International Journal of Sciences: Basic and Applied Research (IJSBAR)

ISSN 2307-4531
(Print & Online)

http://gssrr.org/index.php?journal=JournalOfBasicAndApplied

An Assessment of the Department of Information and Communications Technology's Free Wi-Fi in Public Places Project

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Abstract

The Pipol Konek project of the Department of Information and Communications Technology (DICT) is the department's flagship Free Wi-Fi for public places project. Pipol Konek aims to bring a reliable, ubiquitous Internet access to more Filipinos through Wi-Fi access in most public spots, including schools, parks, public transportation, and the likes. Having only started in 2012, there is a lot to be desired in terms of assessing Pipol Konek's internet access; and from a Communications standpoint, its appeal and utility to the Filipinos. Utilizing Rogers' Diffusion of Innovation Theory, the study assessed the Pipol Konek as an innovation and the perception of the utilizing public as an innovation. It determined the utilization practices of Metro Manila users on Pipol Konek and its perceived attributes of innovation; i.e.: relative advantage, complexity, compatibility, trialability, and observability. Meanwhile, aspects of utilization such as awareness, frequency of usage, reasons for usage, location preferences, time preferences, devices used, likelihood of repeated use, reasons for disuse, and sources of information on Pipol Konek. A survey instrument was developed and validated for the purposes of the study. Relationships were also studied between demographic characteristics of gender, age, profession, civil status, and the perceived attributes of innovation. Findings revealed that most respondents claimed to use Pipol Konek once in a day during the mid-day and afternoon through their smartphones to connect to their friends and family. They had also responded strongly to the perceived attributes of innovation on Pipol Konek, thereby viewing Pipol Konek as a positive innovation. In terms of relationships between demographic characteristics and perceived attributes of innovation, there were variances in the correlation of aspects. The implications of these results and recommendations are henceforth, placed in the paper.

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Keywords: *Pipol Konek;* Free Wi-fi in Public Places; DICT.

1. Introduction

The world today is overrun by technologies that connect people and things together. The development of the internet opened the possibilities, like in a sci-fi story, of other technologies that would have been unthinkable just a century ago. It was as early as the 1890's when Nikola Tesla, a highly underrated scientist, made the first pronouncements of wireless communications [1]. Even for all his ingenuity, Tesla was too advanced for his own time. He was so much ahead for his own time that his ideas were not widely accepted. However, it was his vision that prevailed to this day.

The vision of the internet before could not be any more different from what it is today. In 1966, researchers at MIT already had a concept of computers being connected with the ability to communicate within a shared time and space. When the Advanced Research Projects Agency Network (ARPANet) took off in 1966, this concept came to fruition. It went public after a successful demonstration in 1972, at the same year to which the invention of electronic mail took place [2]. The initial developments of the ARPANET ran under the assumption that networks can be connected through packets rather than circuits. This opened the possibilities of other network possibilities, including packet satellite networks and ground-based packet radio networks. These technologies anchor what today is referred to as "open architecture networking", where the development of the Internet is dependent on its users on individual, independent networks than a centrally regulated body. As such, the Transmission Control Protocol/ Internet Protocol (TCP/IP) was developed. It was not long that by 1985, the Internet had been used by the general academic and research community, including defense and military institutions; and gradually, offered to the general public in the 90's.

It was ingenuity that built the Internet, and it was meant for the public to innovate and develop. The TCP/IP is set in place to make sure no central body manages the operation of the entire Internet. Even Internet Service Providers (ISP) only act to regulate the technical flow of the networks. However, the Internet itself is not at its peak, nor was it ever. The growth of the Internet also spurred a number of issues – like security, congestion control and Distributed denial-of-service (DDoS) attacks – that was resolved merely by stop-gap measures. Long-term planning and improvement of Internet architecture is still needed to ensure the Internet's future [3].

The future of the Internet looks at more embeddedness into ordinary life. The Internet of Things (IoT), for instance, develops technologies like sensors, radio frequency devices, computational and processing units that can transmit data into action and decision-making units [4]. It rings true to the fact that the Internet has no longer become a special thing [5], but instead a thing that is substantial for daily living. Nowadays, most social services like transport, welfare and basic goods like power and water are driven by user data, which feeds from user behavior. With the use of data, public policy no longer depended on managers who are distant from the users, but instead the behaviors and patterns of the users themselves. It addresses the view that the Internet will someday facilitate a more democratic society. This concept was not far off from initial ideas of smart cities or living spaces which make use of technology to conduct daily routine [6].

The study of the internet spanned for more than decades ago since it took off in the 1970's. The author [5] noted that the first years of internet studies roamed around speculations of the consequences within the promises of increased interconnectivity. It was not long enough, according to Wellman, that studies gradually recognized Internet data, like demographic differences and user behavior. Presently, internet studies come across more theoretical aspects of the Internet, i.e., entrepreneurship and the Internet. The development of Internet studies has also been glacial at its pace, especially in the field of mass communications.

If the Philippines would have any birthdate for the Internet, it would be on March 29, 1994, when the Philnet project finally enabled the country to go online as it connected to a Sprint gateway in California [7]. The Philnet project was done as collaboration from the Department of Science and Technology and the Filipino academic community. However, even as early as 1986 some Filipinos were seen to experiment with bulletin board systems (BBS), a precursor of the Internet.

Presently, Internet in the Philippines still leaves a lot to be improved. According to the Q1 2017 Akamai State of the Internet Report, the country has the slowest Average Connection Speeds and Average Peak Connection Speeds in the Asia-Pacific Region, trailing with within the 100 and 97 ranks for both standards, respectively. However, Akamai is positive that these figures would improve, given the pronouncements of the present government under President Rodrigo Duterte of building a National Broadband Network [8].

It is ironic for the Philippine Internet, considering that it is one of the slowest Internet speeds in the region, and presumably in the world, and yet Filipinos are known prolific Internet users. This irony points to one of the many existing issues of Philippine internet connectivity. For one, the cost of maintaining a broadband connection in the Philippines is costly. According to the International Telecommunications Union, the Philippines holds a 7.53% affordability level, which is higher than the 5% affordability threshold that the United Nations Broadband Commission had set [9]. Another concern is that most broadband connections in the country are yet on the xDSL technology rather than fiber optic cables, which are now the basic connectivity instruments in most countries.

The National Broadband Plan responds to the issues by deploying fiber optic cables and wireless technologies to improve the broadband connectivity of the country. The country is expected to achieve speeds of "at least 10 Mbps of internet download speed" within households by 2020, in addition to a ubiquitous broadband connectivity, unified e-government systems, and a smart countryside equipped with distance learning, e-health and telecommuting capabilities [9]. The Philippine government's move to approve and build a national broadband network is a step in the right direction to address these issues. It democratizes Internet connection in the country, leaving out enterprises for the common good of the country. As internet connection is already a prerogative in the 21st century, policies aimed at setting the country online also set the country up for the future.

In the Philippines, the DICT has implemented the Pipol Konek project, or the Free Public WiFi Access Project. The Republic Act No. 10844 created the Department of Information and Communications Technology (DICT) in 2016, divesting the Department of Transportation and Communication with agencies relevant to Communications and passing it to the DICT. The agency is tasked to centralize the government's efforts toward

developing the country's ICT backbone, which includes addressing broadband and internet connectivity issues of the country. Included in the mandates of the DICT is to provide free public WiFi access across the country, which it carried on from the now defunct ICT office of the Department of Science and Technology (DOST). After its implementation since 2016, it has since covered 12,841 public spaces.

Since DICT launched Pipol Konek, targets of the project are ambitious as it keeps on reaching over 13, 000 public places, 145 cities and 1, 489 municipalities. This project aimed to make citizens who are not comfortable accessing the net can be able to access government services easily and closer to their residence. There is no exact standard that DICT provides but they keep on reaching their target number of places to further create more opportunities for technology among all citizens [10]. In order to DICT install Pipol Konek in public places, DICT closely coordinates with Local Government Units, especially in ease of doing business and obtaining necessary permits, in putting up the sites necessary for connectivity.

The present study explored how the users of Pipol Konek have utilized the service as it had been implemented in their areas. The DICT has not commissioned any study relative to the assessment on the utilization of Pipol Konek, as the project had only been around a year ago. It would present an initial look at the behaviors and perceptions of the Filipino user in using public WiFi, and present the implications of these behaviors in the goals of the DICT in establishing a strong national ICT backbone. Given that the project was just given the go-signal at 2016, there was no existing study that assessed the capability of Wi-Fi access in public spaces. Thus, the present study took on a preliminary investigation of how users assessed the free Wi-Fi service as it is currently implemented.

1.1 Objectives of the Study

The study aimed to evaluate the use of the public free WiFi access of the DICT, Pipol Konek, and how the public has perceived its use thus far. More specifically, it aimed to answer the following problems:

1. What are the demographic characteristics of the respondents in terms of:

   a. Gender;
   b. Age;
   c. Profession; and
   d. Civil Status?

2. What is the level of awareness of the respondents on Pipol Konek?
3. What are the habits of the respondents using Pipol Konek with regard to:

   a. Time (in a day);
   b. Frequency of usage (how often in a day);
   c. Type of gadget they use in connecting; and
   d. Reason/s for using Pipol Konek?

4. What is the assessment of the users in Pipol Konek in terms of the following constructs:

a. Relative Advantage;
b. Compatibility;
c. Complexity;
d. Trialability; and
e. Observability?

5. What are the differences observed in the demographic profile (gender, age, profession, civil status) of Pipol Konek users?
6. What are the respondents' recommendations in improving Pipol Konek?

1.3 Scope and Limitations of the Study

The Pipol Konek is a free public WiFi access project that already has a nationwide implementation. However, due to the available resources for the researcher, only selected hotspots in the National Capital Region (NCR) were available for the study. Similarly, the study only utilized a number of sample for the respondents, as not every user can be reached for the study. Also, the scope of the study focused only on the utilization characteristics of the users of *Pipol Konek*. The technical details of the WiFi access, as made by other previous studies, were involved in this study. However, several technical details were cited for the purposes of providing a context of *Pipol Konek*.

2. Materials and Methods

2.1 Methods of Research

The study utilized a quantitative research design in assessing the user attitudes and perceptions of the use of Pipol Konek. According to the author in [11], quantitative research design is "an approach for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures." In quantitative research designs, theories are proven or characterized using variables that are measured and analyzed using mathematical procedures, i.e., statistical tests.

2.2 Population, Sample Size, and Sampling Technique

Pipol Konek had been implemented since 2016, and since then had covered 12,841 public places. More specifically, it had installed a number of sites in the following places:

It has been mentioned in Chapter 1 that one of the limitations of the study is that it would not be able to gather a more inclusive number from the population, if not the entire population of users in these following sites. As such, the study utilized non-purposive or convenience sampling.

Table 1: Number of Places where Pipol Konek is installed

Public Places	Number
Public Schools	4568
Public Parks and Plazas	3173
Government Hospitals	2277
Public Libraries	677
National and Local Government Offices	1557
State Universities and Colleges	682
Seaports, Airports, and Train Stations	90

The number of respondents who participated in the survey was derived using Slovin's formula. The table below shows the latest number of Pipol Konek clients in various Wi-Fi hotspots in Metro Manila per city, as gathered by the management information systems of the DICT, together with the computed Slovin's formula for each type of location. Sample computation was done with a .05% margin of error and 95% confidence level.

Table 2: Recorded number of Pipol Konek clients in Metro Manila

Type of Location	***Number of Sites***	***Total No. of Clients (N)***
City of Manila		
National and Local Government Offices	10	4365
Government Hospitals	19	5239
Public Parks and Plazas	1	18493
Public Libraries	2	1320
State Universities and Colleges	1	6498
City of Pasig		
Government Hospitals	2	85
City of Pasay		
Government Hospitals	9	4730
National and Local Government Offices	2	1774
Public Libraries	1	476
Municipality of Pateros		
Public Parks and Plazas	1	2584
Quezon City		
National and Local Government Offices	40	35320
Government Hospitals	65	36915
Public Parks and Plazas	5	21553
Public Libraries	6	9278
State Universities and Colleges	5	6357
City of Taguig		
National and Local Government Offices	3	856

as of November 2017 per DICT data

Given a total number of 155, 843 respondents for Metro Manila, the total sample number of respondents in this study was 410.

2.3 Description of Respondents

The respondents of the study were selected through convenience or non-purposive sampling style. A total of 410 respondents participated in the research. They were users of the Pipol Konek with varying levels of frequency. Once the data have been gathered regarding their demographic profile, the study determined differences and provide vivid descriptions of the respondents.

2.4 Research Instrument

The study utilized a modified version of the questionnaire used by the authors in [12] in their study concerning the utilization of ICT technologies by university lecturers in Nigeria. The instrument adapted to the five constructs of Diffusion of Innovation as expounded on by the author in [13]. In their study, the instrument had a reliability score of multiple item scales ranging from 0.71 to 0.97. After modification, the instrument was subjected to validation and reliability testing to determine the internal consistency of the instrument. Pilot testing of the instrument was conducted first before proceeding with the actual conduct of the survey.

The modified instrument had been submitted for validation by IT and research professionals. Their comments had been noted and duly incorporated in the instrument prior to its administration.

2.5 Data Gathering Procedure

The researcher had secured necessary permissions in the pertinent offices where sites of Pipol Konek are in the NCR. Before the survey was administered, each respondent was discussed with the purpose of the study and was asked to sign a consent form indicating their participation in the study. After the consent form had been signed, the survey was administered to the respondents. This went on for four weeks (4) as the duration of the data gathering period. All information given by the respondents were kept in strict confidentiality.

2.6 Statistical Treatment of Data

Different statistical formulas were used to arrive at the analysis of the data gathered for the study. Mean, median and percentage values were used to summarize information regarding the respondents, as well as their response for the questionnaire. On the other hand, a test of the Analysis of Variance (ANOVA) was used to infer differences between gender and age categories regarding the seven constructs in the questionnaire.

Mean

The formula for getting the mean is;

$$\overline{X} = \frac{\sum X}{N}$$

Where: $\bar{x}$ is the mean

Σ^x is the sum of all frequencies; and

N is the total number of frequencies

Percentage

In computing for the percentage score, the figure of a partial sector was divided with its total number, multiplied by 100.

Analysis of Variance

$$\sum_{j=1}^{p}\sum_{i=1}^{n_j}\left(X_{ij}-\bar{X}_j\right)^2 = SS_{W/in}$$

$$\sum_{j=1}^{p} n_j\left(\bar{X}_j-\bar{X}\right)^2 = SS_{Betw}$$

$$\sum_{j=1}^{p}\sum_{i=1}^{n_j}\left(X_{ij}-\bar{X}\right)^2 = SS_{Tot}$$

The formula for getting the analysis of variance (total sum of squares) is:

Moreover, the results of the survey were analyzed and interpreted with verbal interpretation cues such as presented below.

Table 3: Verbal Interpretation Cues

Scale	Range	Verbal interpretation
1	1.00-1.74	Strongly Disagree
2	1.75-2.49	Disagree
3	2.50-3.24	Agree
4	3.25-4.00	Strongly Agree

Also, the data on the awareness of the respondents is interpreted using the scale below.

Table 4: Verbal Interpretation Cues (Awareness)

Scale	Range	Verbal Interpretation
1	1.00-1.50	Not at all aware
2	1.51-2.50	Slightly aware
3	2.51-3.50	Somewhat aware
4	3.51-4.50	Moderately aware
5	4.51-5.00	Very Much aware

3. Results

This chapter discusses the various results and findings generated from the data gathering stage of the study, utilizing a survey instrument to determine whether there is a significant difference between the perceived innovation of Pipol Konek and the respondents' demographic profile.

3.1 Demographic Characteristics of the Respondents in terms of Gender, Age, Profession, and Civil Status

Table 5: Demographic Characteristics of the Respondents

Gender	
Male	204
Female	206
Age	
15 and below	24
16-25	140
26-35	142
36-45	64
46-55	13
56 and above	22
No answer	5
Profession	
Employed	114
Student	167
Working Student	63
Unemployed	66
Civil Status	
Single	179
Married	223
Others	8
Sites	
Manila	95
Pasig	2
Pasay	18
Pateros	7
Quezon City	283
Taguig	5

3.1.1 Gender

The study has an overall number of 410 respondents, with 204 males and 206 females.

3.1.2 Age

As for the respondents' age, the most number of respondents are from the 16-25 age range with 150 respondents, followed by respondents with 26-35 age with 133 respondents, 36-45 age with 78 respondents, 46-55 age with 30 respondents, aged 15 and below with 24 respondents, and aged 56 and above with 19 respondents. The youngest respondent was 12 years old, while the oldest was 56 years old.

3.1.3 Profession and Current Profile

In terms of profession, most of the respondents failed to indicate their actual work. As such, it is no longer considered in this analysis. However, in their current profiles they are able to indicate whether they are employed, a student, a working student, or unemployed. A huge part of the respondents are students with a frequency 167, followed by employees with 114 participating members. There are 63 working students, and 66 unemployed respondents.

3.1.4 Civil Status

In terms of civil status, most of the respondents appear to be married with 223 respondents claiming they were married. On the other hand, only 179 of the respondents claimed to be single. Eight respondents answered "Others" and all of them indicated that they were widowed.

3.1.5 Sites in Metro Manila

The sample of 410 respondents is divided accordingly across Metro Manila where sites of Pipol Konek are reported to be utilized. Most of the respondents come from Quezon City with 283 respondents, followed by Manila City with 95 respondents, Pasay with 18 respondents, Pateros with 7 respondents, Pasig with 5 respondents, and Pasig with 2 respondents.

3.2 Awareness of the Respondents on Pipol Konek

Table 6: Awareness of the Respondents on the Pipol Konek Project

Awareness	**Frequency**	**Percentage**
Very Much Aware	34	8.29%
Moderately Aware	18	4.39%
Somewhat Aware	139	33.90%
Slightly Aware	184	44.88%
Not at all Aware	35	8.54%
General Weighted Average:		*2.59*
Verbal Interpretation: Somewhat Aware		

When asked if they are aware of the Pipol Konek project of the DICT, the survey gathered a myriad of responses. 44.88% on the respondents agree that they are "Slightly Aware" of the project, while 33.90% of the respondents answered "Somewhat Aware". The succeeding responses are a long shot from the two previous responses: "Not at all Aware with 8.54% of the responses; "Very Aware" with 8.29% of the responses, and "Moderately Aware" with 4.39% of the responses. In general, the awareness of the respondents on the DICT Pipol Konek project is at an average of 2.59, or a verbal interpretation of "Somewhat Aware". While most people are "Slightly Aware", the overall responses indicate that there is a prevalent awareness among the respondents but not so much as to be fully aware of the project itself.

The awareness of people on new technology or innovation has been measured using various constructs in different studies. The development of new technologies, particularly of Wi-Fi, has provided an unprecedented change in terms of market challenges and opportunities [13]. Measuring the awareness of people in these new technologies provides insights on user experience as well. One study developed a Wi-Fi privacy ticker that monitors privacy breaches and unencrypted transmissions of highly sensitive information, which improved awareness of Wi-Fi users to privacy of personal information [14].

On the other hand, the application of these technologies provides another focus of awareness. In one study, a university's teaching staffs' pedagogical awareness was measured through an analysis of their ideas on student learning as journalized in their weblog accounts on their ICT course. It was found that "contextuality and the transfer of knowledge were not well elaborated", where "emphasized collaboration as a pedagogical means to facilitate learning" [15]. Another study sought to create a model of how students process their learnings to make sense of scientific concepts; or, rely on their "personal awareness of science and technology" or PAST. This model "draws on this prior experience to produce an understanding of the exhibit, and to some extent, an understanding of the underlying scientific model" [16]. The facets that are affected by the awareness of the users to Pipol Konek will be described by their habits and perceptions of innovation as described further in this analysis.

3.3 Usage of Pipol Konek

Table 7: Overall Usage of Pipol Konek

Usage	Frequency	Percentage
Yes	359	87.56%
No	49	11.95%
No Answer	2	0.49%
TOTAL	410	100%

Table 7 shows that 87.56% of the respondents answered in the affirmative. However, there are 11.95% of the respondents that have not yet used Pipol Konek, and there are two (0.49%) of the respondents who did not answer on the item. For the purposes of this analysis, the responses following this section only consider the 87.56% of the respondents who are actually using Pipol Konek. Most of the studies in the literature have yet to offer concrete differences between users and non-users of a municipal wireless connection similar to Pipol

Konek. However, the study's theoretical framework bears some ideas on a use and disuses of an innovation.

In relation to the study's theoretical framework, Rogers' Diffusion of Innovation Theory has actually categorized the users of an innovation into six different categories: the innovators, early adopters, late adopters, early majority, late majority, and the laggards [12]. As one adapts, there becomes a figure that tells of how the adoption takes place, or the "rate of adoption", which could be measured through socio-economic characteristics, personality variables, and communication behavior. No previous study has made a distinction of user and non-users; therefore no point of comparison. All previous studies made were to use active users as respondents.

Apparently, the adoption of an innovation and technology comes with it different habits and attitudes according to the technology it adapts. For instance, the case of technology adoption for small and medium enterprises is very strong as it creates value and generates value for a company. It is not only an investment to make one firm relevant to the times, but to ensure efficiency in firms [17]. In another study on internet usage in Greece, it was found that "individuals with more formal education have increased information needs and are more familiar with computer and Internet usage [18].

While the acceptance of technology or innovation comes with adoption, there would be people hesitant to take advantage of that innovation, which leads to an innovation rejection or abandonment. Reasons for the disuse of Pipol Konek are reflected on Table 8 below.

Table 8: Reasons for Disuse of Pipol Konek

Reasons for Disuse	Frequency	Percentage
Lack of Awareness	36	73.47%
Not Interested	3	6.12%
Better Connection	10	20.41%
TOTAL	**49**	**100%**

Those who claimed to not have used Pipol Konek are also asked of the reasons why they do not use the technology. Most of the respondents, about 73.47%, claimed that they lack awareness of the project. Meanwhile, 10 respondents find the Internet connection of Pipol Konek needed boosting, while 3 respondents are not interested in the project.

The rejection of technology "maybe expressed as a phenomenon wherein a society... capable of availing the service of a particular technology, deliberately chooses to refrain from its use, in full or part" [19]. Other technologies also had similar circumstances in their rejection or abandonment. For instance, the abandonment of assistive medical technology had been due to four factors: "lack of consideration of user opinion in its selection, easy device procurement, poor device performance, and change in user needs or priorities" [20]. In the case of [20], rejection of the innovation came reportedly because it was not able to consider its users; i.e., that the innovators outweighed user convenience in favor of medical necessity in that while it is medically convenient, users had a hard time figuring its use. Hence, the users were not able to realize its full potential due to its

perceived irrelevance. Another example is the case of the wallet phone, a device used to store, among other things, money and personal information in one. However, it was found that customers failed to see it as useful or helpful. Instead, users perceived it as a security risk, thereby lowering its perceptions to a negative [21].

3.4 Utilization Habits in Terms of: Location, Time, Frequency, Devices Used, Reasons for Connecting, Likelihood of Repeated Use, and Source of Information about Pipol Konek

The data gathered below are those of the 361 respondents that claimed to use Pipol Konek. The respondents were also allowed to choose more than one response in some instances, and as such the numbers would not add up to the respondent count. Table 9 shows the responses when asked of the location where they use Pipol Konek.

3.4.1 Location

Table 9: Utilization Habits: Location Preferences

Location	Frequency	Ranking	Ranking as per DICT data
School	103	2	5
Public Parks	196	1	1
Public Hospitals	20	6	4
Libraries	29	4	3
Government Offices	27	5	2
Transport	54	3	N/A

For this item, respondents are asked of the locations where they usually connect using Pipol Konek. Since they are encouraged to answer as accurately as they could, multiple responses were allowed. Public parks come first, followed by schools; succeeded by public transportation, public libraries, government offices, and public hospitals.

Comparisons are also drawn with the data of the DICT on the usage of Pipol Konek in Metro Manila. Public parks also came in first, followed by government offices, public libraries, public hospitals, then lastly, by schools. Meanwhile, no data has been provided regarding the usage of Pipol Konek in public transport. As such, comparisons cannot be drawn.

It is sufficient to say that Pipol Konek had been most utilized in public areas and parks given in both measures. However, the switch between the rankings of schools and government offices in both measures; where schools and government offices come in second according to the respondents and vice versa as per DICT data, is noteworthy. This result can be attributed to the demographic dominance of student respondents in the survey for the present study, whereas the DICT data encompasses the wider scope of users.

These results provide the ubiquitous internet connectivity that is present and expected of municipal Wi-Fi connections, [22] paving way for the concept of “smart cities” [23]. With a project as expansive as the Pipol Konek, it must provide ubiquitous connection ensured in as many public spaces as possible.

In a larger scale, geographical location is also an important driver of innovation. At times, a country's national innovative capacity determines the capability of one country

to support innovations and sustain economic growth by means of innovation. A country's national innovative capacity reflects the conditions, investment and policy climates of one country [24]. Similar sentiments are also reflected in the territorial innovations model, at which local institutional dimensions play a crucial role in determing economic impact of innovations [25]. Innovation by location can also be explained by the geographical sources model. In using the United States as an example for the model, it explains how the concentration of research and development opportunities and support can help create and generate more innovations [26].

3.4.2 Time Preferences

Table 10: Utilization Habits: Time Preferences

Time	Frequency	Ranking
Early Morning	70	3
Mid-day	101	2
Afternoon	129	1
Late Noon	62	4
Evening	36	5
Late Evening	5	6

Table 10 shows the time when the respondents use Pipol Konek. Similar with 3.4.1., multiple responses are also allowed in this item. In general, utilization reportedly peaks at the afternoon, followed during mid-day, early morning, late noon, evening, and lastly, during late evening.

Similarly, the same pattern of higher Internet usage in the afternoon is shown in one study describing the utilization of cybercafés in Manila [27]; as well as for students [28]. Even with the present study's results showing a bigger preference for connecting in the mid-day and afternoon, the need for a ubiquitous connection present anywhere and anytime becomes more of a pressing need.

These results show that an ever-pressing need for ubiquitous internet access should materialize, given that a significant number of users are incorporating Internet access within their daily routine. This increase in the need for Internet access is well documented in a number of studies, notably by [29] where they claimed thar there are double-digit rises in Internet consumption in Asian and African countries.

Meanwhile, in considering the findings of utilization in terms of location and item, it can be said that the modal usage of Pipol Konek comes with users from public parks during the afternoon, or from users in schools and government offices from mid-day to late afternoon. These results create an image of the usual users of Pipol Konek with various reasons, as elaborated below at 3.4.3.

3.4.3 Daily Frequency of Connection

Table 11: Utilization Habits: Daily Frequency of Connection

Frequency of Use	Frequency	Percentage
Once	239	68.88%
Twice	67	19.31%
Thrice	27	7.78%
More than 3	14	4.03%
No answer	12	3.34%
TOTAL	**359**	**100%**

Table 11 shows the frequency of use of the respondents in connecting to Pipol Konek within a day. Most of the respondents claim to connect once in Pipol Konek, with 68.88%. A small portion of the respondents agree to connect twice with 19.31% of them, thrice with 7.78%, and more than three times with 4.03%. Twelve respondents at 3.34% were not able to respond for this item. Other studies show similar responses, with usage owning up to 1-2 times per day [30].

Moreover, a study by the author in [29] showed that Filipino internet users are more likely to access the Internet through their smartphones at least once a week or less within a month. However, the global median states that there is more smartphone Internet access that is more than three times a week. Moreover, in one study assessing Internet usage within college students there was a noticeable decline in usage as the level goes up. The study noticed that freshmen students took 10.20 hours per day, sophomores at 8.99, juniors at 7.97, and seniors at 7.51, [31]. Another study also confirms that more students are using the Internet more than four times a day [28].

While these findings maybe at odds, all of those affirm the results of the present study. These show that internet usage is peaking at this point in time, and as an innovation, it shows promise of continued usage. While the Filipino demographic of the Pew study showed that Filipinos use the Internet once a week or less, those who use it daily, particularly the students, use it more than three times a day.

3.4.4 Devices Used

Table 12: Utilization Habits: Devices Used

Device Used	Frequency	Ranking
Mobile Phones	325	1
Tablet	21	2
Laptop	3	3
Desktop	1	4
No Answer	9	5

Table 12 shows the variety of devices that the respondents use in connecting to Pipol Konek. Similar with items 3.4.1 and 3.4.2, multiple responses are allowed for this item. Most of the respondents use their mobile phones

when connecting to Pipol Konek, followed in far second by their tablets, laptops and one respondent on a desktop. Nine respondents were not able to answer this item. The results in 4.4 echo most findings in the literature regarding the use of mobile phones to connect to the Internet in general.

Interestingly, the Philippine demographic of the study of [29] revealed that respondents owned more cellphones than smartphones, i.e., more Filipinos own cellphones with limited or 2G capabilities than those with smartphones. The findings of the study, which claimed an overwhelming 93% of the respondents as having mobile phones, may come from the narrow demographic of smartphone users. Cellphones, as identified in the Pew study, do not have the Internet capabilities to access Pipol Konek. Moreover, the Pew study also identifies that more millennials users aged 18-34 have smartphones than adults aged 34 and above; more educated users have smartphones than less educated users; and more apparent with high income users than low income users.

The findings of the present study also support another utilization study where most of the respondents answered that they use their handheld or mobile devices in connecting online [30]. One study had also established that employees are more likely to access the Internet using mobile phones with Internet capabilities than with smartphones, and retaining a minority of Internet users who access using their tablets [32]. Another interesting finding from the literature that corroborates with this finding is that more young children are connected to the Internet – in this study, 96.6% of them – though their mobile devices [33]. These results are definitely revealing a trend that can be seen to be sustained in the future, particularly in creating more ubiquitous and convenient Internet access for the consuming public.

3.4.5 Reasons for Connecting

Table 13: Utilization Habits: Reasons for Connecting

Reasons	Frequency	Rank
Social Connections	304	1
Study/Work-Related	40	3
Entertainment	52	2
Others	3	4

Table 13 shows the reasons that the respondents claim when using Pipol Konek. Similar to items 3.4.1, 3.4.2, and 3.4.4, multiple responses are allowed in this item. Most of the respondents use Pipol Konek to connect with their friends and family online wherever they are, followed by using Pipol Konek to stream videos or listen to music. Some respondents also use Pipol Konek for work-related matters, while a small portion gave other responses, which includes: online research and study.

Table 13 3.4.5 provides a different perspective than what is concluded in other studies. As the biggest chunk of internet users, young adults also lead in the utilization of internet access as a source for study or work [30]. Among all social networking platforms, Facebook remain to be the biggest social media application used [34]. In other studies, there is a difference on the reasons for internet connection. For instance, more studies on adolescent Internet usage discussed that adolescents use the internet for research and school work purposes, followed by games and entertainment [32]. However, even with the provision of similar choices on the

questionnaire, these findings were not reflected. Moreover, a study on adult Internet usage also claimed that adults access the Internet for communication and to seek information on queries and curiosities they have [35]. It should be noted that while reasons for Internet use among adolescents are well-documented, the literature is still in need of documentation of adult Internet usage.

Given their aforementioned experiences and habits in connecting to Pipol Konek, the respondents are also asked of the likelihood they would be connecting to Pipol Konek again after one time. The responses are on Table 14.

3.4.6 Likelihood of Repeated Use

Table 14: Utilization Habits: Likelihood of Repeated Use

Likelihood of Repeated Use	Frequency	Percentage
Yes	326	90.78%
No	33	9.22%
TOTAL	**359**	**100%**

Table 14 reflects on respondents' likelihood to repeat their connection using Pipol Konek, 90.78% of the respondents agree, while 9.22% disagree. As for those who answered in the negative, they are also asked for reasons why they are disinclined to use Pipol Konek again. They cited the speed of the internet connectivity. This aspect of utilization can be further explained by using the technology acceptance model, which extropolates the acceptance of a technology to its intended user base. It looks at selected factors including attitude, perceived usefulness, perceieved ease of use, self-efficacy, relevance, system accessibility and subject norm [36].

In one study building from the rate of adoption hypothesis of Rogers' works, it was claimed that five aspects affect an innovation's ability for adoption: initial conditions, homophily or the association of the people towards like-minded or similarly characterized people, network topology, rules of adapting, and strategy [37]. The present study is limited in its ability to interpret Pipol Konek's rate of adoption and aspects of innovation adoption, which is better left in further studies in more nuanced statistical studies.

3.4.7 Sources of Information on Pipol Konek

Table 15: Utilization Habits: Promotion Strategies of Pipol Konek

Promotion	Frequency	Percentage
Print	71	19.89%
Social Media	169	46.78%
Recommendation/ Word-of-Mouth	116	32.49%
Others	3	0.84%
TOTAL	**359**	**100%**

Table 15 highlights how the respondents came across Pipol Konek and from which promotional media do they discover about Pipol Konek. Most of the respondents revealed discovering on Pipol Konek using social media, with 46.78% of the responses. Not far behind, 32.49% of the respondents use Pipol Konek as a recommendation from their peers or by word of mouth. Only 19.89% of the respondents discover about Pipol Konek by print ads, and 0.84% found out about Pipol Konek by means other than those indicated.

In the discussion of Diffusions of Innovation, a study by the author in [12] communication channels at which knowledge of an innovation is passed through users through various channels. The time and milieu of Pipol Konek is cascaded through that communication channels are transferred by social media sites, making more people informed as knowledge of innovation, or of anything for this matter, is transferable through social networks [38]. This concept is clearly reflected in the results of the present study, as more people know about Pipol Konek through social media than other means. The second most-used communication channel, recommendations or by word of mouth, is also corroborated by one study, which claimed that interpersonal communication is an efficient communication channel particularly for farming technologies as assessed in their study [39].

Table 16: Recommendation Sources

Reasons	Frequency	Percentage
Family	15	12.82%
Friends	50	42.74%
Colleagues	26	22.22%
Classmates	18	15.38%
No Answer	7	5.98%
TOTAL	**116**	**100%**

Table 16 presents that majority of the respondents at 42.74% found out about Pipol Konek from their friends. Meanwhile, there are 22.22% of the respondents that agree knowing Pipol Konek through their colleagues, 12.82% from their family and relatives, and 15.38% from their classmates. Seven respondents, or 5.98%, of the respondents are not able to answer the item.

The findings above echo a study by the authors in [40] on internet adoption in South Korea that showed family influence as a critical role on Internet usage, more critical than other demographic factors.

3.5 Perceptions of Innovation

Following Rogers' Diffusion of Innovation Theory, the study sought to identify perceptions of people on innovation on five different aspects: relative advantage, compatibility, trialability, observability, and complexity. The results are shown through Tables 17 to 21.

3.5.1 Relative Advantage

Table 17: Summary of Items for Relative Advantage

Item	Weighted Mean	Interpretation
The use of Pipol Konek helped me save on my Internet connection costs	3.54	Strongly Agree
My peers respond positively when I tell them I use Pipol Konek.	3.47	Strongly Agree
The use of Pipol Konek provides me the Internet connection I need for working on the go.	3.35	Strongly Agree
I know of many other users connecting to Pipol Konek.	3.31	Strongly Agree
When people hear of Pipol Konek, they have positive association of it.	3.33	Strongly Agree
General Weighted Mean: 3.40 *Interpretation: Strongly Agree*		

As shown in Table 17, the respondents unanimously agree strongly to the items pertaining to its relative advantage. The aspect bears a general weighted mean of 3.40 or a verbal interpretation of "Strongly Agree". According to the author in [12], relative advantage is "the degree to which an innovation is perceived as being better than the idea it supersedes". As such, the respondents agree that Pipol Konek had been a better alternative that responds to their internet connection needs. In fact, they feel strongly affirmative that it help them save on their internet connection costs and positively inferred by their peers which provides mobile, ubiquitous Internet, wide reach of usage, and ease of use by most users.

Studies also show the factor of relative advantage at play with other factors when it comes to innovation adoption. In one study, relative advantage together with compatibility and observability was positively related with the adoption of mobile banking [41]. As such, it meant that people are more accepting of mobile banking because they perceive it as something more convenient and useful, generally "better", than the other ideas it superseded. Moreover, when it comes to mobile banking relative advantage, together with trialability, had a positive direct effect on consumer attitudes and intention to use [42].

Another study by the authors in [43] found that relative advantage did not affect citizens' intentions to utilize e-government services. It meant that people are not accustomed to transacting government business via the Internet, as most of their personal or more intimate communication is also conducted online and therefore dissonant to their intended use. Relative advantage had also been positively significant with the adoption of computer technology in Saudi Arabia [44]. Relative advantage was also the only construct that emerged to have a direct effect on both current use and future use intention [45].

3.5.2 Compatibility

Table 18: Summary of Items for Compatibility

Item	Weighted Mean	Interpretation
Pipol Konek is a good alternative than my previous way of connecting online.	3.37	Strongly Agree
Connecting online in public places is widely accepted.	3.50	Strongly Agree
Pipol Konek functions better than other Wi-Fi connections I had in other public areas.	3.32	Strongly Agree
Pipol Konek satisfied my Internet connection needs.	3.40	Strongly Agree
Pipol Konek is compatible with the specs of my mobile phone.	3.51	Strongly Agree
General Weighted Mean: 3.42 *Interpretation: Strongly Agree*		

As shown in Table 18, the respondents unanimously agree that the compatibility of Pipol Konek is something very innovative to their perception with a general weighted mean of 3.42 and an interpretation of "Strongly Agree". Compatibility pertains to the "degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adoptees" [12]. The researcher believes that respondents find Pipol Konek to be useful in their daily internet needs. In general, the respondents find it that Pipol Konek helps them to connect better as it also satisfies their criteria for good mobile Internet connectivity.

Compatibility had been assessed as the strongest driver among all other dimensions of innovation diffusion when it comes to technology-enabled innovations [46]. In the studies on mobile banking as discussed previously in 5.1, compatibility came with relative advantage as significantly related with its adoption, in fact it is the most significant that predicts mobile banking adoption [41]. It was also significant in terms of affecting customer perceptions and intentions of use [42]. In this sense, it means that people saw mobile banking as an innovation that they can accommodate within their present routines. Higher compatibility had also been linked with an increase in the intentions of people to participate in e-government services [43] and is positively associated with the adoption of computer technology in Saudi Arabia, [44]. Compatibilty had also been assessed to affect positively the utilization and adoption of the youth towards social networking sites [47].

3.5.3 Trialability

Table 19: Summary of Items for Trialability

Item	Weighted Mean	Interpretation
I had a positive experience using Pipol Konek for the first time.	3.40	Strongly Agree
I had no problems during my first use of Pipol Konek.	3.45	Strongly Agree
People are free to try the use of Pipol Konek.	3.54	Strongly Agree
People should be encouraged to try Pipol Konek.	3.50	Strongly Agree
Pipol Konek should be tested in more areas.	3.52	Strongly Agree
General Weighted Mean: 3.48 *Interpretation: Strongly Agree*		

As shown in Table 19, the respondents agree in terms of the trialability of Pipol Konek. Rogers defines trialability as the capacity of the new technology to be tested on a limited basis. As such, the respondents find that Pipol Konek is something that can be tried for a limited time, which could possibly encourage repeated use of the technology. The respondents are very much aware and quite aware about the trial aspects of Pipol Konek and its possibility of more people who would like to try its features.

In a study by the author in [42], trialability had been observed as a factor positively affecting the intentions of users on mobile banking technologies, but not on its adoption entirely. This means that while people are more open to the possibility of being participants of mobile banking app beta testing and similar initiatives, they may think twice into being actual participants; in other words, the prospects of adapting to mobile banking seem to be a good idea for the respondents. Trialabiltiy had also been found to be significantly related to the adoption of computer technology in Saudi Arabia [44], as well as with the adoption of the youth in the use of social networking sites [47].

However, it should be noted that trialabilty, like observability, is not a strong predictor for current adoption because of its transitory nature; companies would rather adapt innovations they saw had been used and was effective than to outweight the costs of trials and beta testing [48]. As previous studies such as the one above may have conflicting results, further studies may be needed in order to assess the full extent of the role of trialability in the people's adoption of innovations.

3.5.4 Observability

Table 20: Summary of Items for Observability

Item	Weighted Mean	Interpretation
The connection speed of Pipol Konek is sufficient for my needs.	3.39	Strongly Agree
There had been physical changes in the public area since Pipol Konek had been implemented.	3.18	Agree
I have seen a number of people use Pipol Konek like I do.	3.39	Strongly Agree
Pipol Konek has good connection speed.	3.21	Agree
Pipol Konek has been used widely in the public area where I also use it.	3.39	Strongly Agree
General Weighted Mean: 3.31 *Interpretation: Strongly Agree*		

While Table 20 conjectures a generally positive result for observability, three items are more strongly held than the other two items. Respondents feel strongly agree about the sufficiency of the Internet speed (3.39, Strongly Agree); followed by the number of people using Pipol Konek (3.39 Strongly Agree); and the wide public reach (3.39, Strongly Agree). However, the respondents also agree in more definite terms on any physical changes that they have observed after the installment of Pipol Konek (3.18, Agree), and on its Internet connection speed (3.21, Agree). The first and second items should not be confused; while people find the Internet connection speeds sufficient, they may have been looking for a better connection that satisfies their idea of a "good" connection.

However, it should be noted that observability, like trialability, is not a strong predictor for current adoption because of its perceptive nature; companies would rather adapt innovations they saw had been used and was effective than to outweigh the costs of trials and beta testing [48]. In one study, observability, together with relative advantage and complexity, were not positively affecting the attitudes of the youth towards social networking sites, [47].

3.5.4 Complexity

Table 21: Summary of Items for Complexity

Item	Weighted Mean	Interpretation
There is no difficulty in connecting online using Pipol Konek.	3.43	Strongly Agree
I had no problems using Pipol Konek since I first used it.	3.43	Strongly Agree
The process in using Pipol Konek is fast and easy.	3.30	Strongly Agree
It is not hard to understand how to connect to Pipol Konek.	3.38	Strongly Agree
There are a number of encryption stages before one can connect to Pipol Konek.	3.33	Strongly Agree
General Weighted Mean: 3.31 *Interpretation: Strongly Agree*		

Table 21 summarizes another unanimous agreement of the respondents, particularly here in the aspect of complexity. Generally, the respondents do not find it to be burdensome or complex for anyone to use Pipol Konek, as revealed with a 3.31 general weighed mean and an interpretation of "Strongly Agree". According to the author in [12], complexity is the degree of complexity and/or simplicity the new technology possesses. Basically, people do not find Pipol Konek to be an inconvenience for them when connecting.

Similarly, it was noticed that complexity is negatively associated with the adoption of computer technology in Saudi Arabia [44], also in coherence with the findings of [41] that claimed complexity as having an insignificant effect on mobile banking adoption. Complexity was also seen to positively affect how the youth utilize and adopt to social networking sites [47].

These results, and the results of the present study, point out that complexity has a potential to deter adoption when found in an innovation. Most of the respondents agree that the use of Pipol Konek presented little resistance. They also find it to be convenient to their own levels of difficulty.

3.6 Significant Differences Between Perceived Innovation and Demographic Characteristics

3.6.1 ANOVA Results for Perceived Innovation and Gender

Table 22: ANOVA Results for Perceived Innovation and Gender

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
RelativeAdv	Between Groups	.105	1	.105	.279	.598
	Within Groups	135.769	359	.378		
	Total	135.875	360			
Compatibility	Between Groups	.047	1	.047	.118	.731
	Within Groups	143.638	359	.400		
	Total	143.685	360			
Trialability	Between Groups	.212	1	.212	.588	.444
	Within Groups	129.037	359	.359		
	Total	129.249	360			
Observability	Between Groups	.027	1	.027	.079	.778
	Within Groups	124.273	359	.346		
	Total	124.300	360			
Complexity	Between Groups	.060	1	.060	.148	.701
	Within Groups	146.576	359	.408		
	Total	146.637	360			

Table 22 reflects the ANOVA results of the comparisons between gender and perceived innovation. It shows that only one aspect of perceived innovation – trialability – was found to have a significant difference between the genders, with an F-value of .588 and critical value of .444. This indicates that there is a difference between men and women in terms of how they try out new technologies and/or innovations like Pipol Konek.

On the other hand, the other aspects of perceived innovation are not significantly different from gender; as for relative advantage, with an F-value of .279 and a critical value of .598; for compatibility, with an F value of .118 and a critical value of .731; for observability, with an F-value of .079 critical value of .778; and for complexity with an F-value of .148 and a critical value of .701.

However, in a study by [49], it was shown the gender affects a strong moderating effect on the role of relative advantage, compatibility, ease of use, visibility, result demonstrability and critical mass on the intended use of instant messaging. A similar study on gender differences existing within the adoption of cloud technology showed that male cloud users were more particular on relative advantage, while female users focused more on compatibility issues [50].

However, another study by the author in [51] did not find any significant relationship between age and perceived innovation. Meanwhile, as the present study focuses only with trialability as the significant difference between men and women, the case in other studies are different. In one study, it was compatibility for men and relative advantage for women [52].

3.6.2 ANOVA Results for Perceived Innovation and Age

Table 23: ANOVA Results for Perceived Innovation and Age

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
RelativeAdv	Between Groups	15.086	40	.377	.999	.477
	Within Groups	120.789	320	.377		
	Total	135.875	360			
Compatibility	Between Groups	11.751	40	.294	.713	.904
	Within Groups	131.934	320	.412		
	Total	143.685	360			
Trialability	Between Groups	14.856	40	.371	1.039	.412
	Within Groups	114.392	320	.357		
	Total	129.249	360			
Observability	Between Groups	14.882	40	.372	1.088	.337
	Within Groups	109.418	320	.342		
	Total	124.300	360			
Complexity	Between Groups	13.668	40	.342	.822	.771
	Within Groups	132.969	320	.416		
	Total	146.637	360			

Table 23 reveals that there is a significant difference between age and perceived innovation across almost all aspects: for relative advantage, with an F-value of .999 and a critical value of .477; for trialability, with an F-value of 1.039 and a critical value of .412; for observability, with an F-value of 1.088 and a critical value of .337; and for complexity, with an F-value of .822 and a critical value of .771. Only one aspect shows no correlation, which is for compatibility with an F-value of .713 and a critical value of .904. These results imply that there are differences in age when it comes to perceived innovation.

In other words, the present study discloses that across age groups, their perceptions of innovation attributes only exclude compatibility. With the study of the author in [51], by only considering relative advantage and compatibility as attributes of perceived innovation, it can be concurred that the present study supports the hypothesis that compatibility is not significantly different with age; however, relative advantage is still not significantly different with age unlike in the study of the author in [51]. Moreover, another study found out that age can be a predictor of a farmer's adoption of innovative technology [53].

3.6.3 ANOVA Results for Perceived Innovation and Profession

Table 24: ANOVA Results for Perceived Innovation and Profession

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
RelativeAdv	Between Groups	7.272	4	1.818	5.033	.001
	Within Groups	128.602	356	.361		
	Total	135.875	360			
Compatibility	Between Groups	4.976	4	1.244	3.193	.014
	Within Groups	138.709	356	.390		
	Total	143.685	360			
Trialability	Between Groups	2.846	4	.711	2.004	.094
	Within Groups	126.403	356	.355		
	Total	129.249	360			
Observability	Between Groups	4.305	4	1.076	3.193	.013
	Within Groups	119.995	356	.337		
	Total	124.300	360			
Complexity	Between Groups	4.928	4	1.232	3.095	.016
	Within Groups	141.709	356	.398		
	Total	146.637	360			

Table 24 shows that there is a significant difference between age and perceived innovation across all aspects: for relative advantage, with an F-value of 5.033 and a critical value of .001; for compatibility with an F-value of 3.193 and a critical value of .014; for trialability, with an F-value of 2.004 and a critical value of .094; for observability, with an F-value of 3.193 and a critical value of .013; and for complexity, with an F-value of 3.095 and a critical value of .016. These results imply that there are significant variances in the way students and employees perceive the use of Pipol Konek as an innovation.

The related studies of innovation adoption are very specific on which professions do those innovations apply. Very rare are those studies such as this one where the demographics are generalized as one. In one study of library digital services utilization, the different attributes of innovation were found to be significant with their respective fields [54].

3.6.4 ANOVA Results for Perceived Innovation and Civil Status

Table 25: ANOVA Results for Perceived Innovation and Civil Status

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
RelativeAdv	Between Groups	.685	2	.343	.907	.405
	Within Groups	135.190	358	.378		
	Total	135.875	360			
Compatibility	Between Groups	1.634	2	.817	2.059	.129
	Within Groups	142.051	358	.397		
	Total	143.685	360			
Trialability	Between Groups	.261	2	.130	.362	.696
	Within Groups	128.988	358	.360		
	Total	129.249	360			
Observability	Between Groups	1.533	2	.766	2.235	.108
	Within Groups	122.767	358	.343		
	Total	124.300	360			
Complexity	Between Groups	.771	2	.385	.946	.389
	Within Groups	145.866	358	.407		
	Total	146.637	360			

Table 25 discloses that there is a significant difference between age and perceived innovation at almost all aspects: for relative advantage, with an F-value of .907 and a critical value of .405; for compatibility with an F-value of 2.059 and a critical value of .129; for observability, with an F-value of 2.235 and a critical value of .108; and for complexity, with an F-value of .946 and a critical value of .389. Only one aspect was shown to not correlated, which is for trialability, with an F-value of .362 and a critical value of .696. These results imply that there are significant variances in the way people of various civil statuses, i.e., single, married and widowed people, perceive and use Pipol Konek.

The study of the author in [55] revealed that civil status had a systematic effect within adopter categories. With that being said, it implies that differences in civil status may have an impact within the adoption of an innovation. The results of the present study may well provide a closer examination to this result, showing that while it is significantly related to adoption, its trialability does not have an effect on its adoption. Moreover, this influence is stronger within the majority of ealy adopters and disappears to laggard adopters or those who chose to adapt in the later phases of the innovation [56].

Meanwhile, a study by the author in [57] civil status was also seen to have significant relationship with communication factors in adopting with an innovation.

3.7 Recommendations of Users on Pipol Konek

Table 26: User Recommendations on Pipol Konek

Item	Frequency	Percentage
Improve Speed	303	77%
Awareness	48	12%
Simplify Process	33	8%
Others	7	2%

Improving speed is shown as the most touted improvement for Pipol Konek as recommended by 77% of the users, while 12% of them wanted more awareness on the Pipol Konek service, which is similar to the findings on the reasons for disuse of Pipol Konek service above. Eight percent (8%) of the respondents wanted to simplify how a device connects, and 2% checked "Others"; however, they failed to indicate their own recommendations and as such was not included herein.

Earlier it was pointed out that the disuse of an innovation maybe caused by the rejection of an innovation, in full of in part, by reasons that drive users to reject or abandon an innovation [19]. Meanwhile, the continued use of an innovation is attributed to an acceptance of the innovation by its intended audience, factoring in variables like like-minded or similarly characterized people, network topology, rules of adapting, and strategy [37].

4. Conclusion

The study sought to explore the extent of the usage of Pipol Konek in Metro Manila. The study used Rogers' Diffusion of Innovation theory as a framework to study how people perceived and utilized Pipol Konek, particularly in the aspects of relative advantage, observability, complexity, trialability, and compatibility. A survey instrument was made and validated, which was subsequently administered to 410 random respondents from identified sites where Pipol Konek is currently being utilized. In analyzing the data, mean values and contingency tables were used to provide descriptive analysis. To determine significant differences between the data, a one-way analysis of variance was used, with the aid of the Statistical Packages for Social Sciences Version 23 (SPSS 23).

4.1 Summary of Findings

4.1.1 The Demographic Characteristics of the Respondents in terms of

Gender. The study has an overall number of 410 respondents, with 204 males and 206 females.

Age. The most number of respondents come from the 16-25 age range with 140 respondents, followed by respondents with age range 26-35 with 142 respondents, 36-45 with 64 respondents, 46-55 with 13 respondents, 15 and below with 24 respondents, and 56 and above with 22 respondents. There are 5 respondents who did not indicate their age. The youngest respondent was 12 years old, while the oldest was 56 years old.

Profession. A huge part of the respondents are students with a frequency of 167, followed by employees with 114 participating members, then 63 working students, and 66 unemployed respondents.

Civil Status. Most of the respondents are married comprising a frequency of 223 respondents. On the other hand, only 179 of the respondents claim to be single. Then, eight respondents answered "Others" and all of them indicated that they are widowed.

4.1.2 The Level of Awareness of the Respondents on Pipol Konek

Most of the respondents are moderately aware of Pipol Konek. They also used Pipol Konek comprising of 87.56%. For those who do not use Pipol Konek, they claim that it is their lack of awareness of the project that contributed to their disuse of the innovation. Most of the respondents use Pipol Konek in public plazas and parks (45.69%) and in schools (24.01%). As to the likelihood of repeated use, a significant majority of the respondents responded positively (90.78%).

4.1.3 The Habits of the respondents using Pipol Konek with regard to:

Time (in a day). Most of the respondents claim to use Pipol Konek more during the afternoons (32.01%) and during the mid-day (25.06%).

Frequency of usage (how often in a day). Most of the respondents agree to use Pipol Konek only once during the day (68.88%).

Type of gadget they use in connecting. An overwhelming majority of the respondents use their mobile phones to connect to Pipol Konek (92.85%).

Reason/s of using Pipol Konek. The majority of the respondents use Pipol Konek to connect socially to their friends and family (76.19%).

4.1.4 The Assessment of the Users in Pipol Konek in terms of the following Constructs (Relative Advantage, Compatibility, Trialability, Observability, and Complexity)

Regarding perceived innovation, the respondents positively respond strongly to Pipol Konek. They see the innovation in one of the best lights possible as per the framework, with Relative Advantage having a general weighted mean of 3.40; Compatibility with 3.42; Trialability with 3.49; Observability with 3.31; and Complexity with 3.31.

4.1.5 The Significant Differences observed in the Demographic Profile (gender, age, profession, civil status) of Pipol Konek Users

The study reveals that the gender do not bear significant differences with perceived innovation, except for the aspect of trialability. On the other hand, the demographic aspects of age (except for compatibility), civil status (except for trialability), and current profile are significantly different from almost all aspects of perceived

innovation.

4.1.6 The Respondents' Recommendations in Improving Pipol Konek

Improving speed is shown as the most touted improvement for Pipol Konek as recommended by 77% of the users, while 12% of them wanted more awareness on the Pipol Konek service, which is similar to the findings on the reasons for disuse of Pipol Konek serviceabove. Eight percent (8%) of the respondents wanted to simplify the means by which a device connects, and 2% checked "Others"; however, they failed to indicate their own recommendations and as such was not included herein.

4.2 Conclusions

The study hereon concludes that the implementation of Pipol Konek has been positively accepted by the respondents. The study has established a various number of uses and habits that Pipol Konek users subscribe to in utilizing Pipol Konek, particularly in connecting to their families or for their own work or study. However, these reasons and habits can be different for any one person, as is their demographic profile. The study also concludes that there are significant differences made in perceived innovation of Pipol Konek across age groups, civil status, and employment status.

4.3 Recommendations

In light of the findings, the study recommends the following actions and steps.

1. A bigger representative sample size is desired for future studies. Preferably, Pipol Konek users can assess their connectivity to Pipol Konek using built-in short surveys that tech administrators from DICT can collate the data to and generate useful analysis on the habits and perceptions of the utilizing public.
2. Given that the results of the study cite the lack of awareness as a main factor in the disuse of Pipol Konek, it is therefore suggested for the DICT to improve, if not intensify, their current efforts in promoting Pipol Konek. The use of Pipol Konek has also been shown in the study to be of various use to different people, and it will be in the spirit of public service to promote these tech projects to the utilizing public.
3. It is also suggested that government may help DICT in allocating funds and resources to improve Pipol Konek, it would be wise to strategically allocate more resources into schools and public parks. As the study showed that there is high utilization in these areas, the use of Pipol Konek would definitely be apparent. While public libraries can also help more people in their research and study, only few people go to their nearest public library for Pipol Konek, let alone for any research purposes.

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