

# An Empirical Analysis of Knowledge and awareness about NFC (Near Field Communication) Technology among college students in Chennai City

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#### Abstract

Near Field Communication (NFC) is an emerging short-range wireless communication technology and the quick time taken to establish a connection. The coverage area of NFC is 20 cm. This minimizes threats facing wireless technology. Neeraj Kumar Singh (2018) discussed what are NFC, how it works and applications of NFC in transport, healthcare, marketing etc. The study was conducted in the colleges of Chennai city. Students from Engineering College and Arts and Science College were interviewed. Non-probability convenient sampling method was used. Out of 250 respondents, majority of students (195) were in the age group of 18 to 20 (78%). Knowledge and awareness of NFC technology was analysed through various statements. Majority of students stated that they are not sure about the usage of NFC in libraries, ID cards, voting and navigation. Results show that knowledge and awareness about NFC technology is lacking among college students.

Keywords; Near Field Communication, Knowledge, Awareness, Technology, Device, Tag, Antenna, Reader

#### Introduction

Near Field Communication (NFC) is an essential technology today and also make people's lives much easier. It has a lot of applications in everyday life. On tapping the smart phone the user can read a consumer review, can buy many products and can visit a website. The auto detect feature of NFC and RFID tags can be used for access to restricted areas. The NFC enabled devices are used to access the cars and other vehicles. Contactless services are more used in transport area. In airline industry the consumer can have tickets stored on his phone with a single touch. A good aspect of NFC is that the essential components are cheap and the quick time taken to establish a connection.

On tapping the smart phone, the customer can buy many products. It may receive information from the tag and also interact with it. For example the consumer can tap the smartphone to purchase ticket to an event or even get directions to an event. It is also used for taking doctor appointments, to store next medical appointment or next visit due date. NFC helps the staff in hospital to quickly access all the patient records. The NFC tags can store patient health history, infectious diseases, allergies, current medication etc. The business man can use the NFC technology to advertise his business. NFC enables one to use a favourite toy figure as an integral part of a mobile game with the physical world. Players can earn extra points or can get clues through tapping each other's phones together by using NFC application. By bringing phones together they can share and receive various processes. One can share mobile apps, images, documents, files and maps only through bringing phones together.

NFC works in four different ways. They are a) Phone to Phone, b) Phone to Device, c) Phone to Tag and d) Phone to Reader

> a) Phone to Phone- In this method NFC communicates with two cell phones by just touching each other. They can share files, pictures and many other contacts.

b) Phone to Device- smart phone with NFC can communicate with any device by just touching phone with NFC equipped printer. payment device and etc. c) Phone to Tag- The data from tag is transferred to smart phone. One can transfers bus timings and other details through touching cell phone with tag on bus terminal. d) Phone to Reader - The customer can purchase the tickets easily through touching his smartphone with reader, instead of standing in a long queue.



The coverage area of NFC is 20 cm. This minimizes threats facing wireless technology. Tag consists of a microchip with an antenna. They are the transponders. There are three types of tags. They are 1) Passive tags- do not contain battery, 2) Active tags- have battery, 3) Battery assisted passive tags- Batteries are activated when they detect an RF field. Three modes of communication are defined by NFC forum; Read/Write mode, Tag emulation mode and Peer-to-peer mode. As of now the NFC markets are most predominant in Europe, Asia, and Japan; however the United States is additionally observing fast development in this field.

### **Review of literature**

Neeraj Kumar Singh (2018) discussed what are NFC, how it works and applications of NFC in transport, healthcare, marketing etc. P K Saini and Sapna (2019) reviewed about Near Field Communication application in Modern Library system. In that article they have

explained NFC reviews, features and usefulness of the innovation and summarized the expected applications in modern era. Okunbor Charles et al (2018) described 'An overview of Near Field Communication (NFC)' in International journal of scientific and engineering research in Nigeria. They stated that devices with NFC technology have enabled users to perform contactless payments, data transfers, access digital contents and security pass/access.

Debajyoti pal et al (2015)conducted a study towards the adoption of NFC mobile payment system by the end user in Thailand. The research provides useful insights that can not only help the business managers choose to an appropriate business model but also enable the mobile phone manufacturers, software developers and government agencies device their own marketing, administrative and financial strategies for the future. Vedat Coskun et al (2015) conducted a study on Near Field Communication and stated that the concept of NFC technology in a holistic approach from different perspectives, including hardware improvement and optimization.

### **Research methodology**

NFC system provides shortdistance, secure and paired communication capability in smartphones and terminating the communication immediately as the device detach. Since this study is about NFC mobile system, hence the target population must use a smart phone. The study was conducted in the colleges of Chennai city. Students from Engineering College and Arts and Science College were interviewed. Non-probability convenient sampling was used. The researcher has used self-administered questionnaire and each item is measured on a 3 point scale. Some of the items in the questionnaire developed and modified to suite the current environment.

The survey was conducted for the period of four weeks. Samples were collected by google form because of the time constraints of the college students. The google form was circulated among Engineering College students and Arts and Science College students in Chennai city to have a proper mix of age, gender and other miscellaneous factors. Many Engineering students came forward to fill the google form. Out of 270 responses in Google form, 20 were rejected due to incomplete and wrong response. Finally, 250 responses were used for empirical researcher analysis. The has used descriptive statistics for demographic analysis of the samples.

### **Result and Discussion**

A total of 250 responses were used for this analysis. More number of college boys (64.8%) participated in this research than college girls (35.2%). Out of 250 respondents, majority of students (195) were in the age group of 18 to 20 (78%). The remaining students (22%) were in the age group of 20 to22. No respondent was in the age group of 22 to 24. The data was collected from Engineering College students and Arts and Science College students. Nearly three forth of participants were (74.8%) from Engineering college and 25.2% from Arts and Science College.

Table 1								
Variables		Responses	Per cent					
Gender	Male	162	64.8					
	Female	88	35.2					
Age	18 - 20	195	78.0					
	20 - 22	55	22.0					
	22 - 24	0	0					
College	Engineering	187	74.8					
	Arts and Science	63	25.2					
Income (per month)	< 30,000	18	07.2					
	30000 to 60000	32	12.8					
	60000 to 90000	60	24.0					
	90000 to 120000	96	38.4					
	>120000	44	17.6					
Phone	With NFC	120	48.0					
	Without NFC	57	22.8					
	Not sure	73	29.2					
	Total	250	100					

Demographic analysis

Out of 250 respondents, majority of respondents (38.4%) income range was from Rs. 90,000 to Rs. 1,20,000 followed by Rs. 60,000 to Rs. 90,000 (24.0%). Nearly half of the respondents (48%) were having mobile phone with NFC feature.

Only 22.8% of them were having mobile phone without NFC feature. But, 29.2% of respondents stated that they are not sure about the NFC feature in their mobile phone.

Table 2								
NFC is used in	Yes	No	Not sure					
a) Small shops	63	97	90					
b) Health care centers	67	92	91					
c) Ticket counters	180	28	42					
d) Libraries	41	69	140					
e) Transports	64	97	89					
f) I D Cards	58	93	99					
g) Voting	15	107	128					
h) Navigation	32	102	116					

i) Mobile payment	206		11			33		
Knowledge and a	NFC	NFC navigation. Majority			of students stated that			
technology was analysed	rious	ious NFC is used in ticket counters and m				and mobile		
statements. Majority of s	d that	payment. Majority of students stated that				stated that		
they are not sure about	NFC	NFC is not used in small shops, health car				health care		
in libraries, ID car	and	centres and transports						
Table - 3								
Statements		Y	Yes No		Don't know			
a) A tear in the NFC trace would not		23	9.2 %	103	41.2%	124	49.6%	
halt operation together						124		
b) Liquid metals cannot be inserted								
into micro channels to create traces		115	46 %	12	4.8%	123	49.2%	
for NFC Tags								
c) Flexible and stretchabl								
computational components are not		12	4.8%	102	40.8%	136	54.4%	
required for NFC based s								
d) Disposable NFC based sensors		17	6.8%	106	42.4%	127	50.8%	
are easily recyclable								
e) NFC based bio-resorbable sensors		118	47.2%	20	8.0%	112	44.8%	
associated with surgery						112		
f) Are you aware of NFC based		127	50.8%	00	3.6%	114	15.6%	
1 / •		12/	JU.0%	09	5.0%	114	43.0%	

Majority of students stated 'Don't know' about the statement a), b), c) and d). Statement e) and f) are accepted by the ('Yes') students. On the whole half of the students (50%) were unaware of NFC technology.

# Conclusion

electronic gas sensors

In NFC communication, bringing two devices close to each other starts communication and separating the devices terminates the communication immediately. Knowledge and awareness about NFC technology among college students in Chennai city was analysed through empirical study. Majority of students from Engineering College were come forward to fill this questionnaire than students from Arts and Science College. Majority of students from Arts and Science College were unaware of NFC Technology in Mobile. Results show that knowledge and awareness about NFC technology is lacking among college students.

At present, most smartphones are sold with an integrated NFC hardware module, and almost all smartphone have NFC support, which are important evidence of its popularity and usefulness through the dissemination of the technology.

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