is one of the smallest groups (only 2.5 percent). This may account for why female attendance at PAVs is low, as all homemakers surveyed are female. Moreover, among non-users, homemakers constitute about 55 percent of the female respondents, which is in line with the general trend one would expect in this country. On the other hand, among female PAV users, only 11.5 percent are homemakers and an overwhelming 59.4 percent are students. It is clear that an access gap exists between homemakers and ICT, which may partially account for the overall low attendance of females at PAVs.

Figure 11: Occupational distribution of non-users



2.3. Education Level

According to the GIS Final Report, there is a higher percentage of more educated users in Bangladesh than in most other countries (see Table 1). About 71 percent of all users in Bangladesh have at least post-secondary education. But when it comes to users with secondary education or below, Bangladesh has the lowest proportion of all the countries (Table 2).

Table 1: Cross country comparison of users' education levels

Education	All %	Bangladesh %	Brazil %	Chile %	Ghana %	Philippines %
No schooling	2	3	6	1	0.4	0.4
Primary	16	7	34	18	18	5
Secondary	37	19	38	47	42	39
Post-secondary	14	31	8	18	7	7
Tertiary	31	40	14	16	33	49
Total	100	100	100	100	100	100

However, further analysis reveals that bias in education levels comes mostly from home users and cybercafé users. Telecenter users display a different pattern, as shown below.

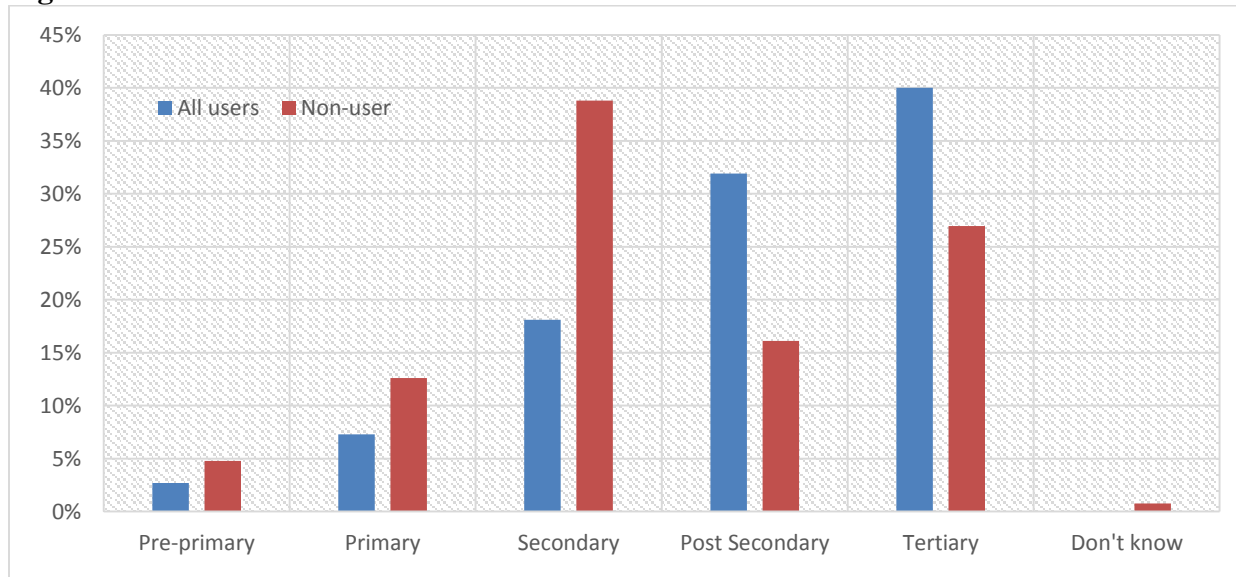
Table 2: Education level across venues

<i>Type of User</i> <i>Education</i>	Cybercafé (%)	Telecenter (%)	Home (%)
Pre-primary or None	0	6	0
Primary	3	9	2
Secondary	18	23	10
Post Secondary	36	36	22
Tertiary	43	26	66
Total	100	100	100

Home users display the highest levels of education, with 66 percent having completed tertiary education, followed by cybercafé users (43 percent). Telecenter users, however, are comprised of only 26 percent of users with tertiary education. Telecenters are also on par with Brazil in reaching out to those with no schooling at all (6 percent). Even so, the proportion of telecenter users in Bangladesh with post-secondary education or higher is still larger than the average for any other country.

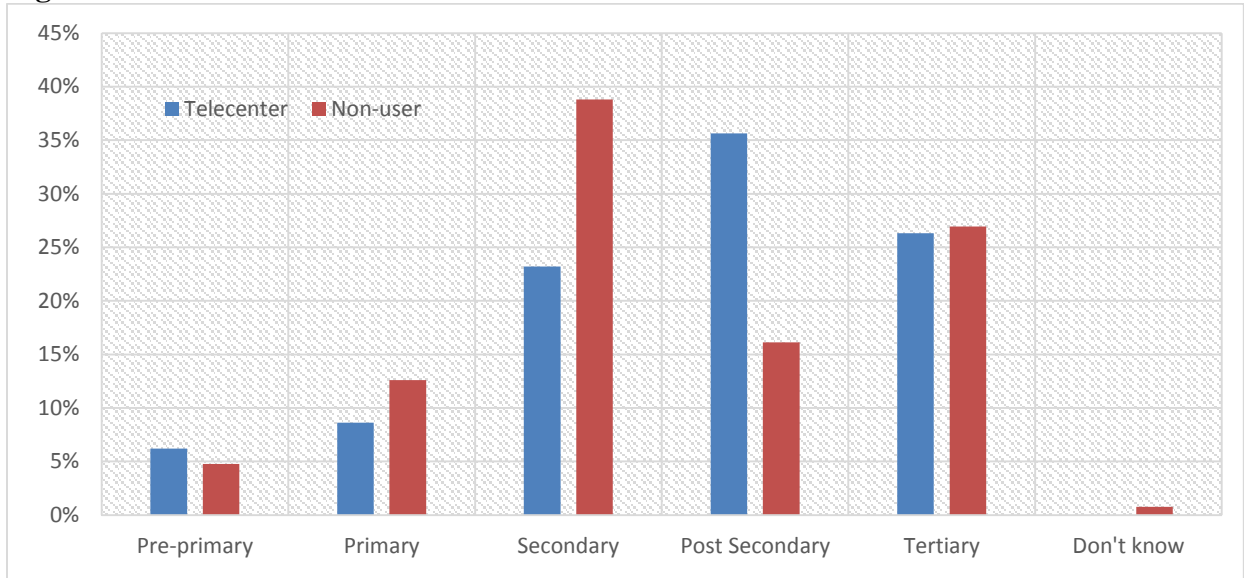
Non-users in general have attained a lower educational status than users, as shown in Figure 12. Seventy-two percent of all users have at least post-secondary education, indicating that they are either university students or have university degrees, but in the case of non-users 43 percent belong to this category.

Figure 12: Education level of users and non-users



The difference is less stark when non-users are compared to telecenter users.

Figure 13: Educational level of telecenter users and non-users



Again, we see that the main difference is in the number of people who have completed secondary education and those who have completed post-secondary education. This supports the idea that university students have a higher likelihood of being PAV users. Furthermore, since non-users are generally older than users, the difference in educational level is greater if we take into account the age. This is also evident that the correlation between PAV usage and educational level is not just a result of the age distribution, as PAV users are both younger and more educated than non-users.

2.4. Income

This section of the report analyzes and compares the household monthly income distribution of users with that of national data for the entire country population. It is apparent that PAVs generally attract visitors whose incomes are significantly higher than the national average[11]. This is the same for most countries, according to the following excerpt from the GIS Final Report:

“In addition to income level, the survey captured complementary socioeconomic information. The majority of public access users live in families that own their home: nearly three-quarters in Bangladesh, more than 70 percent in Chile and the Philippines, 60 percent in Brazil, and just over 50 percent in Ghana. Most of the other users rent homes, although Brazil, Ghana, and the Philippines show sizeable proportions who occupy dwellings without payment (14 percent, 11 percent, and 10 percent, respectively). In general, public access users’ homes have basic amenities such as electricity, as well as possessions such as TVs, satellites, and cars.”

Figure 14: Distribution of users by household monthly income

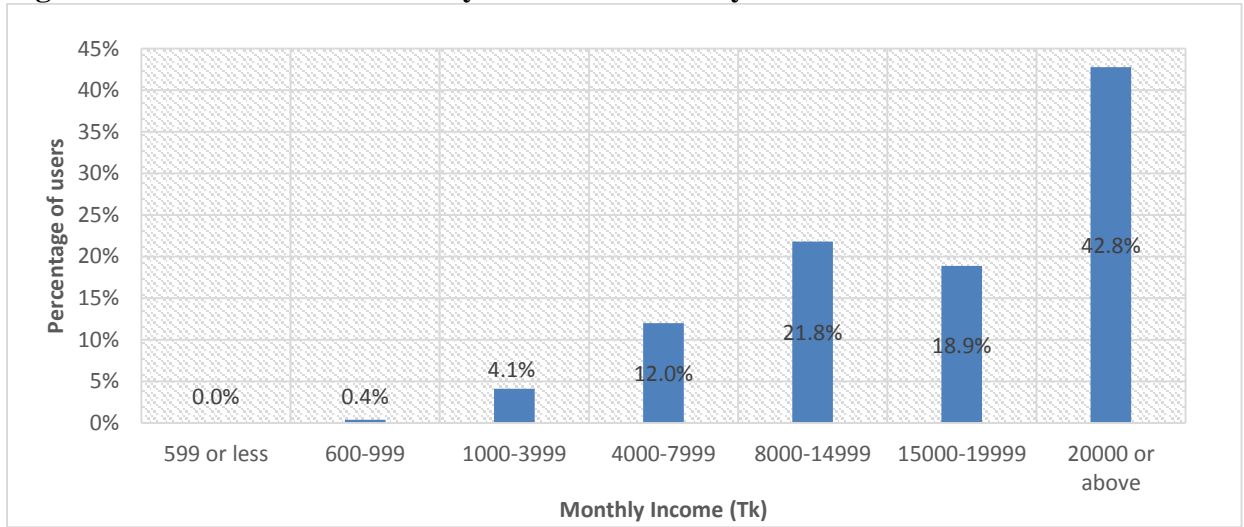


Figure 15: Monthly household income of users compared with national population

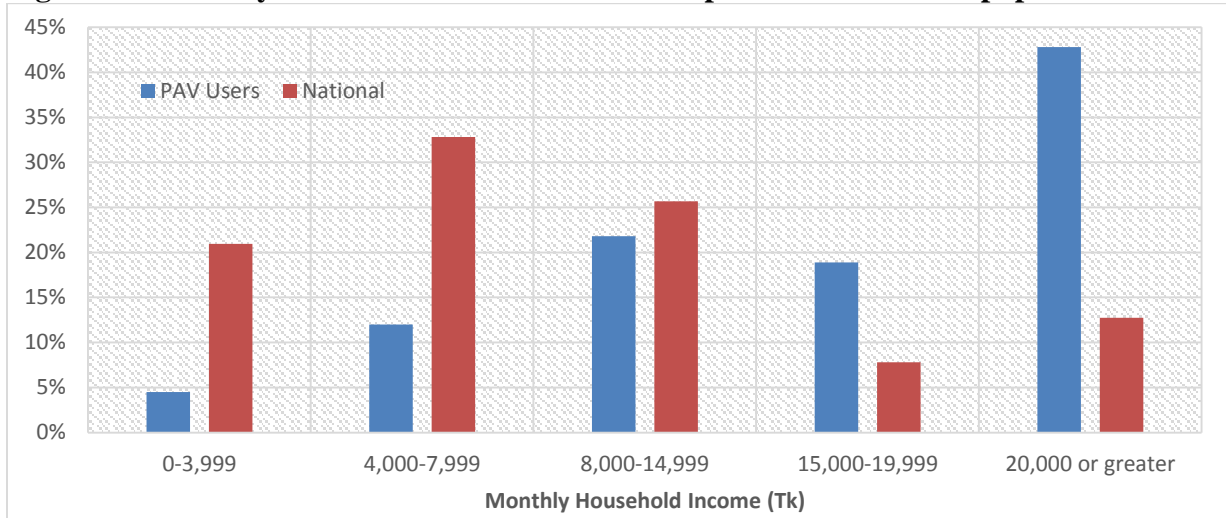
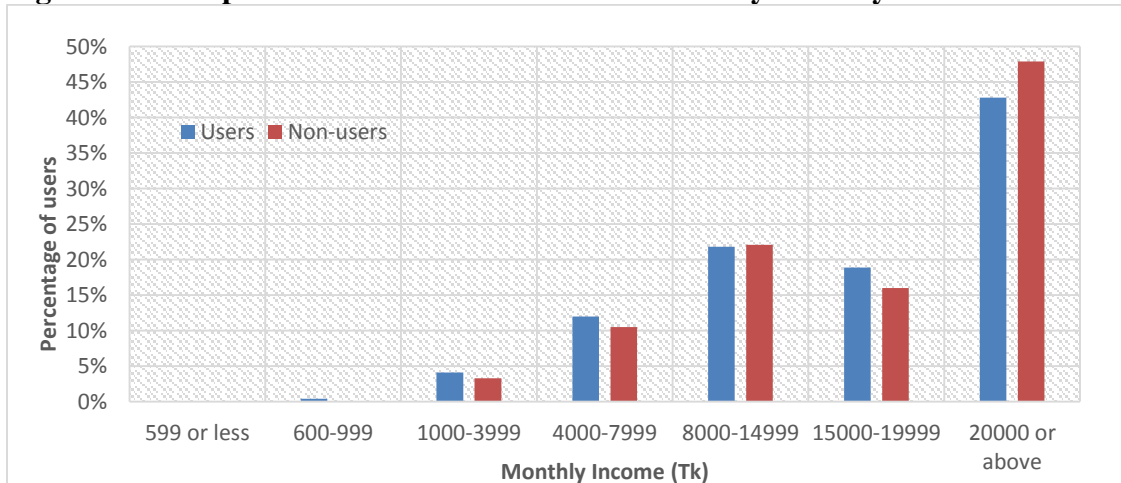


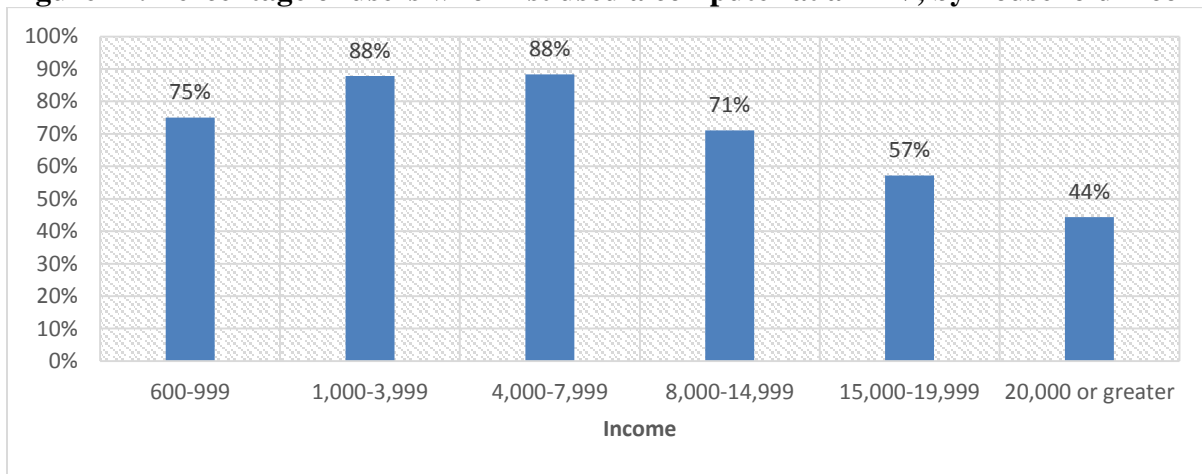
Figure 16: Comparison between users and non-users by monthly household income



The monthly household incomes for non-users do not vary greatly between users and non-users. However, the personal monthly incomes of the individuals do vary a great deal. About 64 percent of non-users report a personal monthly income of 0 (zero), whereas, in the case of users, about 44 percent reported the same. Moreover, the GIS Final Report states that in Bangladesh about half the non-users and less than a third of users lie below the poverty line.

The GIS Report also stated that users below the poverty line are more likely to have had their first experience with computers at PAVs. When asked where they first used a computer, about 65 percent of those below the poverty line responded with PAV. Among those above the poverty line, however, only about 35 percent had their first experience with computers in PAVs. In Bangladesh, the numbers reflect this pattern even more convincingly.

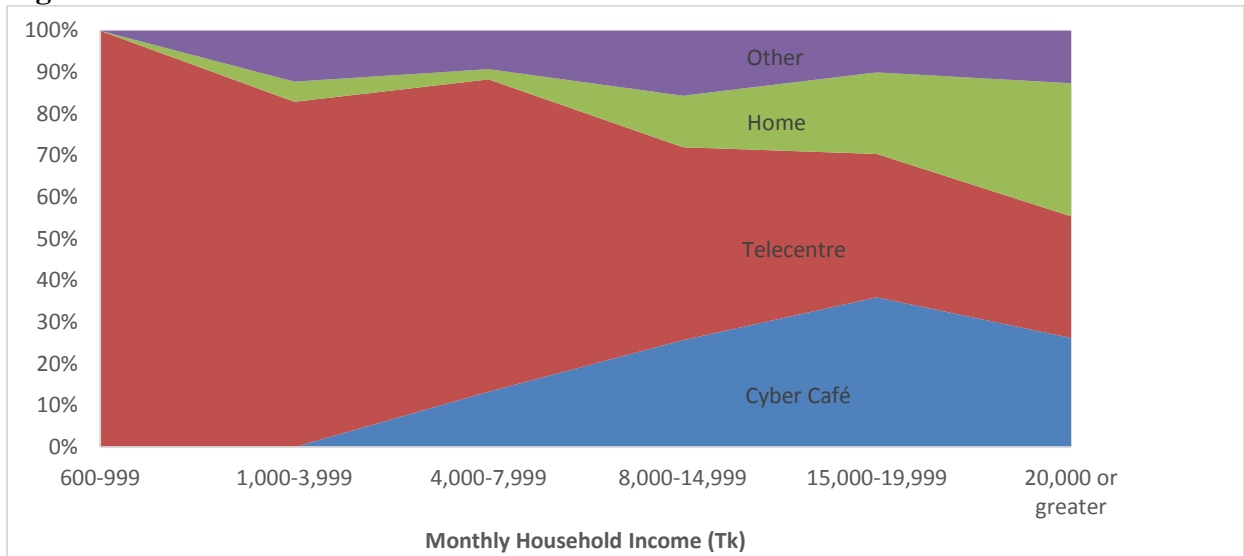
Figure 17: Percentage of users who first used a computer at a PAV, by household income



Even among users who earn the most (Tk 20,000 or more), 44 percent had their first experience to computers in PAVs. This suggest that ICT access in Bangladesh depends largely on PAVs, and other alternatives are scarce than other countries.

Furthermore, users with lower income appear more likely to be telecenter users. Users with higher income appear more likely to visit either cybercafés or use private access. Survey findings indicate that among the respondents who earn less than Tk 8,000 per month, 77.6 percent prefer telecenters. This relationship between the choice of PAV and income is apparent from Figure 18.

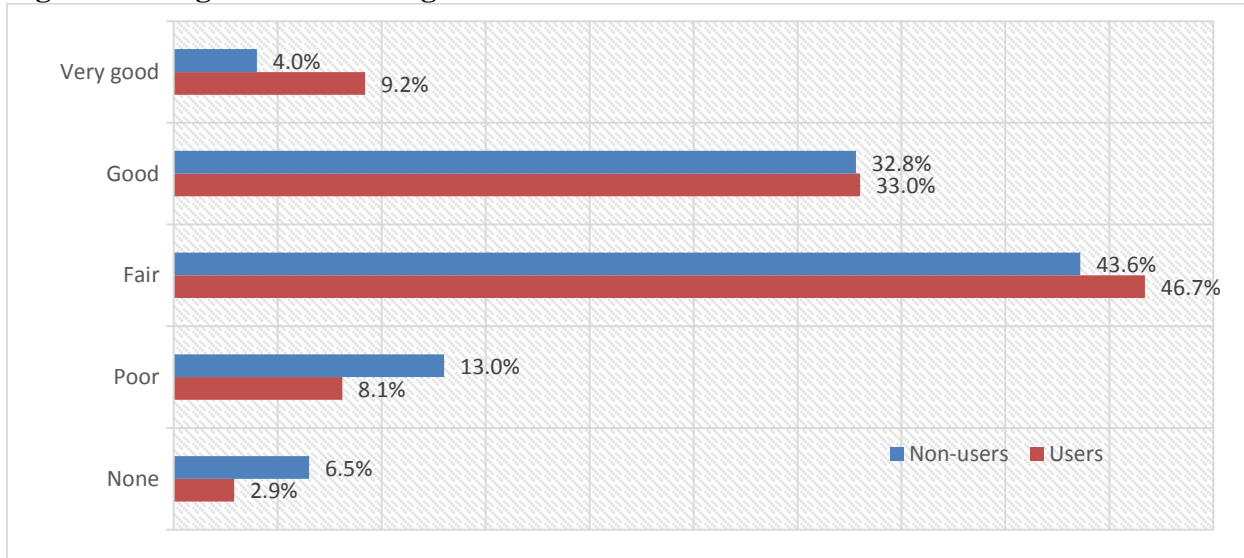
Figure 18: Differences in user income across different venues



2.5. English Skills

The majority of PAV users have fair or more than fair English skills (Figure 19). Only about 11 percent of all users have poor or no English skills. Non-users in general have slightly lower English skills than users: about a fifth are poor in English or have no skills in English.

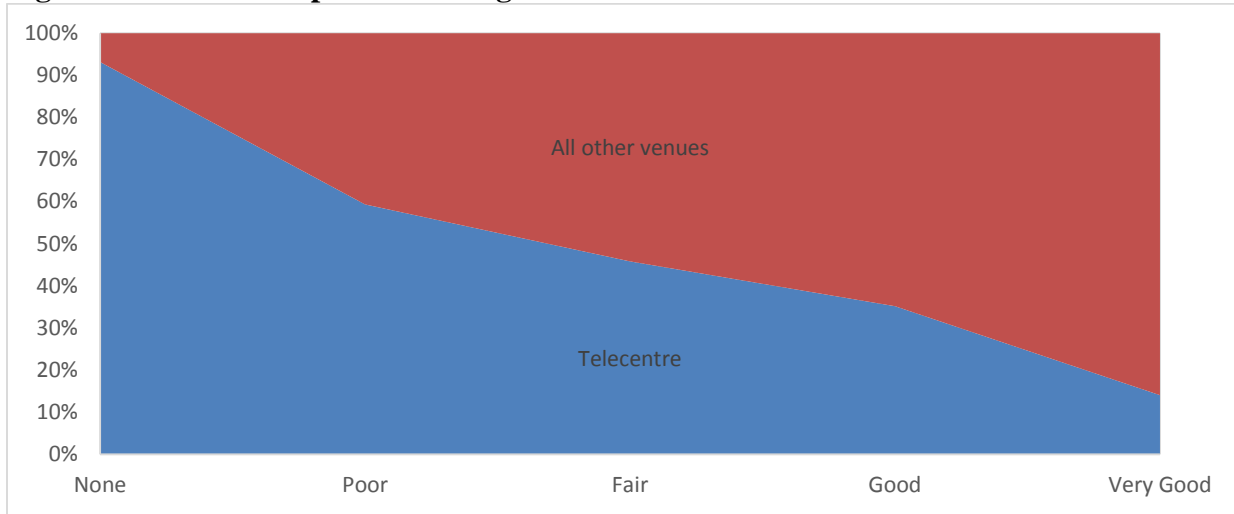
Figure 19: English skills among users and non-users



Survey findings indicate that users with less English skills are likely to use telecenters (Figure 20). Out of 29 respondents with no English skills, 27 were found to be telecenter users. As English language dominates the internet and computer applications and only 4.04 percent of cybercafés and 11.5 percent of telecenters provide access to content in Bangla (such as CDs, translation software, writing and editing software, etc), these users undeniably face significant language barriers while trying to access information online. In all likelihood, the availability of an

infomediary at telecenters is one of the critical variables that inform their choice of telecenters as infomediaries can provide language bridges and literacy connections which they could not avail at any other venues. In order to serve the information need of this marginalized community, developing infomediary capacity is of as much important as developing content in local language.

Figure 20: Relationship between English skills and choice of PAV



2.6. Computer Skill

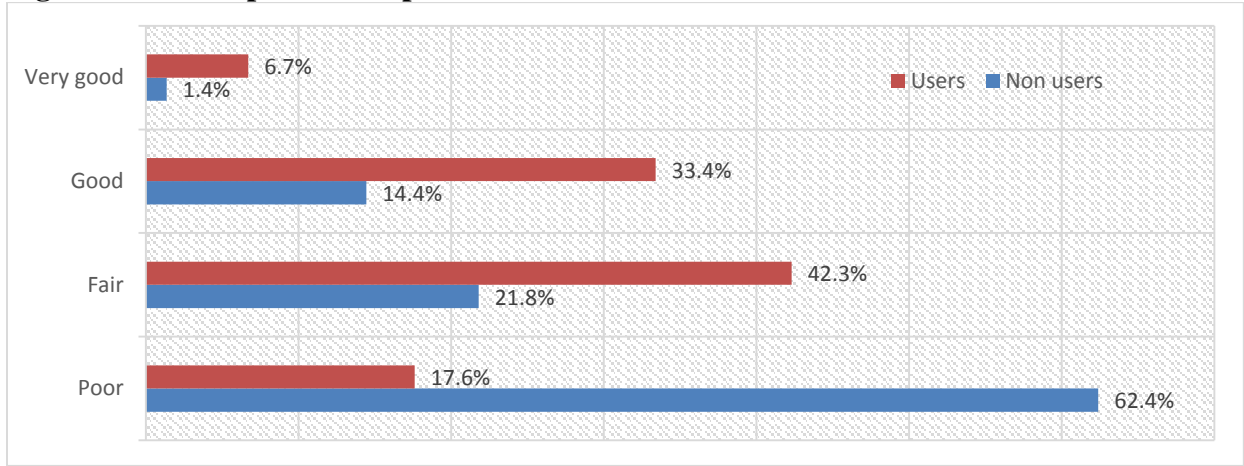
When it comes to experience with computers, GIS reveals that Bangladesh users have the least experience with computers. Almost a quarter (24 percent) of Bangladesh users have less than 6 months experience, whereas the world average is only 9 percent. The ratio is starker for telecenters: 38 percent of the users have less than 6 months’ worth of experience with computers and almost 50 percent of the users have less than a year’s worth of experience (Table 3). This means Bangladesh is relatively new in the ICT arena and most of the users of this country are relatively unskilled in the use of computers and that is exactly what is observed in the GIS cross country comparison, where users that assess their own skills to be ‘poor’ is highest in proportion in Bangladesh.

Table 3: Experience with computers across venues

		Where do you usually use a computer?		
		Cybercafé	Telecenter	Home
When did you first use a computer?	less than 6 months	19%	38%	3%
	7 - 11 months	5%	9%	3%
	1- 2 years	24%	25%	18%
	3 -5 years	20%	13%	20%
	5 or more years	32%	16%	55%
Total		100%	100%	100%

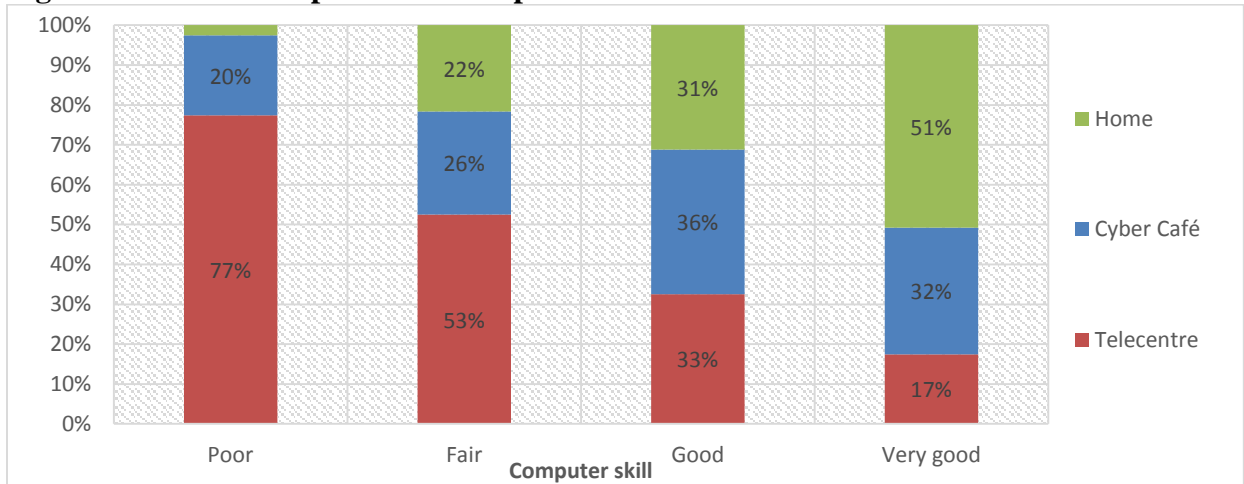
In terms of self-reported computer skills, users fare much better than non-users. The difference in computer skills between users and non-users is perhaps the biggest difference there is (Figure 21).

Figure 21: Self-reported computer skills



In the context of Bangladesh, respondents with poor computer skills are more likely to frequent telecenters for computer use, whereas respondents with advanced computer skills are less likely to be telecenter users and more likely to be home users. This is reflected in the fact that an overwhelming 77 percent of those with poor computer skills are telecenter users, while only 17 percent of those with good computer skills frequent telecenters for computer use.

Figure 22: Relationship between computer skill and choice of PAV

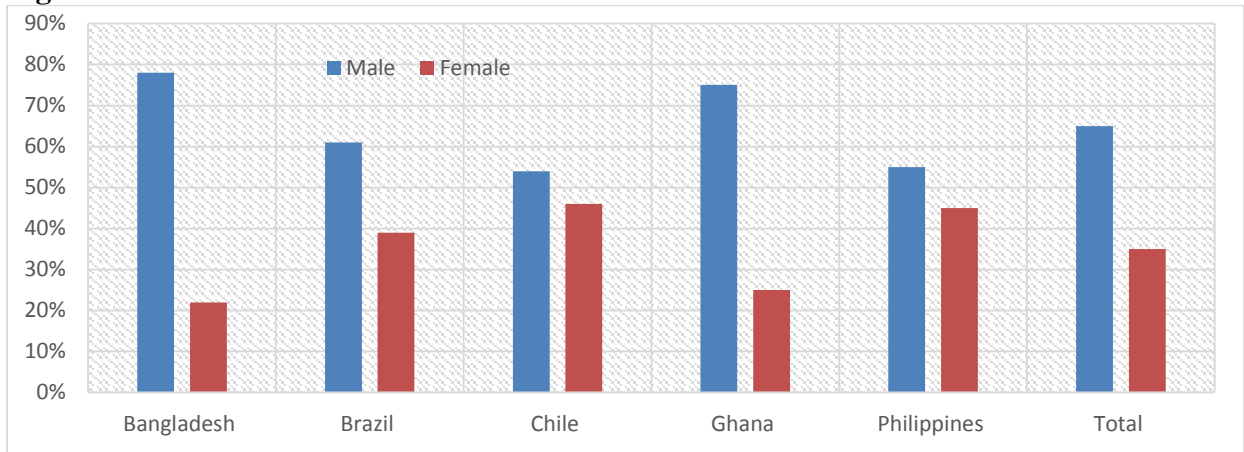


2.7. Gender Differences

Telecenter and cybercafés tend to be visited more frequently by men than women. The user survey was designed to take an equal number of males and females wherever possible. However, due to male dominance among PAV users, this could not be achieved in most countries surveyed in the GIS, which signifies that an access gap still exists between ICT and the female population. In particular, Bangladesh has the greatest bias with regard to gender among the countries surveyed, with female respondents comprising only 21.7 percent of the total user sample. Surveyors made

every attempt to capture an equal number of males and females, but in their report they stated that this was unattainable due to the extremely low participation of females in PAVs[10].

Figure 23: Gender ratio across countries

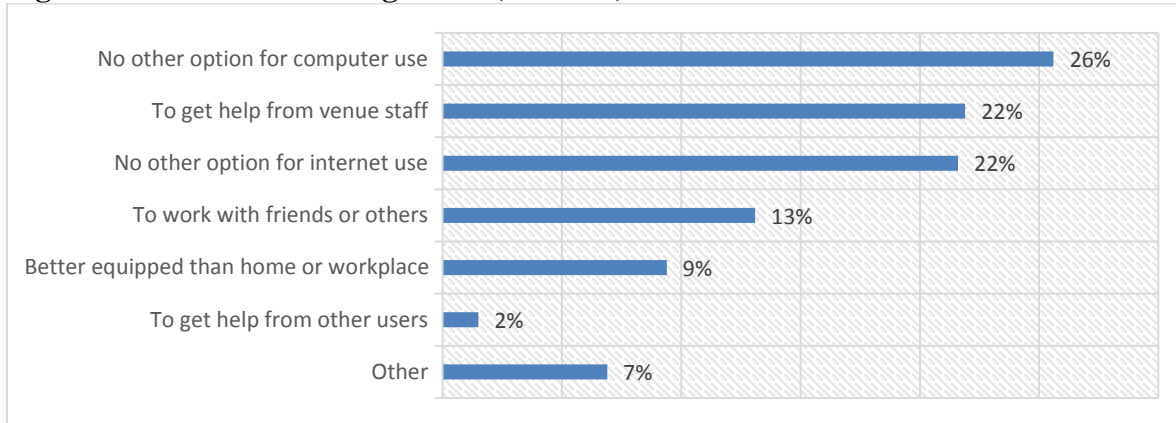


While telecenters appear more successful at addressing this gender imbalance both on the user and operator front (32.2 percent female respondents and 16.7 percent female operators), this gender imbalance remains untouched in the case of cybercafés where only 7.5 percent of the respondents and 3.3 percent of the operators are female. This finding suggests that the actual female user population (not just respondent population) is probably higher in telecenters than in cybercafés. While there could be varying reasons for this gender gap, an in-depth study on infomediaries (conducted by D.Net) revealed that lack of adequate female infomediaries in PAVs acts as a deterrent for female users, noting that female users are likely to feel comfortable visiting PAVs that are staffed by female members. For the social inclusion of the female population, it is, therefore, crucial to provide a gender friendly PAV environment by employing more female infomediaries and ensuring the availability of gender sensitive contents.

3. Reasons for Using PAVs

In one survey users were asked to choose one reason for using PAVs. The most frequently stated reason was ‘No other option for computer use’ (26 percent of all users). The third most frequently stated reason was ‘No other option for internet use’ (22 percent). This suggests again that alternatives to ICT access are scarce. However, lack of alternatives is not an overwhelming reason for PAV use. The second most stated reason was ‘To get help from venue staff’ (22 percent of all users).

Figure 24: Reasons for using PAVs (all users)



If we look at different categories of users, some more important reasons for PAV use surface, which are specific to that category. We have already divided users based on their choice of PAV for computer use. We shall now divide them based on how many venues they visit: First time users, one venue users and multiple venue users.

Figure 25: How many different venues users visit

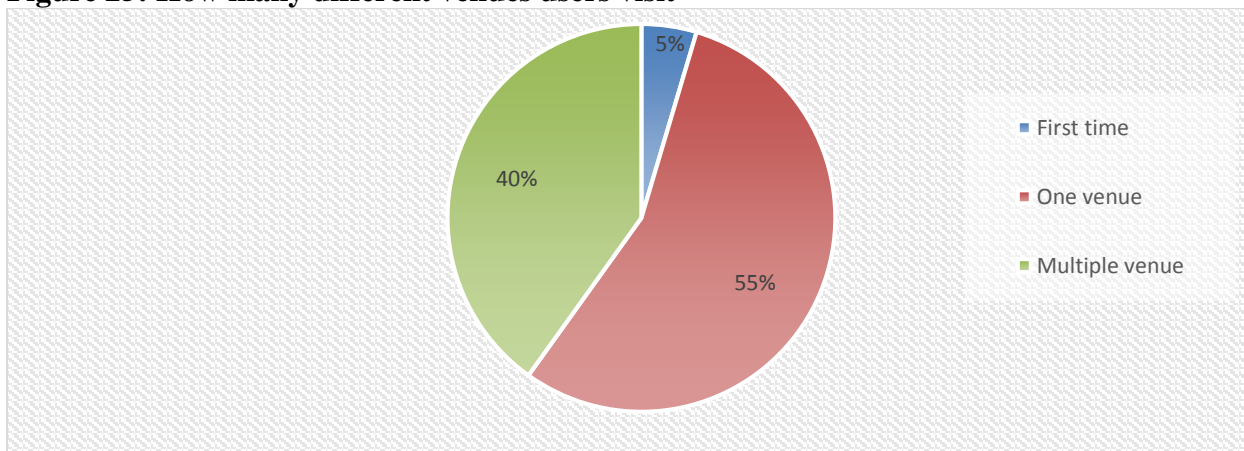
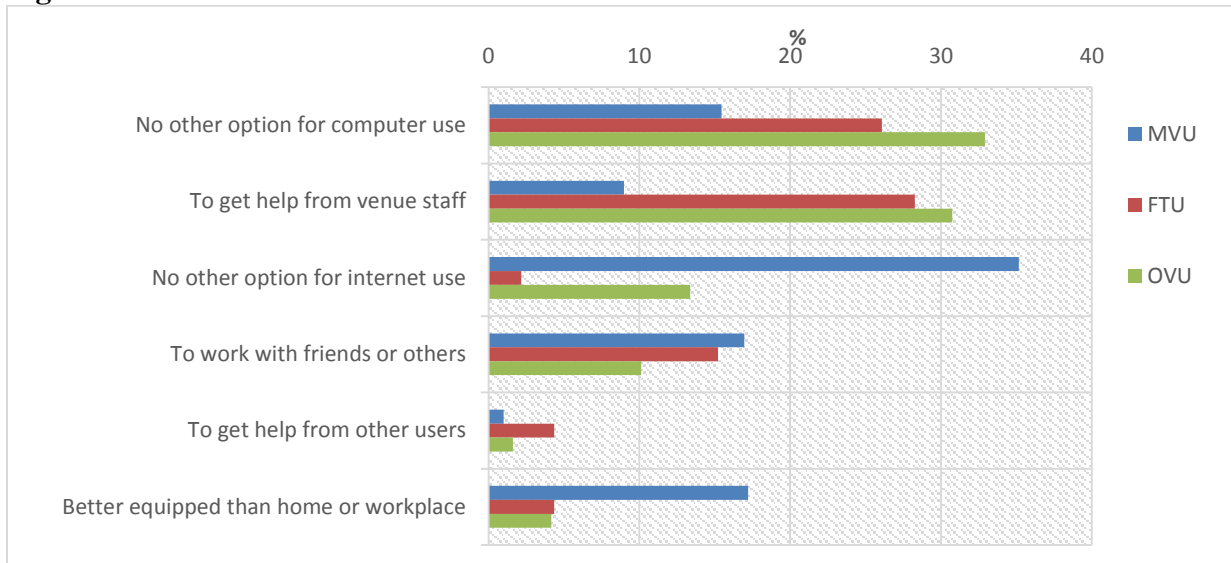


Figure 26: Reasons for PAV use

The reasons for using PAVs differ greatly for different kinds of users. For multiple venue users, the dominant reason for visiting PAVs is they have no other option for the internet use. A significant portion also visit PAVs because they are better equipped than their home or workplace. In the case of multiple venue users, few actually go to PAVs to get help from the venue staff. In contrast, for first time users and one venue users, getting help from venue staff is one of the most important reasons, alongside lack of alternatives for computer use.

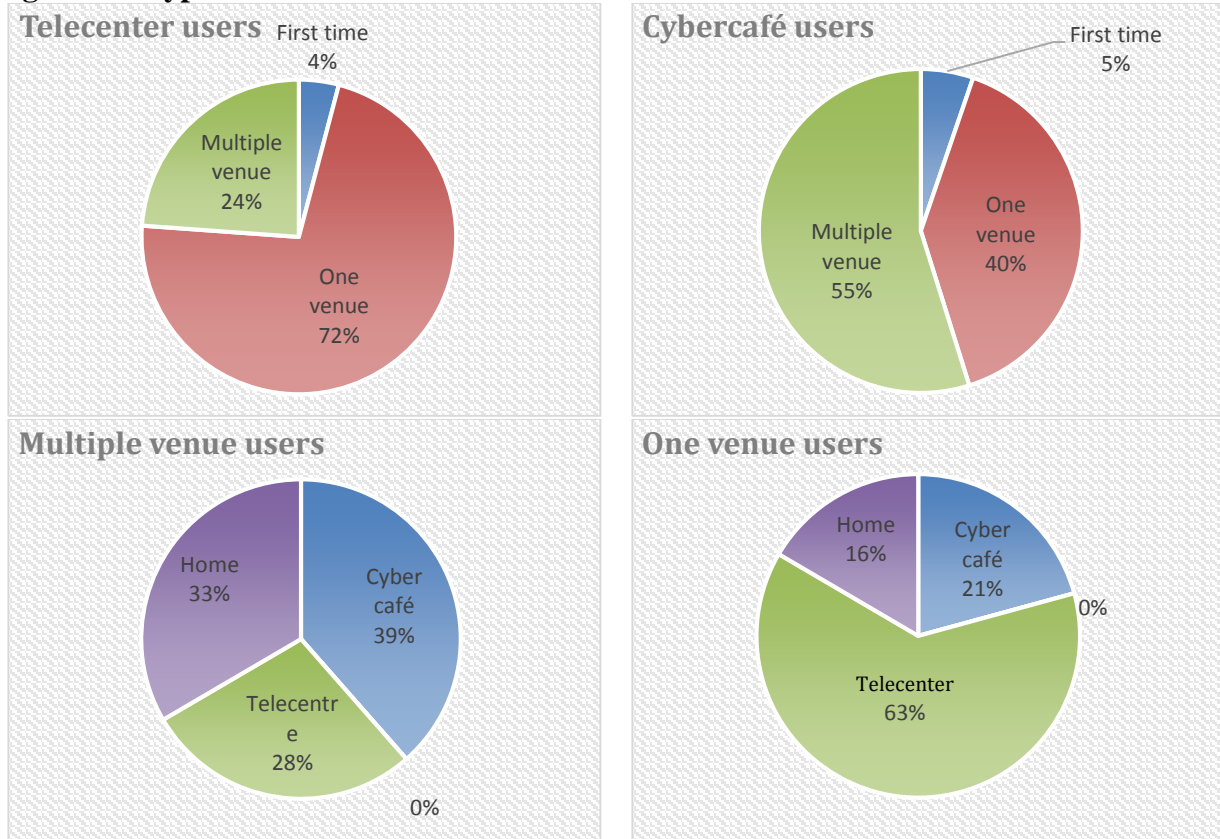
3.1. Reasons for Using Telecenters

One might be tempted to argue that the prevalence of underprivileged groups at telecenters results not from just choices of the users, but as a consequence of the fact that telecenters are primarily based in rural locations where computer skills, literacy level and English skills tend to be poorer in general. However, as we stated earlier in Section 1, 47.1 percent of the respondents were at a cyber-café and 52.1 percent were at a telecenter at the time the survey was carried out. Yet when asked where they usually use a computer, the number of respondents that answered telecenters as their main source of computer usage was almost double that of those that answered with cyber-café, indicating that at least some of the users go to telecenters out of preference, not merely because of lack of options.

From Figure 27, we find that 42 percent of the users usually use a computer at telecenters and only 25 percent use them at cybercafés. Moreover, survey findings revealed that out of the respondents located at cybercafés, only 45 percent are cyber-café users, as a large portion (31 percent) are home users and 15 percent are telecenter users. Out of the respondents that were located in a telecenter, however, about 67 percent are telecenter users, only 7 percent are cybercafé users and 11 percent are home users. This indicates that a significant number of users have both options available to them, but they opt for telecenters. However, a large number of telecenter users, being rural dwellers, might have no other choice, whereas users that may go to cybercafés are mostly urban dwellers and therefore have other options like home computers. This hypothesis is supported by the data provided in Figure 28. From this figure it can be seen that almost three quarters of telecenter users are one venue users and in the case of cybercafé users only 40 percent are one

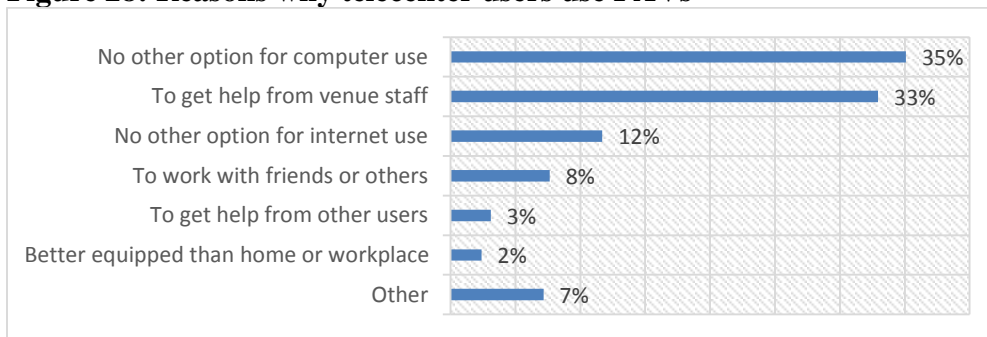
venue users and the majority (55 percent) are multiple venue users. Even if that is the case, it can be said that telecenters have been implemented in areas where people would otherwise have no access to computers, or the internet, therefore, they play a huge role in connecting people to ICT.

Figure 27: Types of users across venues



It is clear, however, that the lack of any other option is not the only reason that users frequent telecenters. When asked directly why they visit their respective PAVs, telecenter users gave a wide variety of reasons. The top two reasons were ‘lack of options’ and ‘to get help from venue staff’.

Figure 28: Reasons why telecenter users use PAVs



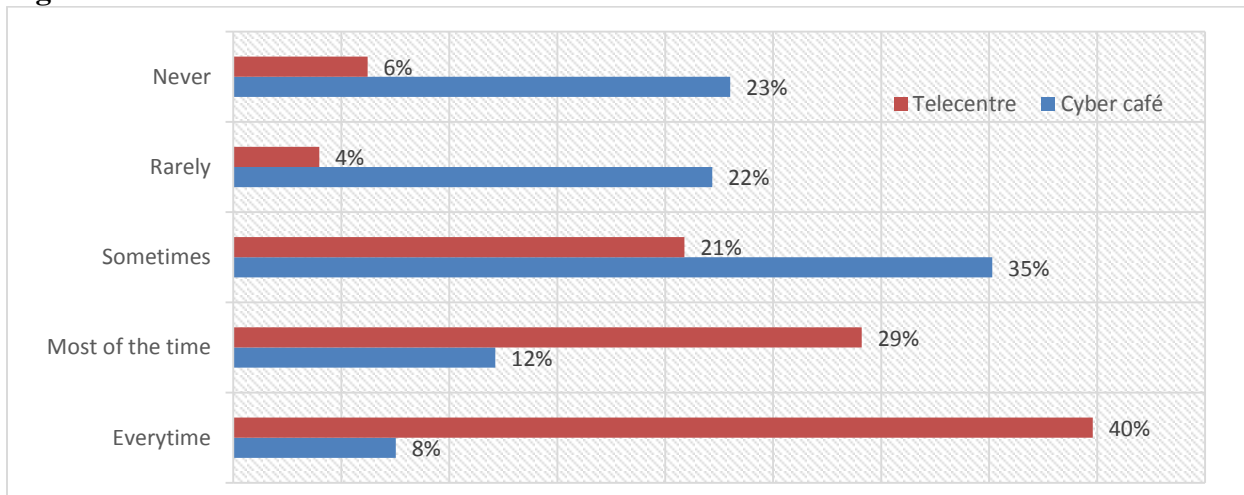
Thirty-five percent of the telecenter users replied that there is no other option for computer use and 12 percent answered there is no other option for the internet use. In addition, 33 percent of the

telecenter users visit telecenters to get help from the venue staff. This is probably because they do not have enough skills required to use ICT for their purposes on their own. We can thus infer that because telecenters have to cater to people with lower computer skills, poor English skills and lower educational status, they rely more on the assistance of venue staff. This makes the role of an infomediary (a person who helps out users with using computers and the internet for information searching) crucial for telecenters.

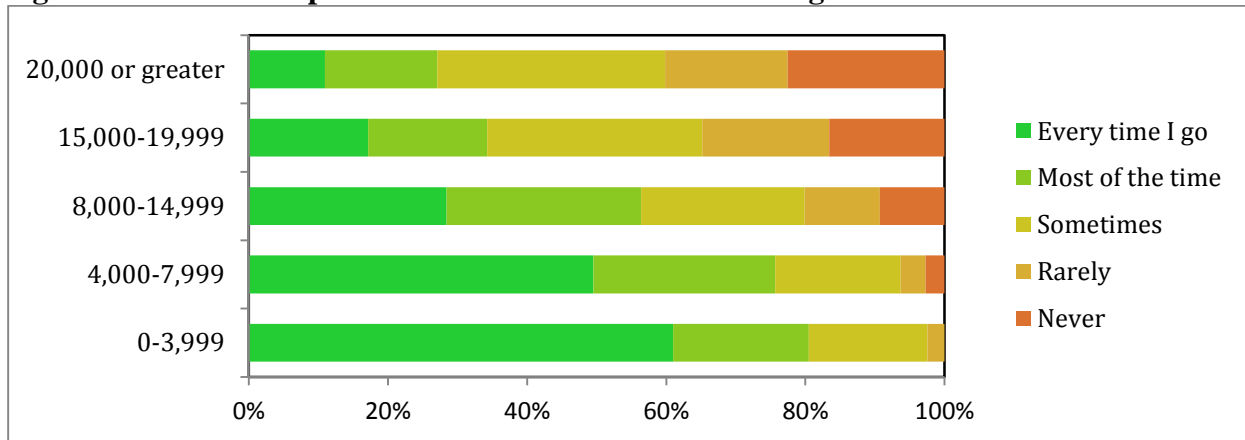
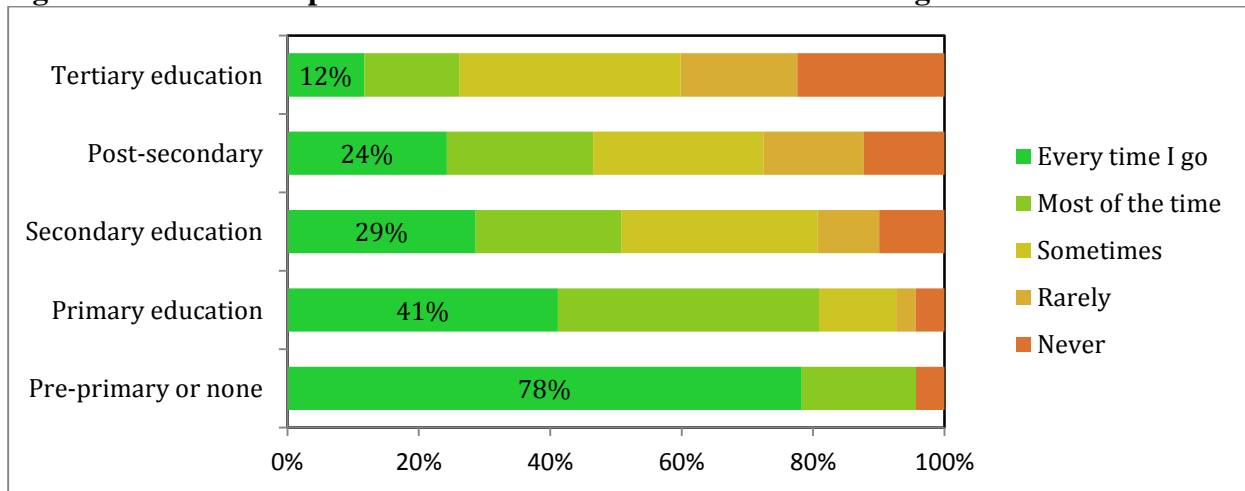
3.2. Role of Infomediary

When asked, “How often do you seek assistance from venue staff?” We obtained a striking difference in results between the responses from telecenter users and other users.

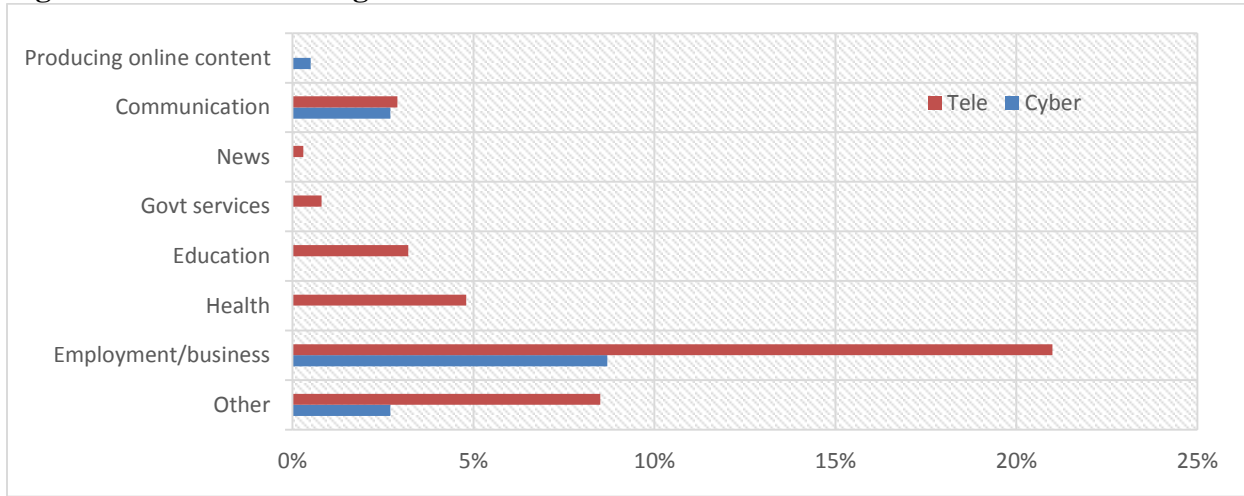
Figure 29: How often users seek assistance



Telecenter users seek assistance more frequently than other users. Almost 40 percent of telecenter users seek assistance *every* time they use PAVs, whereas only about 8 percent of cybercafé users and 4 percent of home users seek assistance every time they use a PAV. An overwhelming 68.9 percent of telecenter users in Bangladesh seek assistance very often (most of the time or every time), whereas the global average for all five countries is only 16 percent. This relationship between assistance sought and venue preference is complemented by the relationship between income and assistance sought (Figure 30). The poorer a user is, the more likely he or she is to seek assistance from the venue staff. As telecentre users are composed more of economically poor users than cybercafés, as seen in Section 2.4, telecenter users are more likely to seek assistance frequently. This also applies to the education level of a user.

Figure 30: Relationship between income and assistance sought**Figure 31: Relationship between education level and assistance sought**

Out of the users that seek assistance, 85.3 percent of the cybercafé and 82.4 percent of home users seek assistance for problems relating to hardware, software or internet connectivity. On the contrary, in the case of telecenters, about 58.6 percent seek assistance related to such problems. This is because 30 percent of the assistance seekers at telecenters demand assistance with search for information regarding health matters, education, government services or news items, whereas a mere 8.7 percent cybercafé users and 12.8 percent of home users seek assistance with information search. From Figure 32, it can also be seen that while the majority of telecenter users seek assistance for employment/business related activities, only 4.8 percent seek help for health related searches, and this category is non-existent for the other two types of users (home and cybercafé).

Figure 32: Assistance sought for information search

From the findings it is apparent that the role of infomediary is of utmost important in Bangladesh, especially in telecenters where users are more likely to seek assistance for infomediaion purposes. An in depth study conducted in Ghana – which has the second highest incidence of users seeking assistance from venue staff – supports the importance of an infomediary to those with poor ICT experience. The same is true for Bangladesh, at an even greater extent.

Cybercafés are mostly commercial ventures that cater to users who are adept enough in using ICT to use computers without help, other than for technical assistance with hardware/software malfunctions. Telecenters, however, have the potential to reach ICT to the underprivileged and marginalized population who have had very little exposure to computers and the internet and would not be able to reap any benefits from them on their own. This makes the presence and training of infomediaries crucial to the success of telecenters and in particular PAVs in general in Bangladesh.

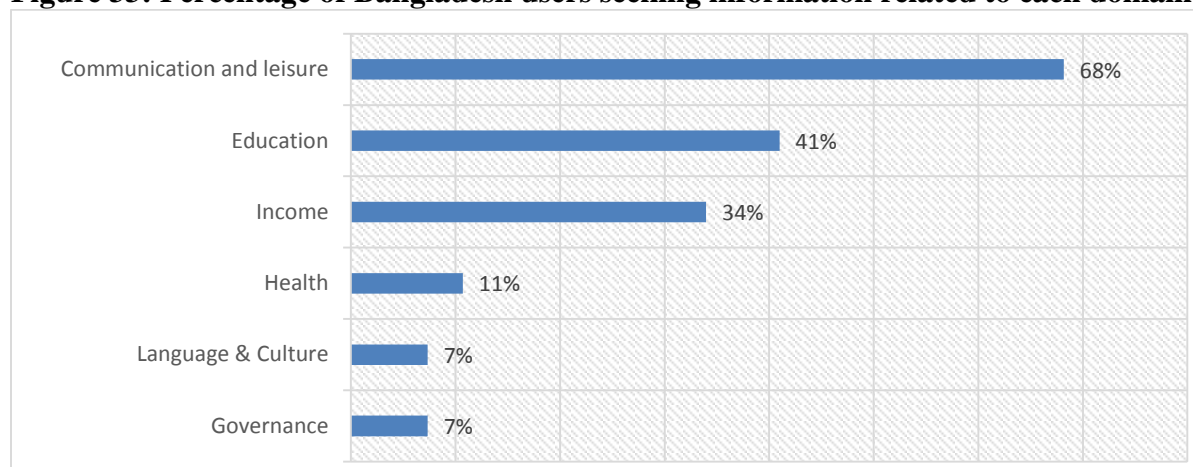
4. Usage and Impacts

Data from the venue survey indicate that public access venues provide their patrons with a wide range of services. The most common services offered were printing (offered in 90 percent venues), CD writing (63.9 percent), document preparation (64.8 percent), job placement (60.6 percent), etc. Although public access venues offer a wide range of services, traditional services such as photocopy, printing and job placement are also the dominant services sought.

To further understand usage patterns, the GIS categorized user activities into six priority domains: Communications & Leisure, Employment & Income, Education, Health, Governance and Culture & Language. These six domains are further supplemented by 13 categories, as listed below:

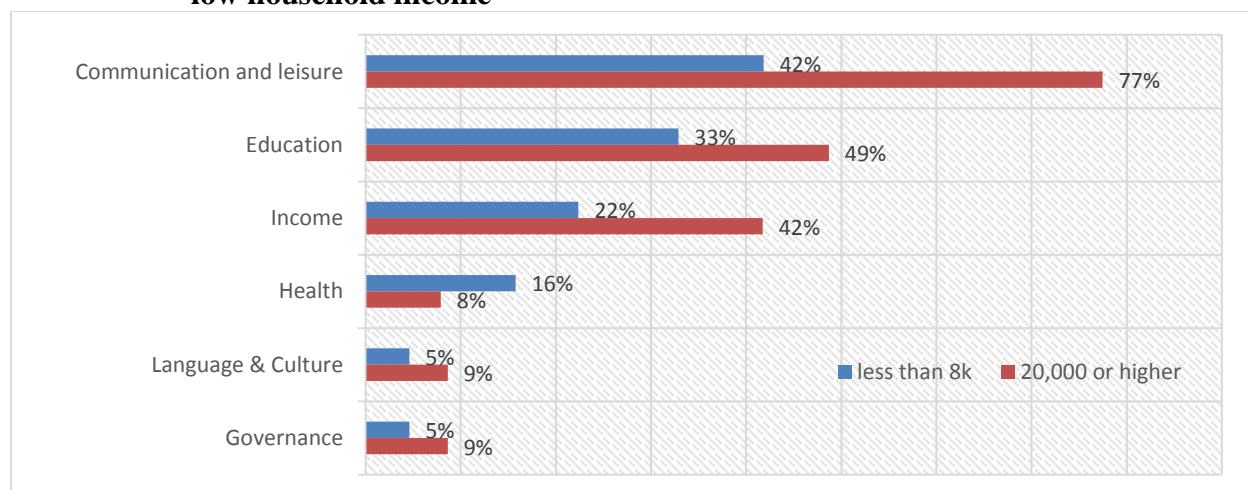
DOMAIN	CATEGORY
Communications & Leisure	Communication with family and friends
	Pursuing interests and hobbies
	Meeting new people
	Pursuing other leisure activities
Employment & Income	Income
	Access to employability resources
	Sending or receiving remittances
Education	Education
Health	Health
Governance	Access to government information and services
Culture & Language	Local language and cultural activities
Cross cutting	Financial savings
	Time savings

Financial savings and time savings are cross cutting categories, suggesting that they are relevant to all of the six domains of interest.

Figure 33: Percentage of Bangladesh users seeking information related to each domain

The key types of information sought by users in Bangladesh in the 12 months preceding the survey are highlighted in Figure 33. Users in public access venues primarily use the computer and internet to meet personal and social needs such as communicating with friends and family or for pursuing hobbies. Communicating with friends and family and pursuing hobbies are routine activity, that is, users are likely (68 percent) to engage in these activities more frequently than more episodic users interested in employment and education. This is not to say that other services are not availed, only that their use is outstripped by personal and social activities. Education and employment are the next two domains most used. Over 40 percent of all users use PAVs for education purposes, while 34 percent of all users use PAVs for employment and income purposes.

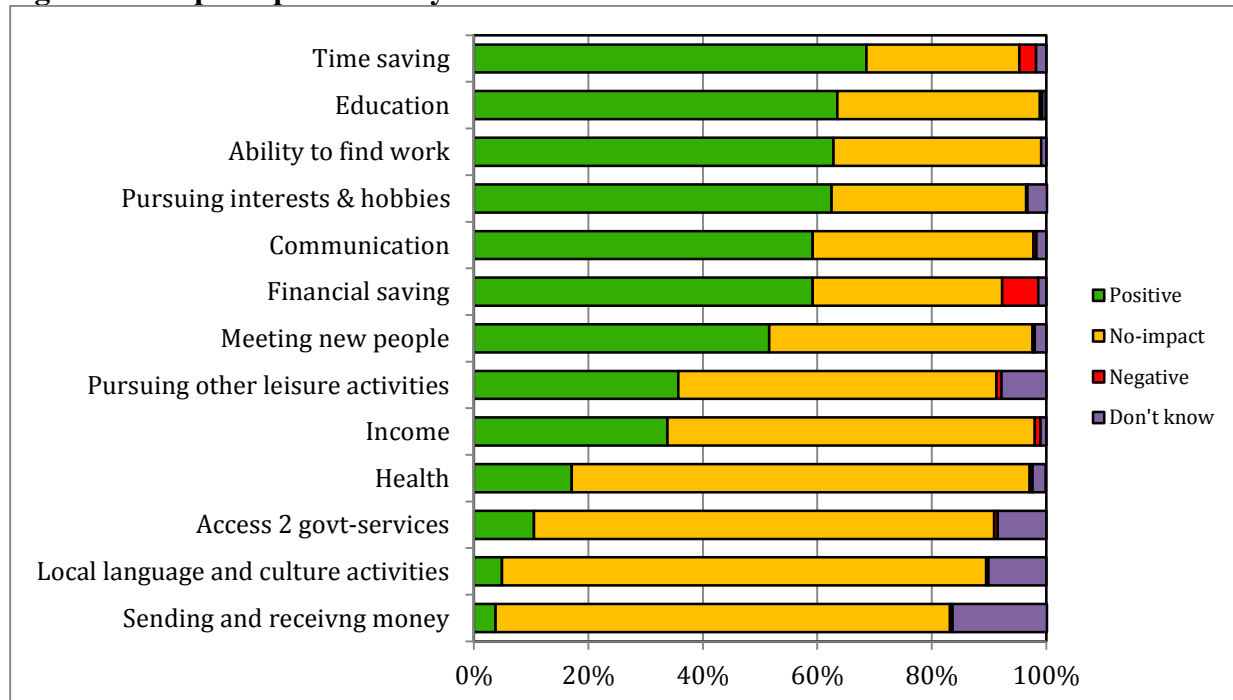
The choice of activities varies by income of users. From Figure 34 it can be seen that those who earn less than Tk 8,000 a month are less interested in communication and leisure than those who earn more than Tk 20,000 a month. The poorer users are also more interested in health issues. However, communication and leisure is the top domain of interest among the poorer users as well.

Figure 34: Usage comparison between users with a high household income and users with a low household income

4.1. Perceived Social and Economic Impacts on Users

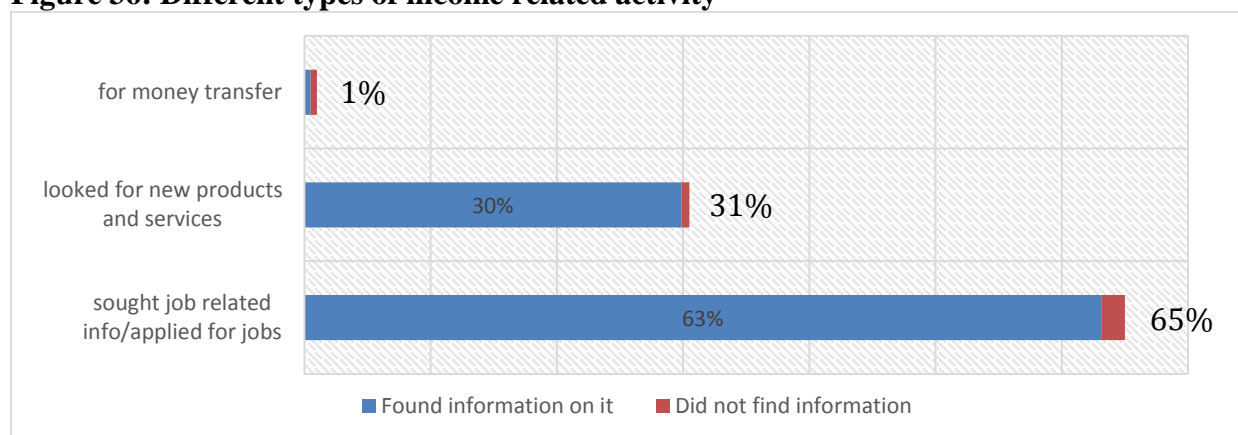
From the perspective of users, using computers and the internet at public access venues delivers benefits that affect multiple aspects of their livelihoods, including culture & language, education, employment & income, governance, health, and communication & leisure. Over 60 percent of the surveyed users reported positive impacts in the case of time savings, education, ability to find work and pursuit of interest and hobbies. Similarly, 15-35 percent experienced positive impacts on income, health and access to government information and services. It is clear that the availability of public access enables users to participate in aspects of personal, social, economic and civic life that are important or relevant to them.

Figure 35: Impacts perceived by users on self-due to use of PAVs



4.2. Income and Employment

Public access venues are important to those who use them. Among those who use PAV for income related activities, 65 percent seek job related info, 30.5 percent seek information on new products and services and a mere 1 percent use PAV for money transfers.

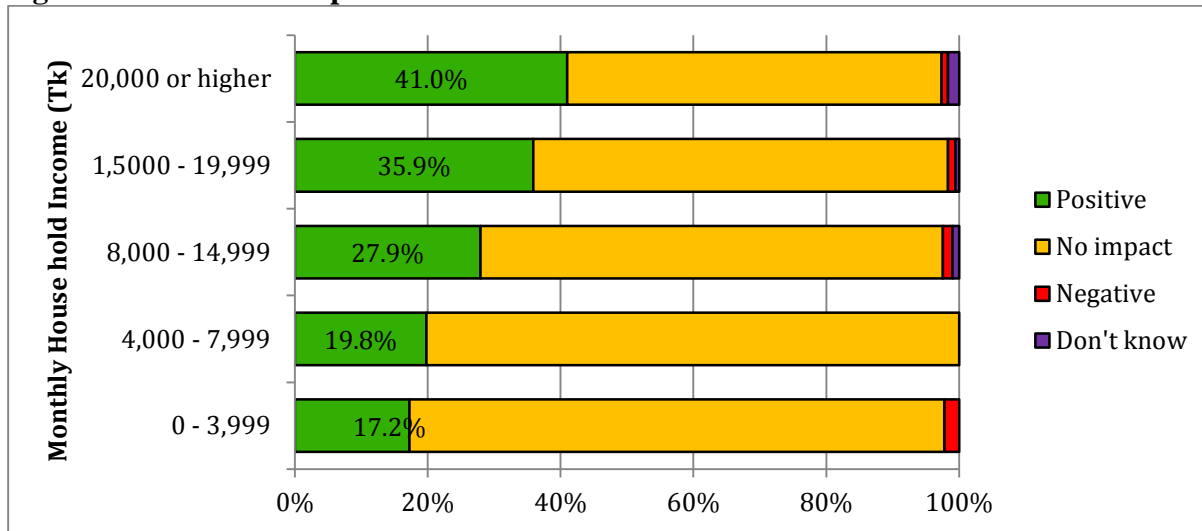
Figure 36: Different types of income related activity

Among those who sought job related info, 97 percent successfully found information on it, and out of those who found it, 92 percent used such information to apply for jobs. Among those who looked for new products and services, 84 percent said they earn more money and 74 percent told they save more money as a result of the search. This high incidence of success in finding and making use of information related to income suggests that direct and indirect impacts on the income of users due to PAVs are positive.

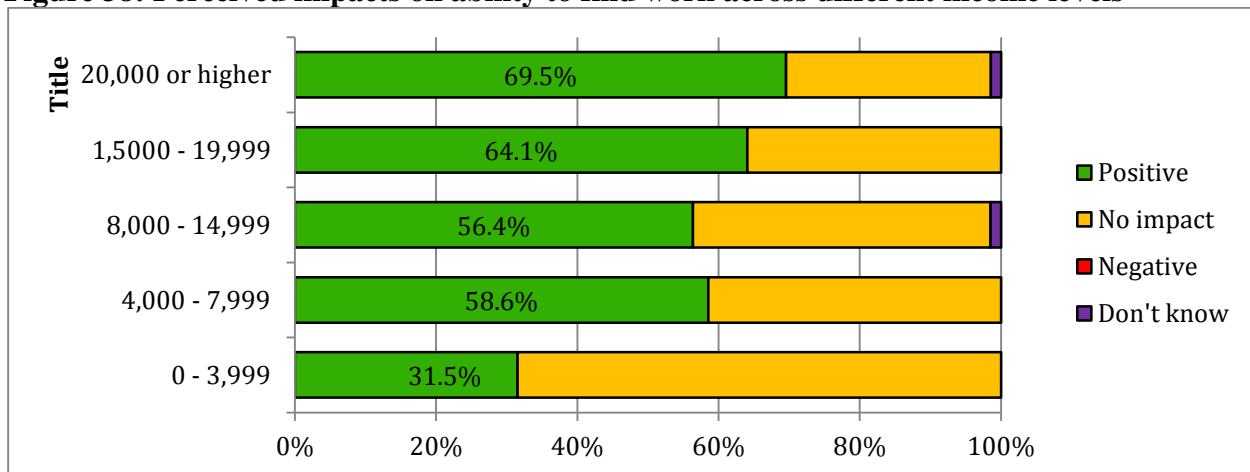
4.2.1. Impacts

When asked directly whether there has been any impact on their income due to PAVs, about 34 percent of users responded that they faced positive impacts, 64 percent responded that there was no impact at all and only 1 percent said there was negative impact on their incomes. In terms of ability to find work, the perceived positive impact is even higher - 62.8 percent users reported a net positive impact and no one reported a negative impact.

However, people with more incomes are more likely to experience positive impacts on income than people with less income (Figure 37). Out of the 4 people in the lowest income group, 1 person reported negative impacts, and none reported positive impacts. On the other hand, those with household incomes exceeding Tk 20,000 per month experience the most positive impacts (41 percent).

Figure 37: Perceived impacts on income across different income levels

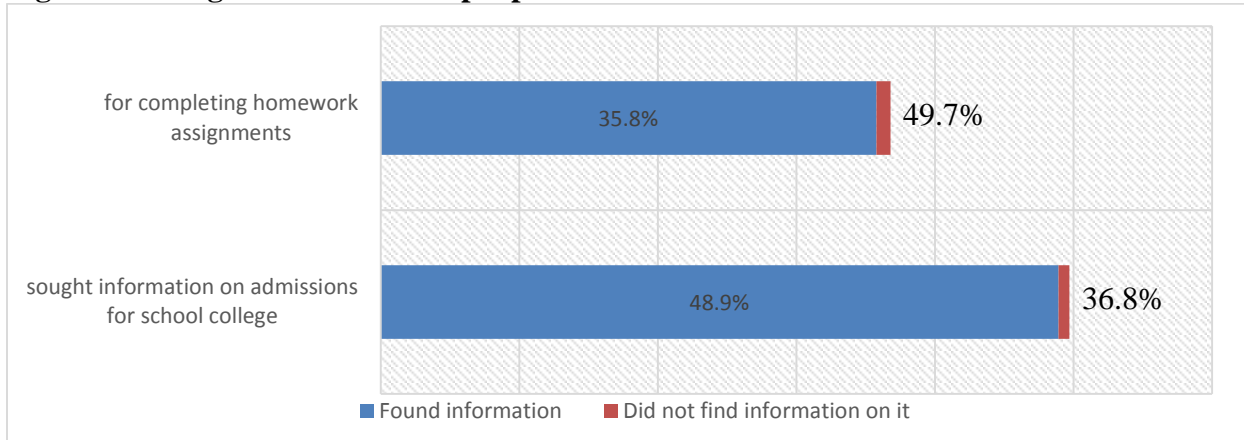
When it comes to ability to find work, however, the correlation between household income and perceived impact is much weaker (Figure 38). Only in the low range of income (Tk 1,000 to Tk 3,000), we see a substantially lower incidence of positive impacts. It is interesting to note that not a single user reported negative impacts on their ability to find work due to PAVs.

Figure 38: Perceived impacts on ability to find work across different income levels

4.3. Education

Fifty-one percent of all users are students, so it is of no surprise that 40.9 percent of all users use PAVs for educational purposes. Among those who use PAVs for learning purposes, 50 percent seek information on admission for school/colleges, while 37 percent use PAVs to complete homework assignments. Among those who seek admission information, 92 percent reported that such information enabled them to make decisions about applying.

Figure 39: Usage for educational purposes



4.3.1. Impacts

A gross 63.5 percent of all users reported positive impacts on education due to PAVs. The difference in perceived impacts across income levels is smaller compared to other types of impacts, but the trend that higher income groups experience more positive impacts still exists, if only slightly, and only from the income groups between Tk 1,000 and Tk 15,000. In the case of income group beyond Tk 15,000, perceived impacts are almost the same for all income groups. This is not surprising as education level is correlated with income (Figure 40). In the case of income level upto Tk 15,000, the higher the household income, the more likely that the user has post-secondary education. However, beyond that level, educational level is more or less consistent with income.

Figure 40: Perceived impacts on education across different income levels

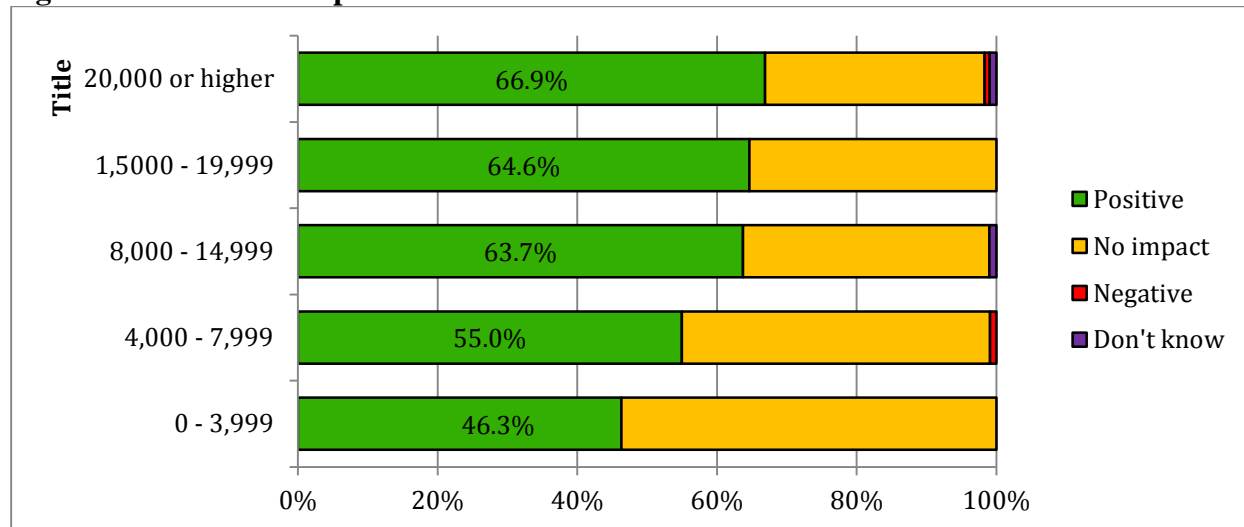
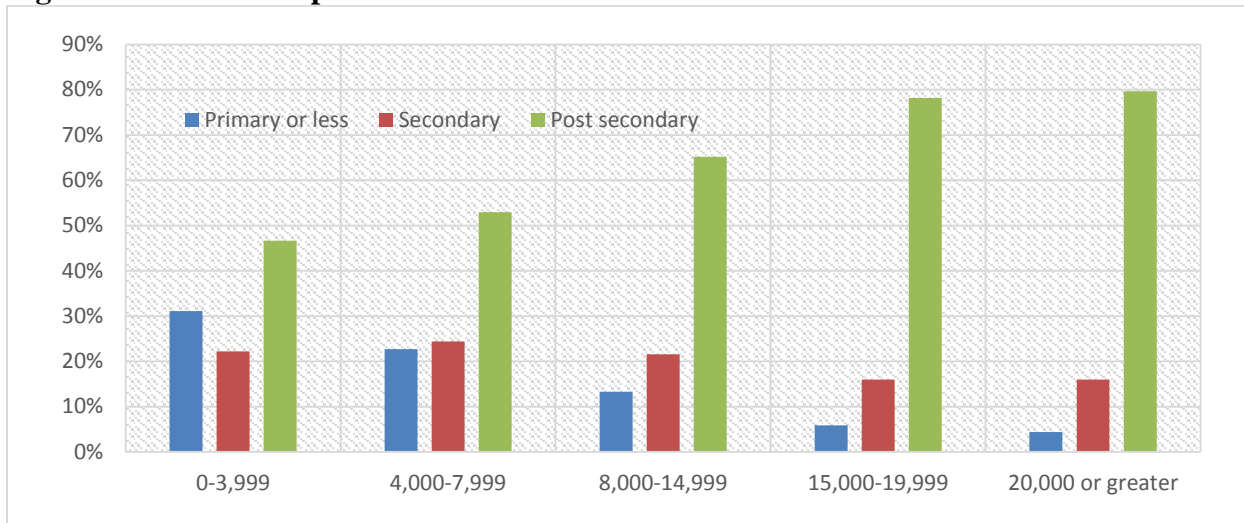
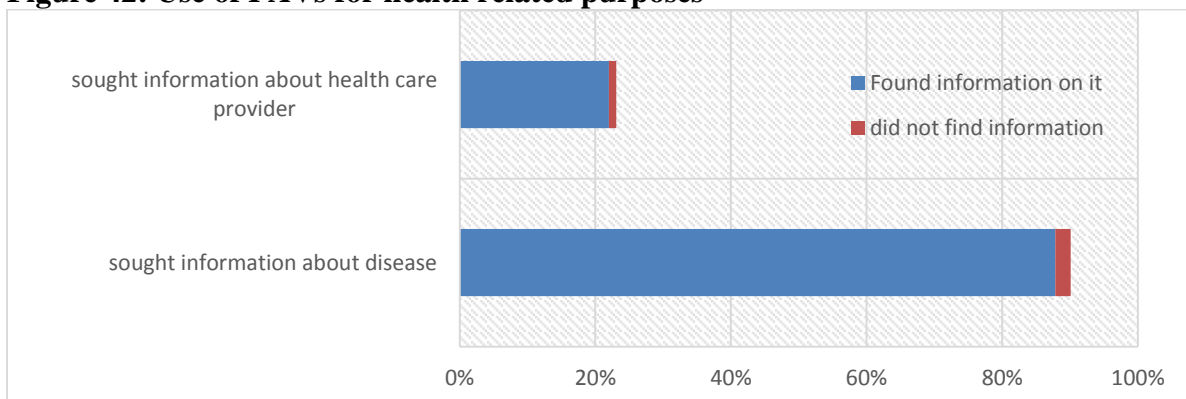


Figure 41: Relationship between education level and income

4.4. Health

In terms of uses related to health, the evidence is so far mixed. Uses related to health account for only 11 percent of all usage. However, the majority of this usage results in success (Figure 42). Ninety percent of the usage that occurred in health care was related to seeking information about an illness while 23.1 percent was related to seeking information about a health care provider.

Figure 42: Use of PAVs for health related purposes

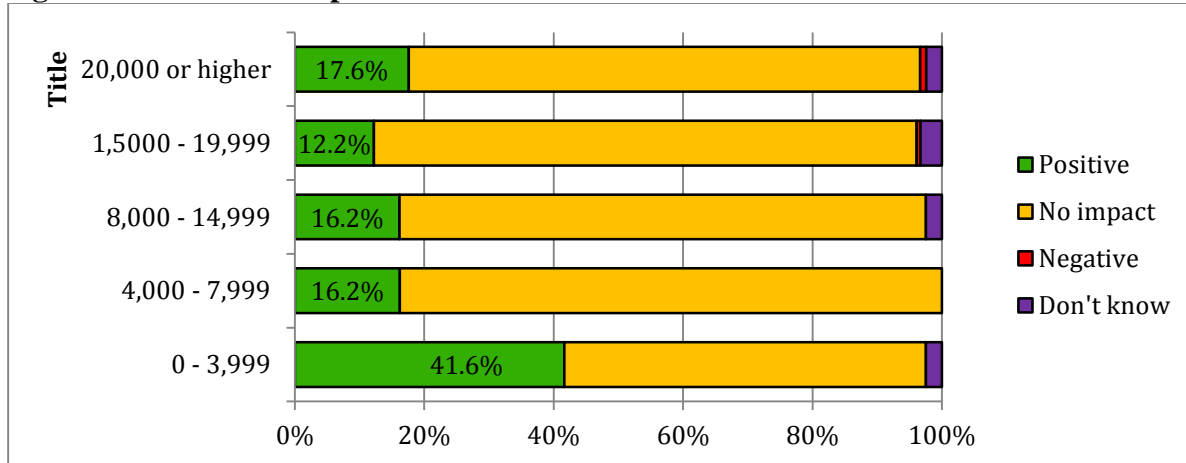
Moreover, out of the users that sought information about an illness, 88 percent reported that they were better able to manage the illness because of the information. Among those who sought information about a health care provider, 86 percent reported to have visited the health care provider.

4.4.1. Impacts

Only 17 percent of all users perceive positive impacts on their health due to PAVs, with the vast majority being indifferent in this regard. This is probably because that very few users search information related to health thus those who do not search information related to health would perceive no impacts, not because they tried and failed to search for health related information, but simply they are indifferent and have other goals in mind. However, lower income groups seem to

derive more benefits to their health. Out of those who have a household monthly income less than Tk 4,000, 42 percent have experienced positive impacts on health. This suggests that lower income groups are more proactive in seeking health related information at PAVs.

Figure 43: Perceived impacts on health

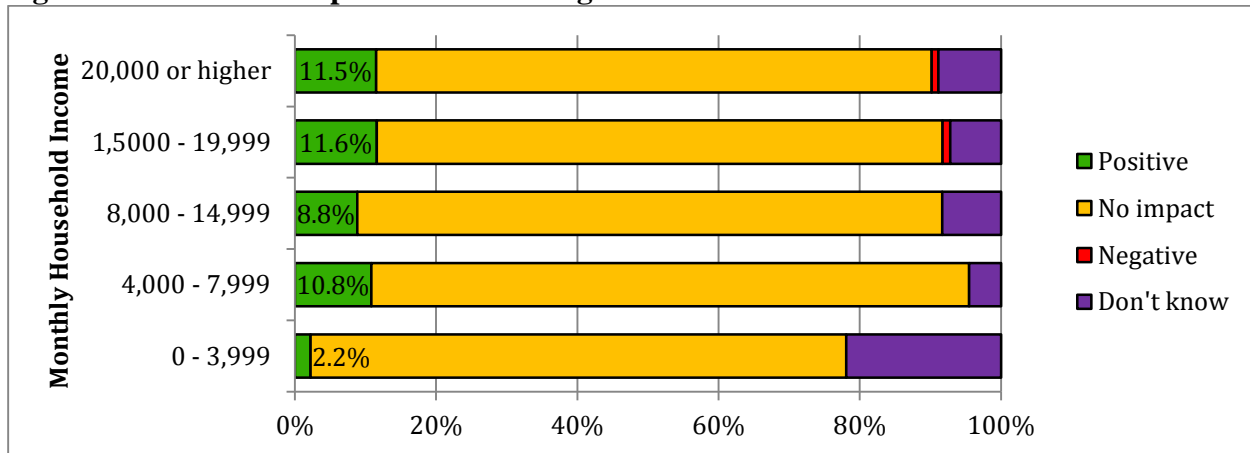


4.5. Access to Government Services

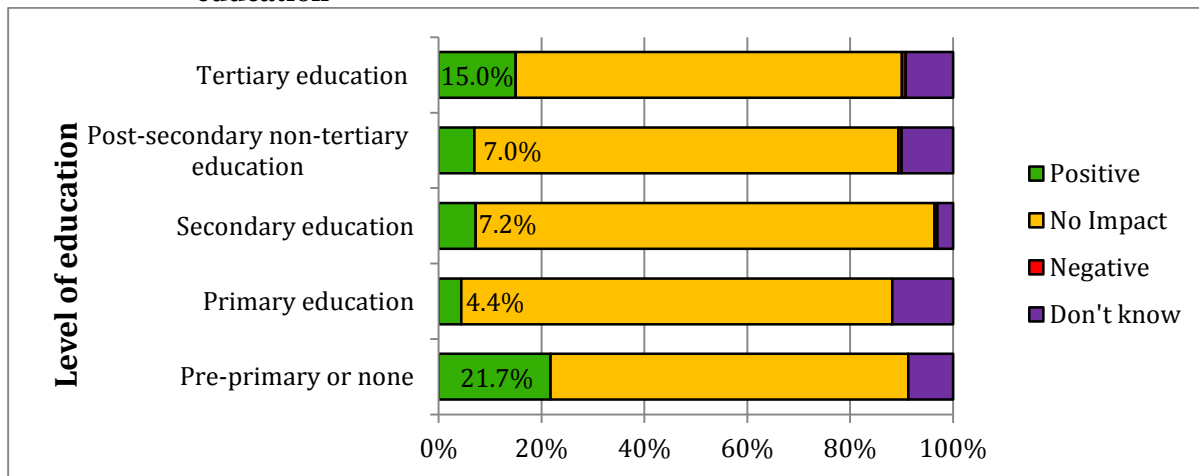
Only 7 percent of users use PAVs to access government services. Among them, 98 percent seek information on available government Services, while only 29 percent use PAVs to actually gain access to government services. However, among the users that seek actual access to government services, 93 percent find information on it and 61 percent use any of the available services. Though this success rate is not bad, the end result is that a very small number of users use PAVs to access government services; as a result, the majority of users are indifferent (perceive no impacts), and only 10.5 percent of all users perceive any positive impacts with regard to access to government services.

4.5.1. Impacts

There is very little correlation between impacts of this category of usage and household income. The overwhelming majority of users feel that there is no impact in this category. In particular, the lowest amount of interest in governance is shown by the poorest group: only 2.2 percent of those with a household income less than Tk 4,000 perceive any positive impacts in this category, whereas the rest of the income groups show near 10 percent incidence of positive impacts. Perhaps the lowest income group feels even more indifferent to governance than the other groups as they have more pressing concerns arising from poverty.

Figure 44: Perceived impacts on access to government services

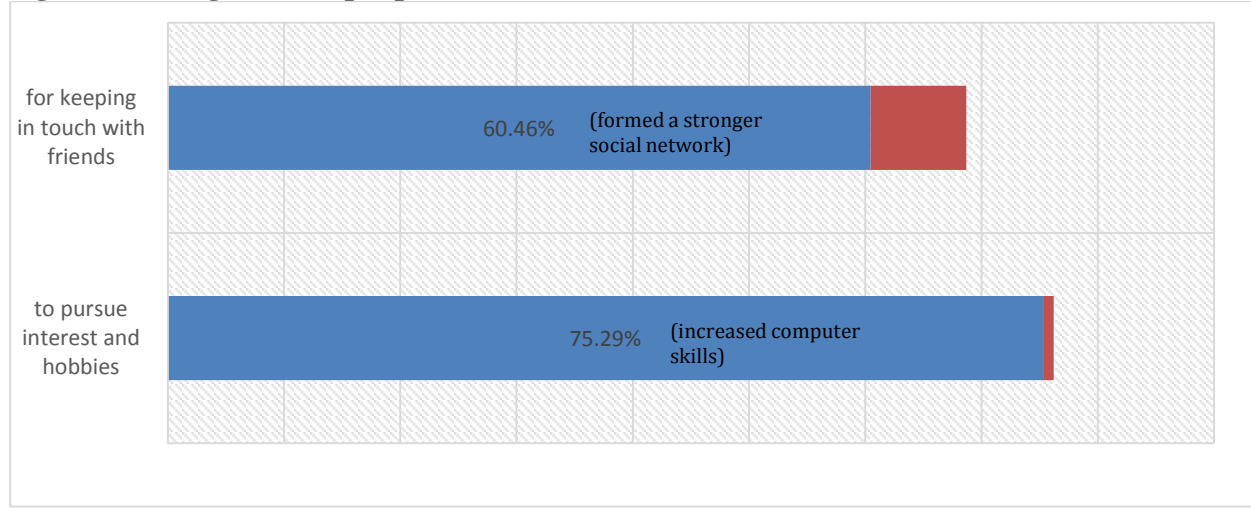
Impacts in this category may not be related to income, but when crossed with education, there is a finding worth noting (Figure 45). A sizeable portion of users (21.7 percent) that have pre-primary or no schooling perceive positive impacts in this category. This appears contradictory to the finding presented in Figure 44 that those with lower incomes are less positively impacted, and since education level is related to income, it is expected that there would be a similar relationship with education level. However, this is not the case: in the case of education, it would appear that those who are either highly educated, or those who are not educated at all seem to benefit the most. It is understandable why the more educated would benefit more, but to understand why the lowest education group benefits relatively more, it is important to realize how this group is different. First of all, all of these users are telecenter users (see Table 2). Second, more than three-quarters of this group (and those who are not first time users) seek assistance every single time they visit a telecenter. It is evident that due to their lack of literacy, they require the help of infomediaries at PAVs to get access to government services and information, for which users of other PAVs are literate enough to use more traditional approaches (such as going to a government office and filling out a form there).

Figure 45: Perceived impact on access to government services across different levels of education

4.6. Communication and Leisure

As mentioned earlier, communication and leisure is the dominant purpose for information search. Among those who seek information related to this domain, 76 percent use a PAV to pursue interest and hobbies and 69 percent use it to keep in touch with friends and family. Among those who pursue interest and hobbies, 99 percent reported that their overall computer skills had improved. Among those who use PAVs to keep in touch with friends and family, 89 percent reported having formed a stronger social network.

Figure 46: Usage for the purpose of Communication and Leisure



4.6.1. Impacts

The overall impact on communication and leisure is positive with a high incidence. However, most of the positive impacts are reported by users with high incomes. From an analysis of their responses to how PAVs impacted their socializing, it is observed that there is a strong correlation between household income and perceived positive impacts.

Figure 47: Perceived impacts on meeting new people

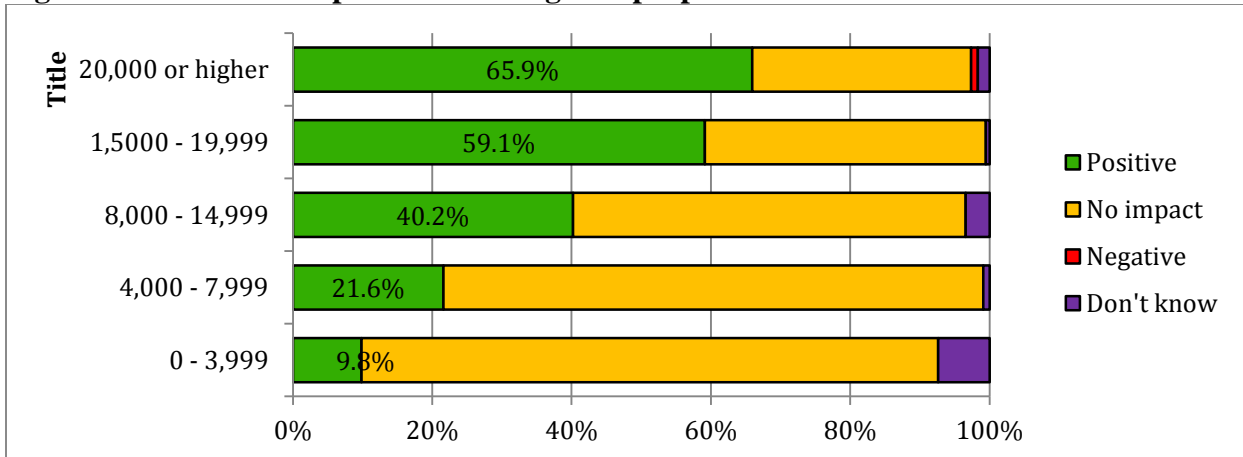


Figure 48: Perceived impacts on communication with friends and relatives

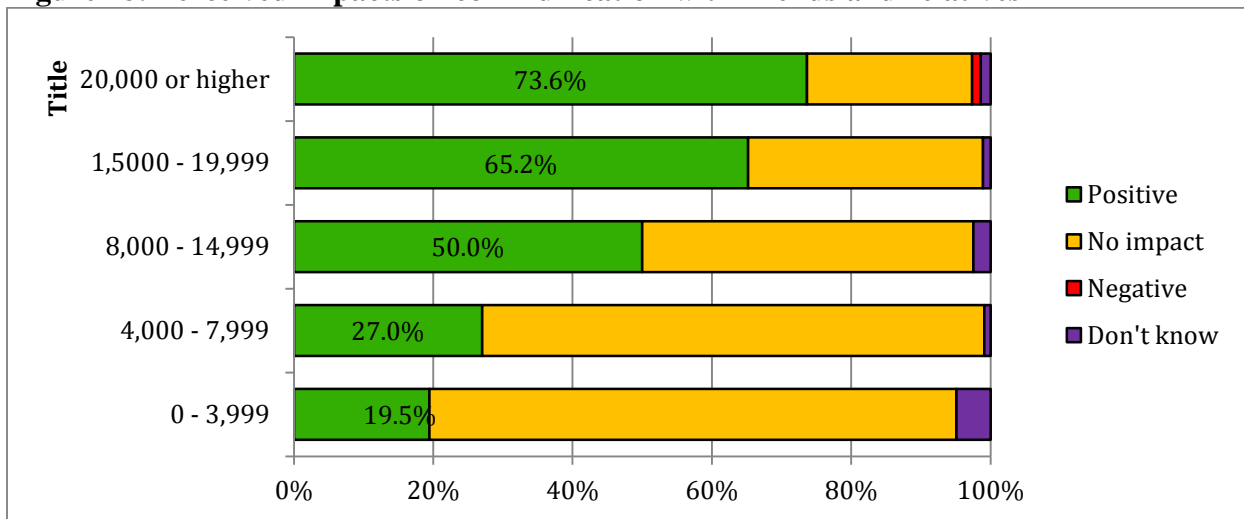


Figure 49: Perceived impacts on pursuing interests and hobbies

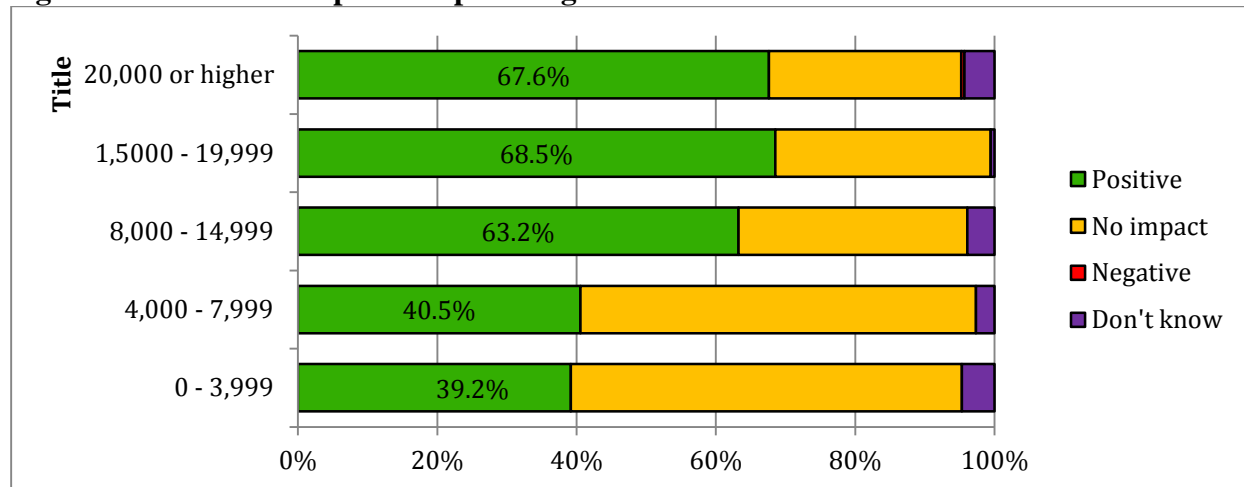
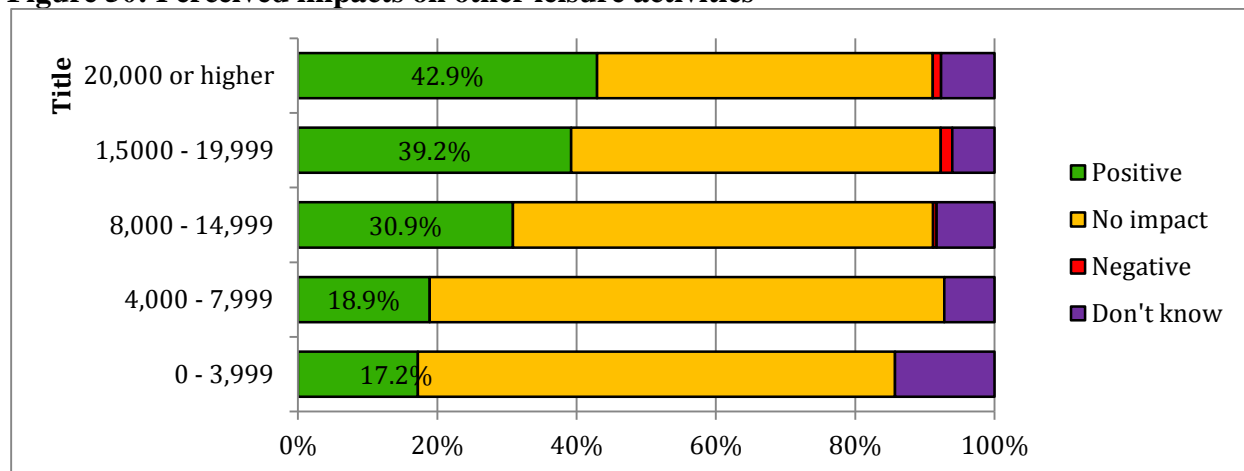


Figure 50: Perceived impacts on other leisure activities

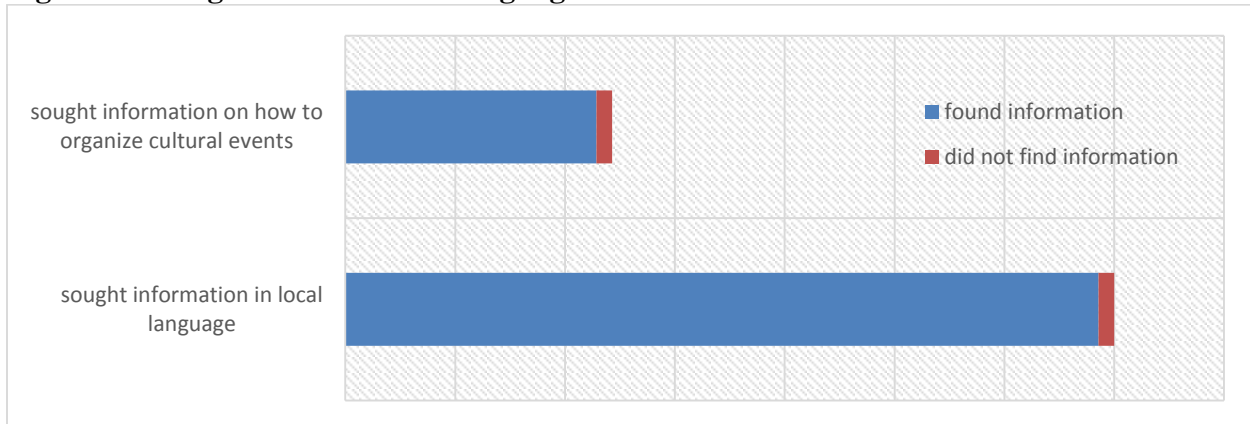


It is quite clear that the communication and leisure domain is primarily of interest to high income users, and the lower income users do not perceive as much benefits in this domain due to PAV use.

4.7. Local Language and Culture

This is one of the least important domain of interests among users. Only 7 percent of all users search information related to this category. Only 4 percent of cybercafés and 12 percent of telecenters facilitate access to content in the local language. So the low rate of use in this domain may be a supply driven phenomenon. However, those who searched for information related to this domain met with a high incidence of success.

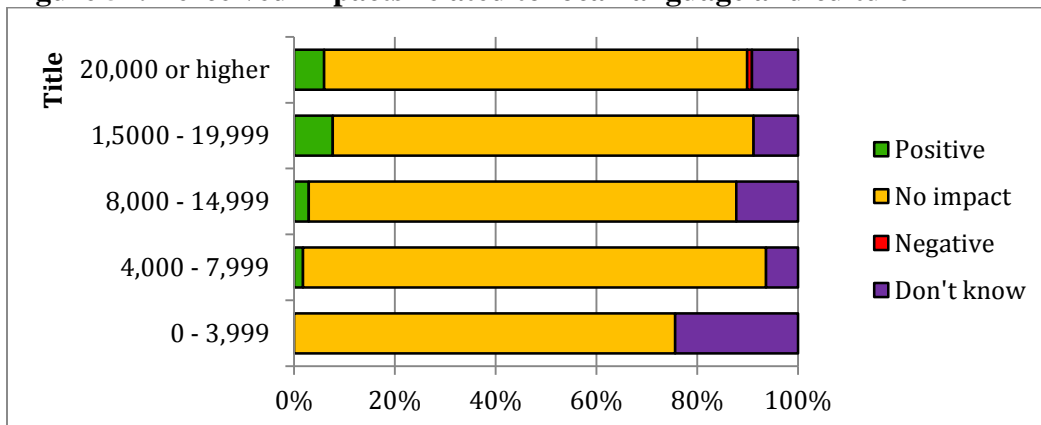
Figure 51: Usage related to local language and culture



4.7.1. Impacts

Not surprisingly, the vast majority of users (84.6 percent) do not perceive any impacts in this category. Only 4.9 percent perceive positive and 0.4 percent perceive negative impacts. There is, however, a slight correlation between perceived positive impacts and income. None below a monthly household income of Tk 8000 perceive any positive impact (or any negative impact). But 7 percent of users whose households earn Tk 15,000 to Tk 20,000 per month perceive positive impacts. Apparently, seeking information regarding local language and culture is somewhat a luxury that the poor do not have time for.

Figure 52: Perceived impacts related to local language and culture

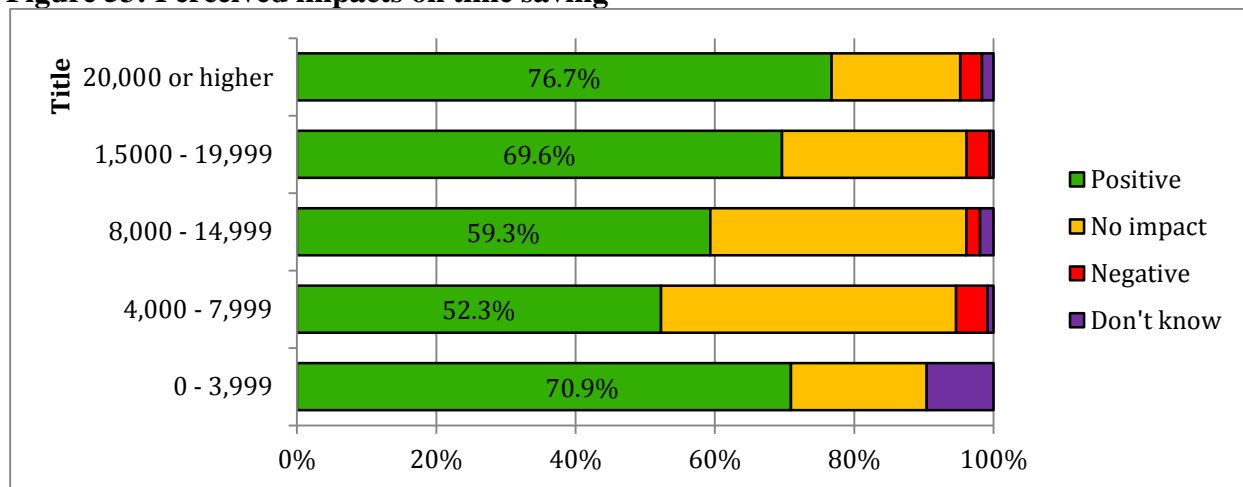


4.8. Time and Financial Savings

Time saving and financial saving are two categories for impact evaluation that are relevant to all the domains of interest. When asked about the impacts of PAVs on users' time saving and financial saving, the majority perceived positive impacts in both categories (68.6 percent for time savings and 59.2 percent for financial savings).

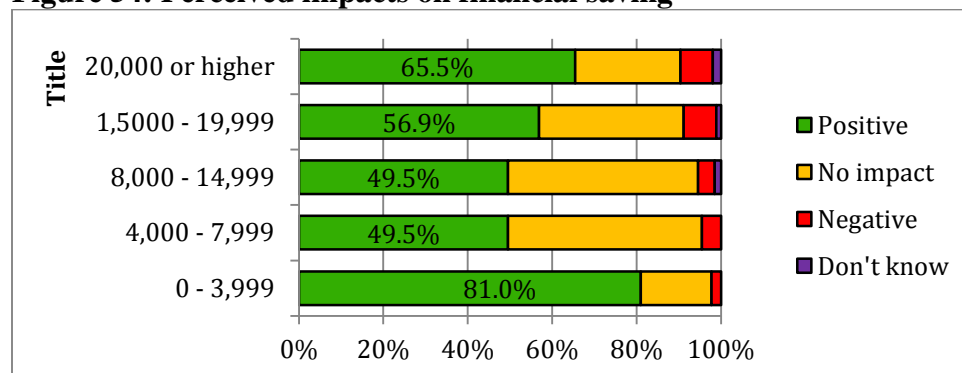
With respect to household monthly income, higher income groups are more likely to perceive positive impacts on time saving. However, those with a monthly income less than Tk 4,000 are an exception, with an overwhelming 71 percent incidence of perceived positive impacts, and no negative impacts whatsoever. Other than this exception, it makes sense that users with higher incomes should benefit from time saving due to PAVs. Higher income usually equates to better education and better computer skills, and therefore a better capacity to use computers and the internet more efficiently.

Figure 53: Perceived impacts on time saving



When it comes to financial savings, the incidence of negative impacts is somewhat higher, but positive impacts still dominate by a landslide. Once again, the lowest income group perceives the greatest amount of positive impacts, with an 81 percent incidence of positive impacts and only 2.2 percent incidence of negative impacts.

Figure 54: Perceived impacts on financial saving



One possible explanation for why the lowest income group perceives such high impacts in time and financial savings maybe that they get help from infomediaries. As has already been observed, the lowest income groups are mostly telecenter users (see section 2.4) and they seek the most assistance (see section 3.2). Perhaps infomediaries here play a role in saving their time and making the most of their money. Again, there is evidence that the role of an infomediary manifests in the positive impacts perceived by users.

4.9. Additional Demand and Challenges Identified by Users

About 34 percent of the users have additional demands for services and improvements. High speed internet (15 percent), photocopy (14 percent) and enough computers (14 percent) are among the most desired improvements. This demand is substantiated if we take a look at the actual PAV scenario; telecenters on average have only two PCs and their overall internet speed is very slow.

Table 4: Additional services demanded by users

First rank	Count	Percent	Second Rank	Count	Percent
High speed internet	49	15	Photocopy	16	10
Photocopy	46	14	High speed internet	14	8
enough computer	45	14	enough computers	11	7
Internet availability	26	8	Internet availability	11	7
Training	24	7			

Sixty percent of the users opined that there might be some challenges for the PAVs. Lack of computers (49 percent), slow internet connectivity (16 percent) and electricity (13 percent) are among some of the most pressing challenges. These challenges are more or less in accordance with challenges stated by venue operators, which are discussed in Section 6.

Table 5: Challenges perceived by users

First rank	percent	Second rank	percent
not enough computers	48.5	slow connectivity	32.6
slow connectivity	16.3	not enough computers	10.8
electricity	13.1	electricity	9.4

4.10. Indirect Usage and Impacts

Although non-users do not use PAVs themselves, a small but somewhat significant portion of them do use them vicariously. When asked whether they get anyone in their family or friend circle to use a PAV on their behalf, about 7 percent of non-users who never used PAVs and do not have private access stated 'yes'. Among those who have private access, about 10 percent have sent someone on their behalf to a PAV. Furthermore, at least 18 percent of non-users without private access and 21 percent of non-users with private access have family members or members of the household who use PAVs. Therefore, it is likely that some indirect impacts are being passed on to non-users even though they do not use PAVs or ask someone else to use them for themselves.

5. Reasons for non-use

5.1. Never Users without Private Access

According to the GIS Final Report, the top three reasons for non-use stated by non-users are computer illiteracy (65 percent), ‘not needed because of availability of private access’ (53 percent), and ‘not needed because they have nothing to do with computers’ (52 percent). A fourth reason is lack of time (39 percent). In Bangladesh, the responses are similar. Non-users who never went to PAV and do not have private access also stated ‘not needed because they have nothing to do with computers’ as their main reason for not using PAVs (about 72 percent of non-users in this category). But a close second reason is that they are computer illiterate (70 percent). The third top reason is that they have no time (stated by more than a quarter of the respondents in this category). It is also clear that this group of people have little or no familiarity with computers or the internet and are not comfortable using them. About 86 percent of this group never used a computer and 90 percent believe their skills are bad; ‘do not know’ is the main response from those asked whether they need an infomediary and whether the internet is complicated. For those who do know, the majority of responses is ‘yes’ – they definitely feel that the internet is complicated and they would need an infomediary in order to use it.

Figure 55: Level of ICT familiarity of never-users with no private access

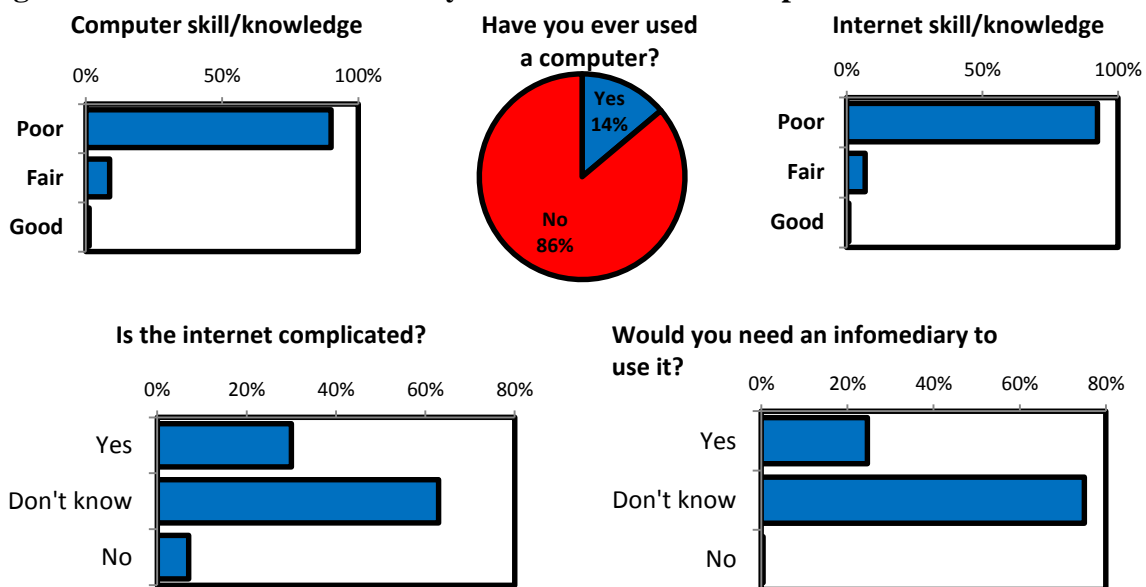
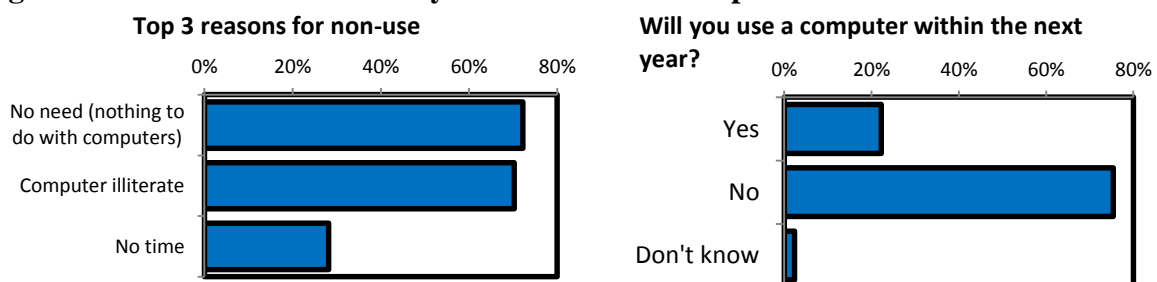


Figure 56: Reasons for non-use by never-users with no private access



5.2. Never Users with Private Access

Those who never used PAVs and have private access have clear reasons for not using PAVs: because they have private access, and about 55 percent of them use the internet (Figure 57 and 58). About 42 percent mentioned that they already use the internet on a computer and 16.9 percent are going to use the internet in the near future (mostly at home). About 42 percent mentioned that they already use the internet on a computer and 16.9 percent are going to use the internet in the near future (mostly at home). About 81.5 percent non-users in this category have said that one of their main reasons for non-use is that they have computers at home while 72.9 percent said that they have no time for PAVs. The most important place for developing their skills appears to be their home. Their self-reported computer skills are also much better than non-users without private access. It would appear that this group is making a more informed choice about their decision regarding PAVs, as opposed to never-users without private access.

Figure 57: Level of familiarity with ICT of never-users with private access

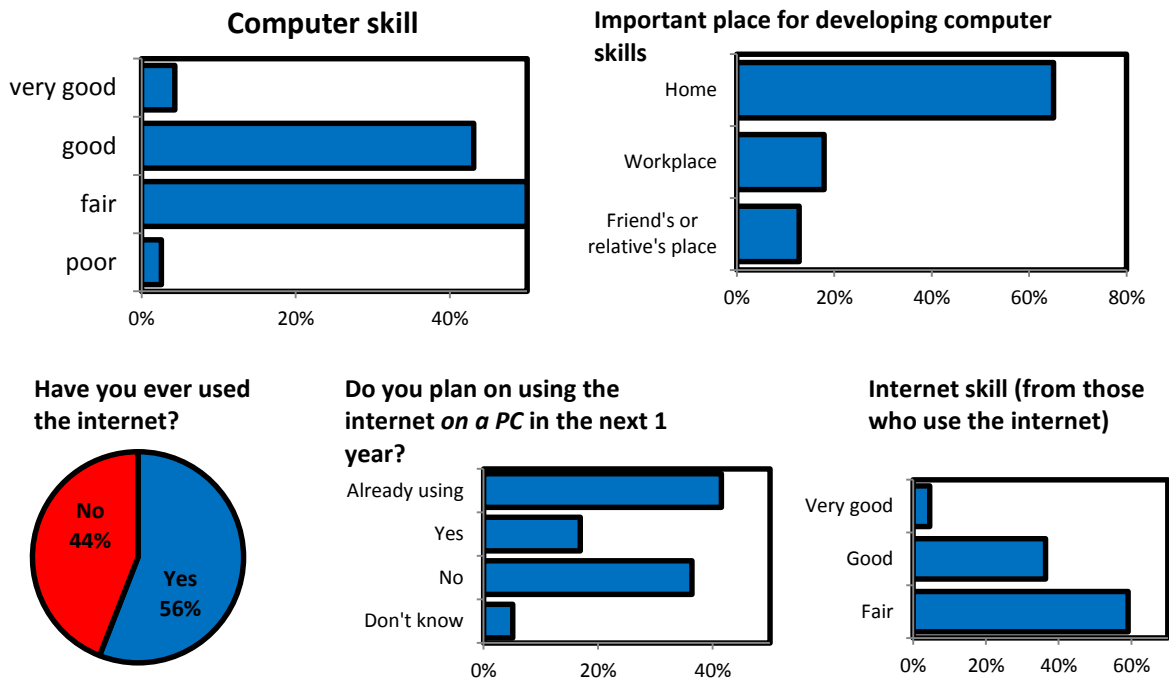
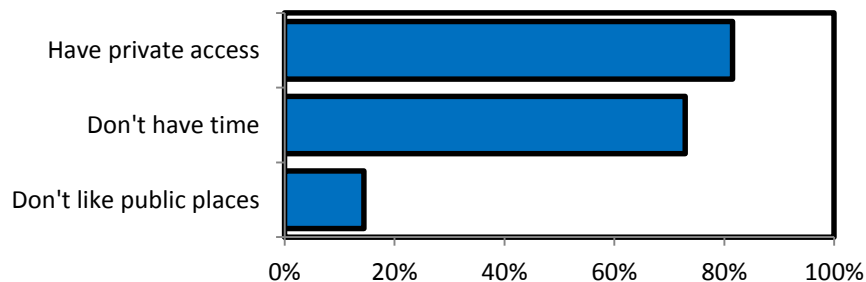


Figure 58: Top 3 reasons for non-use by never-users with private access



5.3. Typical Sources of Information

Table 6: Typical sources of information for never-users

Typical Info Source for Never Users who have private access

	Health	Employment	Govt & Politics	Education	Local News	Global News	Local language and culture
Newspaper	14.4	26.3	55.1	23.9	28.8	26.3	7.7
Book	0.8	0.8	0.8	23.9	0.8	0.8	0.0
Radio	0.0	0.0	0.0	0.0	0.0	0.8	0.0
TV	5.1	0.8	25.4	3.4	15.3	65.3	9.4
Internet	0.0	6.8	0.0	3.4	0.8	1.7	0.9
FnF	17.8	6.8	4.2	26.5	50.0	0.0	55.6
Professional	58.5	1.7	0.0	0.0	0.0	0.0	0.9
Other	0.0	1.7	0.0	0.9	0.8	0.0	5.1
N/A	3.4	55.1	14.4	17.9	3.4	5.1	20.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: All values are in percentages

Typical Info Source for Never Users with no private access

	Health	Employment	Govt & Politics	Education	Local News	Global News	Local language and culture
Newspaper	10.3	14.7	29.0	14.7	16.3	20.6	4.4
Book	1.6	0.0	0.0	11.5	0.8	0.0	0.4
Radio	0.4	0.0	0.0	0.0	0.0	1.2	0.0
TV	10.3	0.0	28.6	4.4	18.3	57.5	9.6
Internet	0.0	0.8	0.0	1.2	0.8	0.8	1.2
Fnf	18.7	14.3	6.3	24.2	56.0	2.8	57.8
Professional	52.8	4.0	0.0	0.8	0.8	0.0	0.4
Other	0.8	2.8	1.2	1.2	0.8	0.4	0.8
N/a	5.2	63.3	34.9	42.1	6.3	16.7	25.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: All values are in percentages

As Table 6 illustrates, very few of the non-users resort to the internet for information regarding anything. From the user surveys we found that most of the users are able to successfully extract information from the net and benefit from it in almost all of the categories mentioned, especially employment and education. Yet, in these two areas of interest the typical source of information for non-users is mostly newspapers, friends, family and books, even for those who have private access at home. This suggests that non-users do not perceive the internet as an important or useful source of information, even those who have computers at home and have access to the internet. It appears that there is widespread lack of awareness of the benefits connectivity to ICT can bring to people's lives.

6. Infrastructure

Now that we have ascertained the composition of users of PAVs and their demands and needs, the question arises whether the venues are geared to cater to such users and meet their demands. Aspects of infrastructure such as electricity, net speed and connectivity, number of PCs, etc play a key role in assuring the smooth operation of PAVs in delivering their services as demanded by users.

6.1. Challenges Faced by Operators

When asked whether they faced any challenges, 32 percent of venue operators responded that they face no challenges. The remaining respondents were asked to give up to three challenges in order of importance. Table 7 shows the top three responses to each question.

Table 7: Top three challenges faced by venue operators

<i>Top 3 first rank challenges</i>	<i>Frequency</i>	<i>Percentage³</i>
Electricity outage	76	44%
Lack of PCs/equipment	33	19%
Net speed/connectivity	21	12%
<i>Top 3 second rank challenges</i>		
Net speed/connectivity	44	32%
Lack of PCs/equipment	18	13%
Electricity outage	16	12%
<i>Top 3 third rank challenges</i>		
Net speed/connectivity	16	19%
Cost/lack of capital	11	13%
Electricity outage	9	11%

The top three challenges faced by venue operators are overcoming electricity outage, providing sufficient number of computers, and fixing net speed and connectivity issues. This matches the top challenges stated by users, and therefore it is crucial to address these issues.

6.2. Electricity

Electricity is paramount to the smooth operation of PAVs, irrespective of the services being availed. As the problem of power failure is rampant throughout the country, this requires some special attention. The respondents of the venue survey, who are owners or staff of PAVs, were asked if items/arrangements related to electric power, such as fuses, circuit breakers, sufficient plugs/sockets, UPS, etc were available at their venues. From their answers it seemed that in most cases they are well stocked. About 89 percent of cybercafé operators and 88.5 percent of telecenter operators stated that they have enough fuses or circuit breakers. All cybercafé operators and 98 percent of telecenter operators claimed to have enough plugs and sockets for all PCs. About 94 percent of cybercafés and 90.5 percent of telecenters have direct connection to the grid. On the

³Percentages are out of those who responded to the question, NOT the entire respondent population.

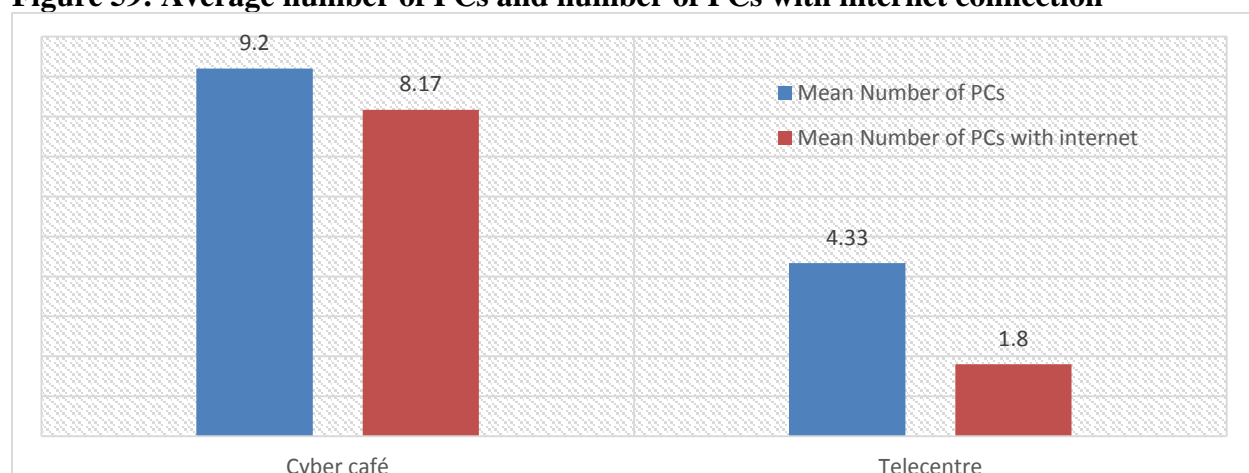
other hand, 88.9 percent of cybercafés and 79.1 percent of telecenters reported they have alternate power supplies such as UPS, generators, etc.

Despite the majority of the venue survey respondents report to have sufficient electrical arrangements, they still face challenges with regard to electricity. When asked to rank the top 3 challenges venue operators faced, 44 percent of the respondents ranked electricity/loadshedding as the top problem. This implies that even though the venues are equipped to deal with electricity problems, the problem of regular loadshedding poses a major challenge to the smooth operation of public access venues.

6.3. Internet Speed and Number of PCs

We already mentioned that electricity was stated as the number one problem faced by most operators. The two other problems most reported were lack of computers/equipment and issues with net speed or connectivity.

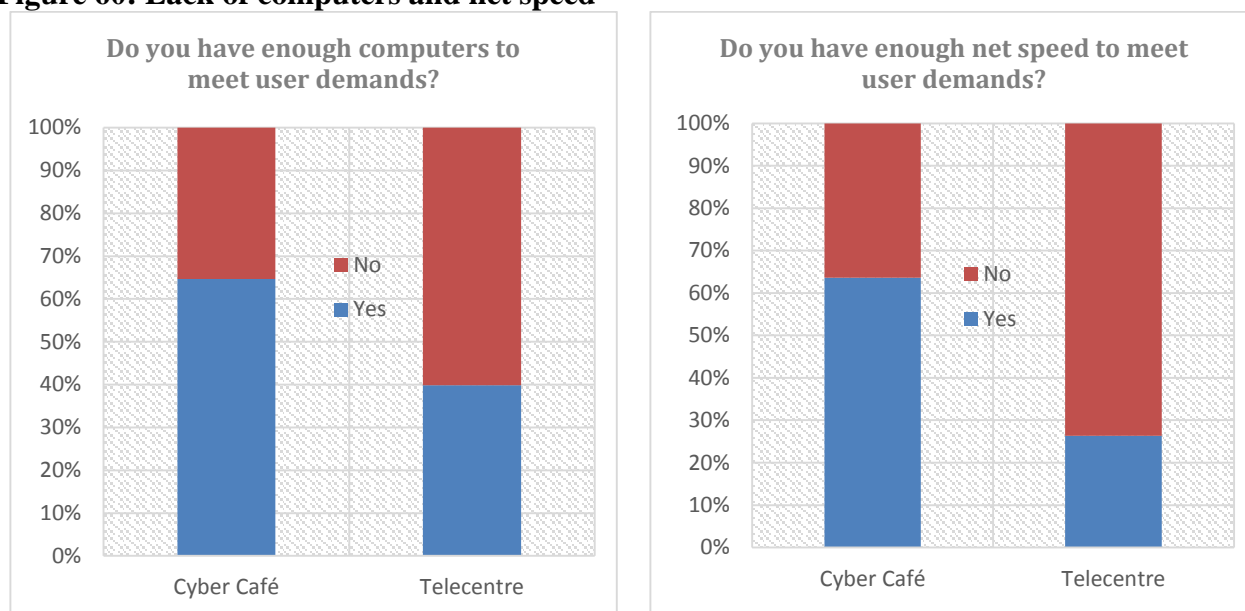
Figure 59: Average number of PCs and number of PCs with internet connection



The average number of PCs per venue for a cybercafé is 9.2 and the average number of computers connected to the internet is 8.17, suggesting that most of the PCs at cybercafés have net connection. In contrast, at telecenters, there are only 4.33 computers per venue on average, and only 1.8 computers are connected to the internet, suggesting that, on average, less than half of the small number of PCs at telecenters are connected to the internet. This is much less than the global average for telecenters: about 7 computers per venue and 5 computers connected to the internet[1].

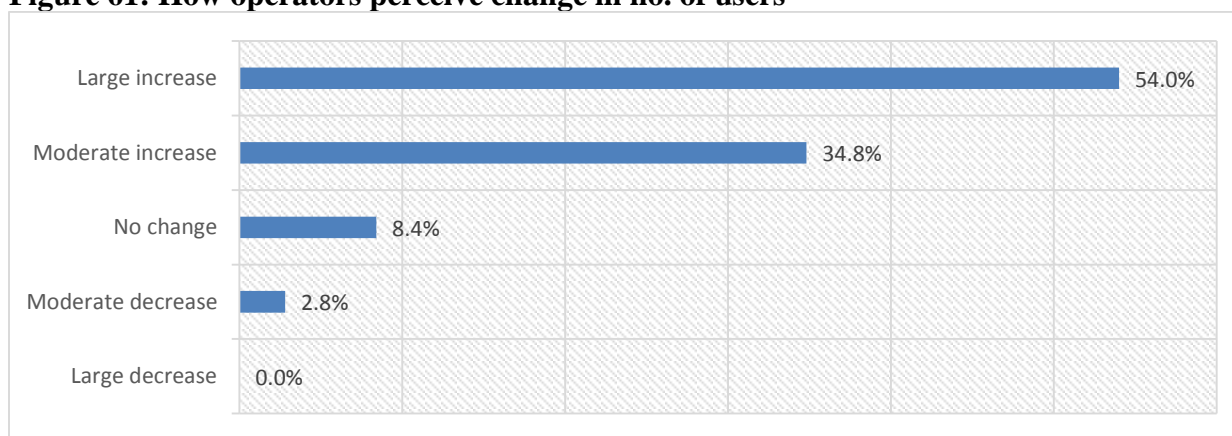
The average number of daily visitors to a telecenter is about 65, for cybercafés, it is 55. Bangladesh is the only country where telecenters are frequented with more visitors than cybercafés [1]. When asked how the number of computers changed over the years, 57.4 percent of telecenter operators stated that there has been an increase, 36.4 percent stated that the numbers are the same and only 6 percent stated that they have decreased; therefore, as the average number of PCs per venue is still dimly low, and even according to the operators surveyed, they do not meet user demands, 60 percent of all telecenter operators stated that they lack PCs, and about 73 percent stated that they do not have enough net speed (Figure 60).

Figure 60: Lack of computers and net speed



When asked about how the number of users changed over the years, venue operators and staff across all venue types, more or less, agree that there has been a moderate to large increase. About 89 percent of all operators replied that it has increased, and 54 percent replied that there was a large increase.

Figure 61: How operators perceive change in no. of users

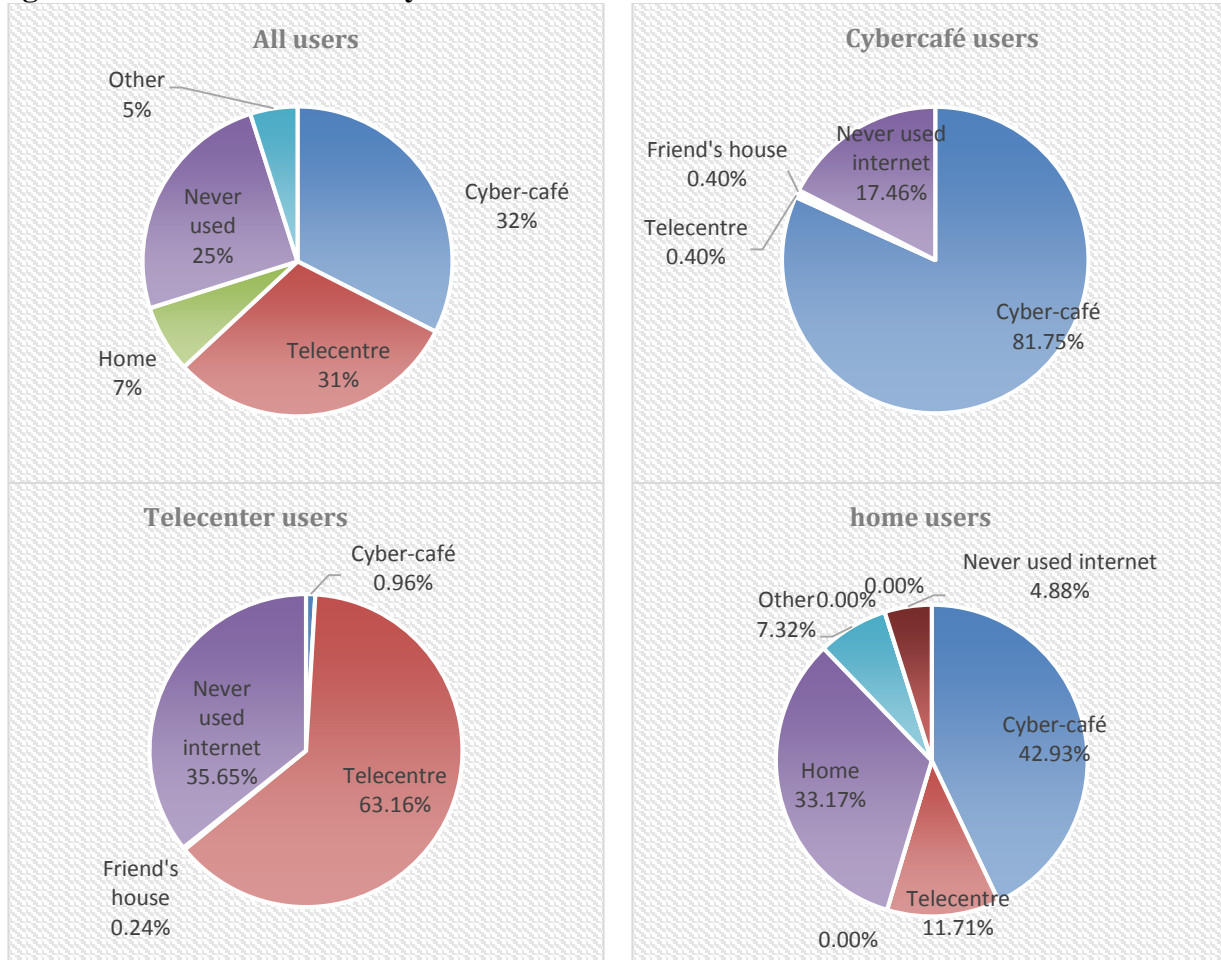


This increase in users implies that the lack of PCs will be a big problem for the sustainability of PAVs, especially for telecenters, in future.

Furthermore, the speed of net connection is much worse in telecenters than at cybercafés. The mean speed of cybercafés is about 75 kbps (9.4 kbps), which is not very good; but it dwarfs the mean speed of 31.8 kbps (4 kbps) that telecenters get, which is less than *half* of what cybercafés get. The mean fees per hour for internet usage, however, are Tk 29.19 for cybercafés and Tk 21.22 for telecenters. As a result, the price per kbps comes to 39 paisas for cybercafés and 67 paisas for telecenters, making telecenters about 70 percent more expensive than cybercafés in terms of price

per kbps. Thus telecenters perform poorly in comparison to cybercafés in regard to internet service, which may very well be the most important aspect of infrastructure. The poor quality of internet service at telecenters is reflected in the users' preference for internet use.

Figure 62: Where users usually use the internet



It is clear from the data that for internet usage, cyber-café are preferable to telecenters, an observation especially evident for users that usually use computers at home. In fact, a large portion of telecenter users (35.7 percent) do not use internet at all.

7. Conclusion

It is evident that PAVs extend irreplaceable benefits to those who use them. If PAVs did not exist, most users would have no other alternative. This is especially true of telecenter users, most of whom are rural based and have no other option, not even another venue. Considering the fact that perceived positive impacts dominate over negative impacts in most domains of interest where users are concerned, the absence of PAVs would probably be detrimental to users.

However, in evaluating whether public access venues are reaching out to and connecting the marginalized population, the results are so far mixed. Cybercafés cater to a higher echelon of society than do telecenters, as the income distribution and other characteristics of users would suggest. However, this does not mean that telecenters are doing a stellar job of reaching out to a broader crowd. The income distribution among telecenter users is a long way from representing the national income distribution. Gender inequality is severe in cybercafés; although it is somewhat better in telecenters, the fact that a 50-50 gender ratio could not be reached, signifies that the female population at large is yet to be connected to ICT. A large portion of non-users are female homemakers, a category of occupation that is nearly absent among PAV users, with telecenters being barely an exception. Inclusion of more female infomediaries seems to have a positive effect on female participation, and it is advisable to keep increasing the ratio of female staff to male staff in order to include the marginalized female population in the ICT realm.

Aside from gender, household income also appears to be an issue among PAV users. Not only is the proportion of wealthier users greater, but the positive impacts perceived by them are also greater in proportion. Except in case of health and governance, in almost every interest category there is a positive correlation between perceived impacts and household income. This is especially true for the domain of Communication and Leisure, the most active domain of interest. If poorer users continue to feel less positive impacts, it could become difficult to reach out to the marginalized population and convince them of the benefits of using ICT.

An obstacle in reaching out to the marginalized population is that non-users are mostly indifferent to ICT. Most of them feel that they have no need for it, or simply do not know of their use or have little idea about how they might benefit from it. This is seen in the survey findings regarding the use of info services such as e-gov, e-health or other government and health services. The demand for such services is small, even though in the cases where it is used, the users are mostly satisfied with the outcome, such as for health. This could be due to lack of knowledge about these services due to poor advertising, or the limited implementation of such services at PAVs.

The dominant activities by users are socializing and entertainment, indicating the prevailing general perspective towards PAVs – a place for social networking, and therefore of little use to those with those who struggle for their livelihood and can spare little time for leisure. However, a good portion of users also use PAVs for income related and educational purposes. As most of the users are either students or vocational, this is not surprising. It would appear that at least these two groups are benefitting from PAVs. However, among non-users, even those with private access give little priority to the internet when it comes to searching for relevant information, even in the domain of income and education. This is further evident that there are awareness issues with respect to the potential benefits of using ICT.

A major problem for PAVs, and in fact for the proper evaluation of PAVs with regard to how they meet the demands of people, is that the infrastructural issues such as loadshedding, lack of computers and substandard internet connectivity eclipse all other problems. Due to these challenges, most of the assistance sought by users are related to technical issues, rather than for information search. In telecenters in particular, the number of computers is quite low, with even a lower number of computers connected to the internet. Furthermore, internet speed is slow, and perhaps this does not make it worthwhile for many to spend money and time to go to a telecenter, especially if they are new to ICT. Improving these infrastructural aspects should be given top priority as they set an upper limit to the improvements that can be made by addressing other issues.

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