Credibility and Validity of Forward Messages in IM Apps: Analysis based on a Longitudinal Study

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Abstract: *IM is short for instant Messenger, which is a platform which allows sending message directly from one person to another. IM is a program that connects users to the Internet or network to send text messages. There are two kinds of instant messaging software – application based and Web based. Application based instant messaging software is downloaded and installed on user's computer. Most of the IM apps facilitate Group Chat, Screen sharing, Video chat, Virus protection and account customization. But at the other end the chance for creating errors in the messages are high. As it is immediate, there have no time to reflect on the message that sending, unlike an email where sender can review the draft before sending. Especially the credibility and validity of the contents in the forward messages are always questionable. How to assess the information credibility on IM platform has become a major issue for today information consumers. In spite of its importance, a few researches has empirically examined what factors influence the information credibility and validity on IM platforms, which limits our understanding of the elements of online information assessment. To fill this gap, this study examines the factors that influence individuals' perceived information credibility on Instant Messenger apps.*

Keywords: Instant Messenger, Credibility, Validity, Smart Phones, Text Messaging, Forward Messages

1. Introduction

In the real world the communication plays a very vital role. People have been communicating with each other through various applications or mediums. In the beginning people communicated with each other using letters or other sources, as these mediums could take much time to deliver the content.

Communication through internet is becoming dynamic these days. An online communication allows the users to communicate with other people in a fast and convenient way. Considering this, the online communication application must be able share the texts or images or any other files in a faster way with minimum delay or with no delay.

Internet is the emerging information technology with the credibility of immediacy and fastness, thus, it brings globalization in every aspects of communication. Communication through internet is more specified, with effective interactive strategy among its users.

Mobile devices are considered as a valuable resource in our daily lives, or even essential, since they are the most used electronic tool. But the drawback is for any limited or small message which need to be passed to another user then phone call is not an ideal way. The developers then looked to implement a text-based communication which would allow an in instant communication service. In 1984, the concept of SMS was developed in the Franco German GSM cooperation by Friedhelm Hillebrand and Bernard Ghillebaert. The limitation of SMS was the limited size i.e., 128 bytes, totally surpassed after the rise of smartphones & it is also supported by the high number of active devices operating throughout the last years. Back in 2015, there were around 1.86 billion of smartphone users, whereas, by the end of 2020, there were reported 3.5 billion worldwide smartphone users. Since from the inception of smartphones many messaging applications have been developed some are Bluetooth based and some were internet based such as WhatsApp , WeChat, Hike, telegram, FB Messenger and other (SaiSpandhana Reddy Emmadi, SirishaPotluri).

Android is an operating system for mobiles which was developed by google. This operating system allows the applications to be used on mobiles. As it was developed by google, android users can develop mobile applications and can be sold through android application stores such as play store.

The system developed on android will enable the users to communicate with another user through text messages with the help of internet. The system requires both the device to be connected via internet.

In recent years, text messaging ("texting") has become the dominant method of communication for young adults. This prevalence of texting has led to research exploring the beneficial and detrimental behaviors associated with texting, indicating wide-ranging social and human factors implications.

As internet-connected smartphones are prevalent nowadays, instant messaging (IM) applications on these devices are very popular, resulting in more and more people using mobile messaging apps in their daily communication with their peers [1]. In addition to one-to-one conversations, these apps facilitate group chats and support various message types, such as text, picture, video, or voice messages.

Instant messaging (IM) becomes important in the world of communication for supporting practicality and speed in real time chat which is not facilitated by e-mail.

With the presence-awareness technology that can monitor whether a user is online or not, IM can improve the ability to respond faster than sms and e-mail. In addition, when compared with a phone call, using IM is cheaper and considered less intrusive. Online collaboration through instant messaging is also easier because the interaction takes place within one working window (chat history can be seen), and low-bandwidth because the previous message is not attached as email reply as usual.

Instant messaging application which provides the user to communicate with other users in a fast and convenient way [9]. Both the devices must have an active internet connection for the communication. There are many chat applications like WeChat, hike, WhatsApp, Telegram, Facebook messenger, Snap Chat, Line etc. Using these applications user can communicate with any user all over the world.

User has to register or sign-in through their respective mail id or cell phone number and can use the services. When the user sign-in to an application, user can search for another user where the communication is need to be done. The user can be able to delete the chat after the communication. User can create their profile according to which other users will be able to identify each other. User can respond to the messages received by just typing the reply message and press the send button [11]. This application also provides the user to delete the account. User can also sign-out from the present device and can sign-in through another.

Many chatting applications are emerging these days and are being used by people very effectively. In order to develop the application, the customer feedback about what is needed and what is existing in the current applications available. This survey was based on the features of the existing applications like WhatsApp, Snap Chat, Hike, Telegram, and Facebook Messenger. The current study expands on the research of credibility and validity of forward text messages which are very questionable in these situations.

2. Review of Literature

There is little existing research on the use of social networking sites and instant messaging as a research methodology [5]. However, this study has a very lesser research backgrounds. One of the findings by Gross indicates that IM is not much different than other forms of communication despite the newness of the it. People, especially teens, use the internet as simply a form of communication much as they would use a phone; they don't hope to express a new identity or personality through it (Tyler p. 197, 2002). Online communication is simply another convenient form of communication, much like the phone has traditionally been, which acts a tool to talk to others. While studies by Parks and Floyd have found that shy people seem to "derive as much social support from online interaction as from FtF communication" (Moody, p. 394, 2002), they make no parallel claims for extroverts. Similarly, in Gross' study of adolescents, he finds that while some of them, those who felt more comfortable with their school mates, use the internet "to seek out additional opportunities to interact with them," another group of students acts differently.(Gross p. 87, 2002). These students feel alienated from their schoolmates and feel as though they don't belong to the rest of the community. Instead of using the internet to interact with peers, they "were more likely to communicate through IM's with people they did not know well (i.e. strangers vs. friends)" (Gross p. 87, 2002.).

Teenagers' use of Instant Messaging (IM) is on rapid rise, and has been a recent object of media attention. Indeed, the popularity of IM indicates that synchronous (or nearsynchronous) text messaging and presence awareness has a place in teenage communications, despite an array of competing media available to them (Rebecca E. Grinter and LeysiaPalen).

In the previous studies the researchers had mostly focused and inquired on the cognitive effects of IM apps. But in this study, it take ups the inquisitiveness to the conception of prolific information.

The key terms which is commonly using in the research area of IM applications:
1) **Message Credibility**: It refers to the users/ consumers' perception of the truthfulness and believability of message. The credibility is built by the message valence, perceived source and previous experience of the users.
2) **Message valence:** This means the psychological value assigned by a person to the message based on its attractiveness to him or her.
3) **Perceived source:** This refers to the credibility of the originator of the message whether they are known people having some knowledge and experience related to the message forwarded.
4) **Perceived Quality of Message:** It refers to users/consumer's opinion of the message's ability to fulfill his or her expectations. This perceived quality is formed in the mind by the richness of the message, authenticity of the sender, reliability of the message content and quality of visual cues.
   - **Richness of the message:** It means a complete message including everything that is necessary to understand the content properly.
   - **Expertise of the sender:** This is the basis of credibility of a person who is perceived to be knowledgeable or proficient in an area.
   - **Reliability of the message content:** It means if the message is dependable and accurate.
   - **Quality of visual cues:** Visual cues include images, charts, specific words or videos included in the message which acts as a signal to the audience and remains in the memory of the user. III. Need for Information: It is often assumed as an individual or group's desire to trace and obtain information to satisfy a conscious or unconscious need.

3. Methodology

A longitudinal study is a research design that involves repeated observations of the same variables over short or long periods of time. Among the different longitudinal study approaches I preferred to apply the 'panel study' methodology in my research which I seemed as the most suitable for my inquiry.

Panel studies are a particular design of longitudinal study in which the unit of analysis is followed at specified intervals over a long period, often many years. The key feature of panel studies is that they collect repeated measures from the same sample at different points in time.

In this study process, I have conducted sample survey in two phases among college students across Kerala. The first phase conducted in 2015 and that was in offline mode. 200

questionnaires supplied to graduate level students in the various parts of the state Kerala, and received only 176 responses back in the first phase. The second phase was through online mode and the same conducted during September 2020. 206 students responded through online.

This survey, totally given out to 382 college students, asked the participants about various aspects of how they use IM including the topics they discussed, what kind of messages they send and receive through IM mostly, how reliable they felt over IM forward messages and in person and how they used to respond to forward messages.

Almost one by fourth of the respondents were male students and rests were females. More than 90 percentage of the students indicated that they are having smartphones and would be as likely (if not more,) to chat through IM than with any other tools of communication (i.e. phone, etc).The number of the students who using smartphone in 2015 were 152 and in 2020 it is 204. The count of students who doesn't have smartphone was 24 in 2015, but in 2020 the number fall to 1.

More than 90 percent of the students also mentioned that they also would be likely to use IM to set up social events in real life as well as use it for chatting and keep in touch with friends. Other popular activities through IM include coordinating study process and works.

4. Findings: How the users concerned with credibility of forward messages

Many chatting applications are emerging these days and are being used by people very effectively. In order to deliver the better service, the app providers must focus on the customer feedback about what is expecting and what is existing in the current applications available. This survey was based on the forwarding messages of the existing applications like WhatsApp, Snap Chat, Hike, Telegram, Facebook Messenger.

The following are some questions which were asked among 382 graduate level students of different areas of the state Kerala.
In 2015, the questionnaire in hard copy distributed among 200 students and received 176 filled questionnaires. In the duly filled response sheet 124 sheets were from girls and 52 were from boys. But when it comes to the case of 2020, that was in online mode, total respondents were 206 and in that 170 responses from girls and 36 responses from boys.
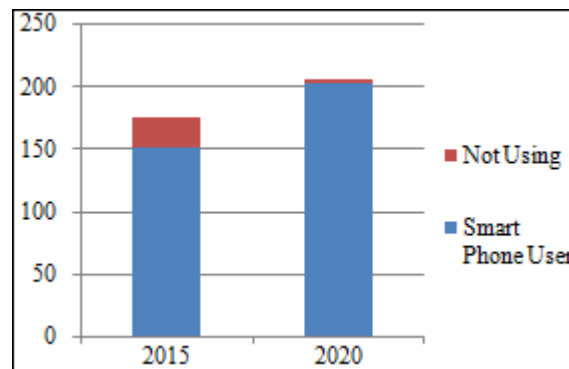

Data of Smartphone users 1
The number of smartphone users in 2015 was 152 among 176 respondents. But in 2020 there is a large increase in the number, that is 204 users among 206 respondents.
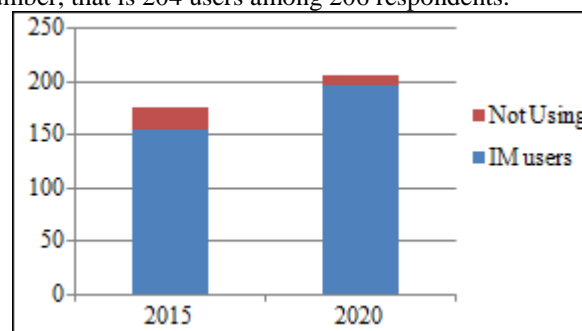

Data of IM Users 1
The number of respondents having instant messenger Apps in 2015 was 152. But in 2020 the number of IM users became 197 among 206 respondents.

The number of respondents who are likely to send or receive forward messages in 2020 is decreased with respect to the data of 2015.
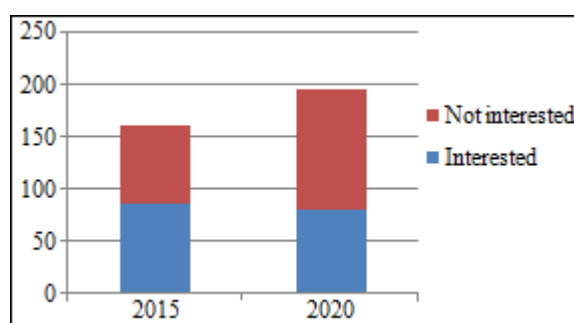

Interest of users to receive and send forward messages
In the first phase of investigation the propensity to forward or disregard forward messages were neutral, but when it comes to second phase, the interest of IM users to receive and forward messages is decreased. Out of 206 responses 116 students agreed that they are not interested to receive or send forward messages. In a wider perspective the mistrust of forward messages in various IM applications are formulated by various factors which are both directly and indirectly connected to the users.
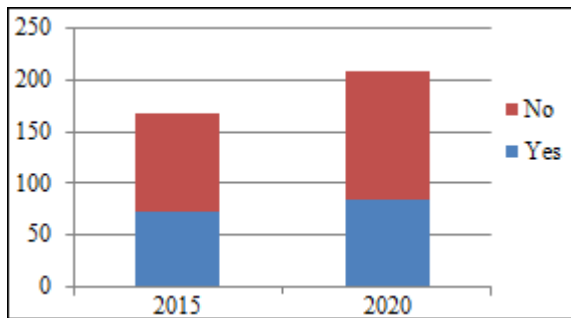
Reliability of Forward messages

The reliability of the content forwarding over IM platforms is always questionable. In the first phase of investigation the reliability of forward messages where 45 percent and it have decreased to 40 within the next 5 year period. The lack of truthfulness is evidently   apparent in the 2 phases of investigation.
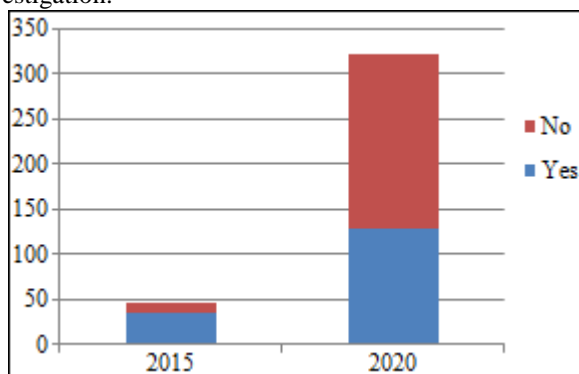

No. of students Responded to forward messages

The feedback and effect of the forwarded messages are insignificant and most of the IM users are not centered on the effect of forward messages they receive or send. The rate of responds to the forwarded messages was very less in number and that have exponentially fallen down in the second phase of investigation. The contents which transfer as the forward message are mostly improper or false information. The data which seems to be authentic in the messages will be mostly either fake or improper; especially the contact numbers, location address and website address that are included for verifying the authenticity of the content. The charity based and SOS messages are the forwarded messages mostly accepted. The jokes, political matters, health and wealth related, religious and cultural messages are the other types of forward messages that people widely sending and receiving in IM platform. But in this study majority of the respondents expressed their aversion to most of the above said message categories. The content of messages even in charity and SoS category, the credibility and validity are always doubtful. The messages which created for an SOS response will be transferred over IM multiple times, even after the evacuation of the victim. Such messages are very usual in situations like flood, earth quake etc. There are no standard parameters available to identify the credibility and validity of a forward message. The reliability of message sources is also interrogative.
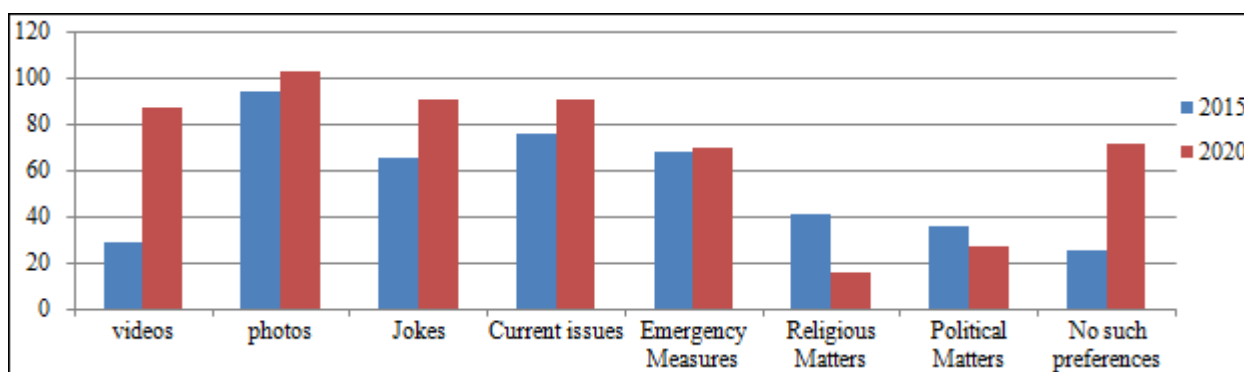
Message type likely to send - in 2015 and 2020
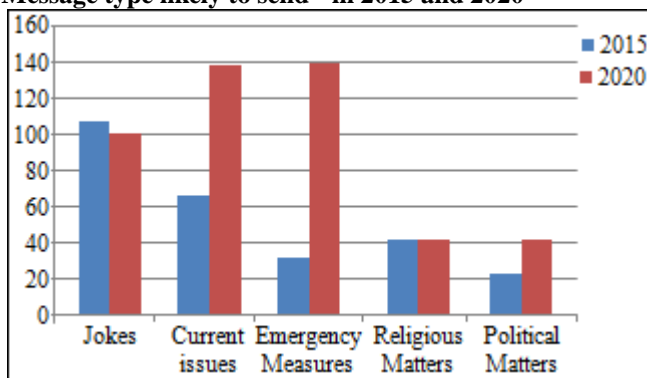
Message types mostly received in 2015 and 2020

While forwarding a message to any of recipient or to a group around 70 percentage of IM users expecting positive response from their recipient. Since the response or effects from the forward messages are passive, more than 70 percentages of the IM users are not interested to create and send forward messages. And they have strong conviction that the mentioning of date, location and sender details in the forward messages will improve the credibility and validity of the content. If the source is identified, the message could be much reliable than the present scenario. Another category of IM chat among this age group that has been reported elsewhere is "chatting up" or flirting and even breaking up with boyfriends and girlfriends. (Rebecca E. Grinter and LeysiaPalen).

It is look as if the content of the messages are either realistic or news oriented, the content of the forward message received will be more believable. The information regarding the source is an important parameter to improve the reliability of the message. In the first phase of investigation, 150 out of 176 respondents strongly believe that mentioning of date and location of source in the message will increase the credibility of the content. During the second phase of

investigation it revealed more precisely that the source credentials will improve the acceptance of forward messages which belongs to any category. If the date of the message creation is supplemented with the message, the one who perceive the message can identify the validity of the message content. If the validity is not over, either he or she can resend or forward the same message to recipients as much as they wish.

Since IM peers knew each other in real space, and often shared school experiences, the nature of their conversation was reported to be much like what they have in real space: reflections on the day's events, gossip about others including what clothes were worn and who was seeing whom, and so forth. (Rebecca E. Grinter & LeysiaPalen)

Many messages which are applicable to some restricted regions will reach to other areas. When the people receive a forward message which will not be applicable to them, then those messages will be resulted a nuisance to the recipients. The details of the message sender also should be a relevant part in the forward messages. While reading some sort of forward messages like religious matters or health related messages, the details of the creator will be very essential. One can easily verify the reliability of the content by contacting the sender of the forward message which they have received.

Sometimes there will be some editing or manipulation in the content in between when the people receiving and forwarding messages. If such manipulations affect the actual content of the message it will be mistaken to the account of real creator of the message. Sometimes there will have some editing in the details of original source if the details are included in the message itself. Such occasions can be avoided by adding a new feature to all IM apps , that is an automatic message modifying system that mention the details of sender, date and location when a person forwarding received message to another destination.

In the two phases of investigation more than 75 percentages of respondents strongly agreed that it will be very convenient if Instant Messenger provide an automatic message creator that mentions the details of sender, date and location.

5. Conclusion

Mobile devices are considered as a valuable resource in our daily lives, or even essential, since they are the most used electronic tool.

Since from the beginning of smartphones era many messaging applications have been advanced some are Bluetooth based and some were internet based such as WhatsApp, FB Messenger, telegram, WeChat and Hike. As internet-connected smartphones are prevalent nowadays, instant messaging (IM) applications on these devices are very popular, resulting in more and more people using mobile messaging apps in their daily communication with their peers. Instant messaging application which provides the user to communicate with other users in a fast and convenient way. Many chatting applications are available

these days and are being used by people very effectively. In order to improve the features of the application, the service providers must collect the customer feedback about what is needed and what is existing in the current application and should incorporate the valid suggestions to improve the user space and service they provide.

Based on the data of two separate phases of investigation having a span of five year few of the observations have been formulated. The most significant observation from the analysis is that the rate of consumption of smartphone devices have been increased vigorously, but the rate of sending the forward messages decreased numerously. The main reason behind this is that the misinterpreted or fake information cycling over the IM platforms endlessly. The authenticity of forward messages cannot be evaluated with the present technologies available.

In this research approach it is eventually brought in to the knowledge about instant messenger applications that the forward message contents should be in a particular standard where the minimum required credentials about the message source should be attached with the message.

The date of creation of the message will indicate the validity of the content. While planning to forward the received message to any other accounts, anyone can check and identify the validity of the content they received.

The geographical information of the message source is also very important to improve the credibility of the message content. The message which is originally designed for a people of focused area may be over transferred to other regions. The one who receives and forwards the message to other accounts cannot be restricted to the proposed area if the content is not supplemented with the sender location.

The details of the source of content are also very important to entrust the information supplied. Especially the forward messages which is based on health related, financial matters, legal information and administrative matters etc.

In total, it can be confidently argue that the content of the forward message will be more reliable and credible only if the basic credentials about the source is included. And it will be more sophisticated if the IM application itself can create an automatic sender details along with the message while forwarding to multiple accounts.

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