

## **Understanding Religious Practice: An Analysis of Religious Content among WhatsApp Users**

Sana Shahid\*

### **ABSTRACT**

*WhatsApp application has recently emerged as a substitute of SMS in developing countries. It includes a variety of functions such as sharing live location, files, video, audio and text messages to any part of the world without any additional cost. The increasing trend of WhatsApp messenger as an innovative communication application in the metropolitan city Karachi is a matter of newer subject of interest that needs evaluation and research based understanding. It generates huge volume of data which has not yet been researched thoroughly in Pakistan. Therefore, the present study was conducted with an aim to analyze the religious or anti religious content prevailing through WhatsApp conversations. It also aimed at exploring the frequency and composition of WhatsApp users. Content Analysis method was used in this regard. A total of 50 private and group conversations of 15 days were collected from 25 students and 25 professionals. The quantitative data was analyzed through python programming language. It was discovered that a total number of 66,327 messages, 869,404 words and 6163 media files were sent by 2,023 WhatsApp users in 30 days. It was also discovered that students are more engaged in anti religious activities on WhatsApp. However professionals share different religious quotations, sayings on WhatsApp in form of pictures and video messages. Initials of Arabic words like WS, MA, AOA are frequently used in WhatsApp conversations. Both students and professionals celebrate religious events on WhatsApp by wishing each other using their specific religious emojis. Furthermore, it was also discovered that WhatsApp is also being used to talk about religious extremism. The innovation of smart phone and instant messaging applications are changing the way people practice their religion. Different beliefs, faiths and religions are adopting online through these technologies. People use WhatsApp to communicate their religious ideas and beliefs. People take part in discussions related religion and sometimes leave or change any religion after discussion. It is concluded that it is indispensable to revolutionize and adopt the latest technology in order to dilute the emerging religious challenges in Pakistan.*

**Keywords:** Smart phone; Pakistani WhatsApp users; WhatsApp conversation; WhatsApp analysis, religion, religious extremism, studies, relationship, word analysis, emojis

### **Introduction**

The innovation of WhatsApp has transformed the way people connect with each other. It made significant contribution to religion, education, business, health, entertainment and different sectors of life. Launched on November 2009 by Brian Acton and Jan Koum, WhatsApp succeeded to make its place in the top 20 leading applications in US by early 2011. It was built with an intention to introduce an easy-to-use messaging product rather than developing new ways to glean customer information for marketing purpose. There is now also support for Urdu and Bengali languages. Face book's \$19 billion purchase of WhatsApp solidified 2014 as a breakthrough year for messaging apps. In the recent report

---

\* Research Scholar, University of Karachi  
Email: pak\_researcher@hotmail.com Date of Receipt: 06-3-2017

“Broadband Commission for Sustainable Development (2017)<sup>1</sup> it was reported that WhatsApp has exceeded 1.2 billion monthly active users in January 2017.

Previously, WhatsApp had been free for the first year, with the fee charged for every subsequent year. Recently, WhatsApp, the Facebook-owned messaging service, is to drop its token \$1-a-year subscription to go fully free for every user.

WhatsApp Messenger is a messaging application with multiple features. Instant messaging is one of its main features which allow users to exchange instant messages, pictures, audios and videos among their fellow beings. Some of its main features apart from exchanging multimedia content include free of cost voice calls within the application, personalizing the theme, wallpaper, notification sound as well as background color, adding a WhatsApp widget on the phone's home screen for quick access to chats, blocking unwanted contacts, sharing location and keeping track of call history. Furthermore, the Archive Chat feature allows you to hide a conversation from your Chats screen and access it later, if needed. Moreover, a variety of new emojis have been added with different skin color options. Users can exchange messages with up to 256 people in a group chat. Previously, the number was limited to 100 users.

WhatsApp users get confirmation as well after sending messages. A single grey tick on message represents that the message has been successfully sent, while two grey ticks mean it has been delivered to their phone. Once the ticks turn blue, it means the recipient has read your message. It has affected relations in both positive and negative manner. In the article “Saudi man divorces wife for ignoring his WhatsApp messages” (2014)<sup>2</sup> it was reported that a Saudi man has divorced his wife because she ignored his WhatsApp messages after reading them. He found it highly insulting and divorced her.

WhatsApp is continuously adding different emojis on the application. These emojis are the best way through which one can express their emotion. However they are also being used to represent our culture, religion, activities and life style. In special reference to Pakistan and Muslims, WhatsApp has now added Pakistani flag, prayer emoji, women wearing hijab in its emojis list.

WhatsApp introduce status feature through which people may send status updates in the form of pictures and videos to their entire contact list. It will disappear after 24 hours and the people have option to see the list of people who have checked their status update. They can add their comments on it. WhatsApp introduce another feature through which people can delete messages after sending them within seven minutes. It will be completely disappeared from all the conversations and chats. The concerned authorities of WhatsApp secure messages with end to end encryption. It ensures that your personal data is secured with a lock and it will not fall into wrong hands. The end to end encryption is enabled automatically in the latest versions of application.

Hence we may say that WhatsApp is an innovating messaging application which provides multiple features to users. WhatsApp is being used for religious and non religious activities in Pakistan. In Pakistan, it has become much more than a cost effective chatting application. Recently, the concerned authorities start using WhatsApp to engage directly with the citizens of Pakistan. The Rangers of Pakistan have launched WhatsApp number 0316-2369996 for reporting crime scenes, unlawful activities and terror attacks. The Rangers appealed people to register complain on WhatsApp if anyone attempts to forcibly collect hides of sacrificial animals from them. They may also attach video footage or photographs with their messages to add authenticity to complain.

It wouldn't be an overstatement to say that WhatsApp has successfully managed to become an application which is being used worldwide to tackle many social religious and economic challenges. However, we, as citizens of Pakistan are fast moving backward rather than forward in the evolutionary ladder of technology, science and innovations.

As cost effective application, Pakistan can make good use of WhatsApp in different organizations through different training sessions with proper planning. This study will create awareness in academic and business organization to make proper use of WhatsApp in order to deal with emerging economic and religious challenges in Pakistan. Our Pakistani community is still far behind to comprehend the positive role that WhatsApp is playing in the developing countries. The study will not only highlight the ways through which WhatsApp is being used for religious and non religious activities but it will also foster the utilization of WhatsApp in different government and private organizations in a sustainable manner. The coming five or 10 years will be critical time in which we can tackle the emerging challenges through WhatsApp. The goal can be achieved by providing knowledge about the proper use of WhatsApp through training, seminars and workshops. The study also provides a strong foundation for future research in order to understand how we can utilize it in better way.

## **Chapter2: Literature Review**

With the advancement of digital technology and the emergence of mobile phones in Pakistan, the communication scenario has completely changed. The global network access and the increasing trend of smart phones and social networking applications in Pakistan have made communication faster and easier than at any time in history. Gone are the days when we had to wait to dial another number after rotating each number on fixed line phone. Gone are the days when we had to pay 300 Rs. per minute for international calls. Gone are the days when mobile phones were considered luxury and status symbol.

Now, people may not have enough money to eat, enough place to sleep and enough dress to wear but have mobile phone in their pockets to interact with their family members, friends and customers. With the changing scenario, use of

quantitative and qualitative research techniques has also increased with the passage of time. Procedures were devised for the measurement of nature and effect of communication devices on human behavior. During the same period, smart phones and instant messaging application like Whatsapp, Viber and Skype took over the world of communication in Pakistan. However, not much research has been done to analyze the usage and effect of these applications on the citizens of Pakistan. It's interesting to note that not a single research has been done to analyze the content of WhatsApp in Pakistan. The current study aims to analyze not only the nature of the WhatsApp conversation but it also highlights its effect on academic institutes and business of the people living in Pakistan.

**The first major assessment of the effects of WhatsApp was undertaken in 2012. Different Quantitative and Qualitative Methods like semi structured interviews, half structure interview, baseline and large scale surveys,quasi-experimental study were devised for the measurement of aspects of WhatsApp users so the result obtained by one method could be compared with the finding of others. The objectives of the researchers were to analyze the linguistic features of WhatsApp communication, its advantages and disadvantages, its effects on religion, education, politics and other socio economic activities.**

The practice of blasphemy is also prevailing on WhatsApp. In India, two youngsters were arrested on the charges of posting a picture outraging religious sentiments of community. ([R.Sivaraman](#), 2015)<sup>3</sup>

A survey was done by the company of Telenor<sup>4</sup> to draw a comparison between SMS, voice calls and messaging application in seven countries including Pakistan, Malaysia, Thailand, Serbia, Hungary, Sweden and Norway in Dec 2015. Data was gathered from a sample of 5600 people, aged between 16- 35. According to that survey, 74% Pakistani use their basic phone to make a traditional call several times per day, confirming the importance of traditional basic calls in this era of digital networking. 30% Pakistanis use the feature of video calling several times on daily basis. 49% Pakistanis use messaging application several times on daily basis. This is the lowest percentage among all surveyed country where the messaging apps users are more than half.

A study was done to find out the effectiveness of WhatsApp in the field of education. The main objective of the study was to investigate the educational benefits of learning through WhatsApp. A total of 37 graduate students were selected. A group on WhatsApp was created and the teacher added all students in that group. Students and teacher communicated with each other in a freely manner for forty days. After forty days, students were asked to fill a questionnaire and interviews were taken from 10 randomly chosen students. It was found that students thoroughly enjoyed the session and the students mentioned that the communication on WhatsApp has increased their understanding with their friends and teachers. ([Bansal& Joshi](#), 2014).<sup>5</sup>

In developing countries, it's difficult for technologies to make it place and move into leading or dominant position. Developing countries may utilize wireless technologies which is less time consuming and offers communication in very cheap rate. Government should play their role in spreading awareness regarding these wireless technologies

### **Theoretical Framework**

Users and gratification theory and social learning theory support my disquisition. Users and gratification theory highlights the importance of audience in choosing media of their choice. It rejects the notion that the audience is passive consumer of media, having less or no control on the content. It states that the media consumers deliberately choose a particular media which meets their needs and demands. Thus media satisfies their personal urges in a better way. The theory also seeks to discover why people choose particular media and how do they use it. The theory assumes that the people have power over what they watch. They are not anymore passive recipient. They select any particular media according to their needs. There are different types of human needs which can be categorized accordingly;

- Needs related to ourreligious beliefs, thinking and conscious processes
- Needs related to our moods, attitudes and feelings
- Need to integrate with society or group of people
- Need to relax or calm nerves by entertainment

Users and gratification theory emphasizes the connection between people and networking technologies. Recent researches suggest mobile phones and the networking applications are playing a positive role in quenching the thirst of religion, sociability and entertainment.

Social Learning theory also helps to understand how people learn different skills, behavior and languages through networking applications. The theory of social learning is related to traditional behavioral theories in which behavior and learning process is shaped by reinforcements.

Social learning theory was introduced by Albert Bandura and Walters in 1963. Social learning theory asserts the fact that people learn by observing others. It is an integrated theory which involves the learning experiences and observations of people. It provides a comprehensive model and proposes that learning is a process that takes place in real world by observing others.

When an individual communicate with others on networking application, he/she learns certain behavior, beliefs and languages through observation and interaction. Afterwards, a specific kind of behavior is triggered which may affect the mood, feelings, cognitive process and the perception of the person.

### **Significance of the study**

In recent years, WhatsApp application has experienced an astronomical increase in Pakistan, making it an affordable communication tool for students and professionals. Yet no data is available about the content and composition of WhatsApp conversations. The study will be beneficial from economic, social and political point of view. In terms of novelty, to our knowledge, this is the first study to determine the frequency and composition of WhatsApp messages in Pakistan. Furthermore, WhatsApp bring down everyone under one platform where people can discuss their personal and professional stories in words, pictures and videos. It is also much cheaper than SMS and provides much more options than SMS. The findings can serve as a benchmark for surpassing SMS in terms of both cost and features.

### **Research Objectives:**

The objectives of this research are given below

- To determine the frequency and composition of content shared on WhatsApp in Karachi city.
- To examine the role of WhatsApp application in promoting or demoting Islamic narrative and values

### **Hypothesis:**

WhatsApp help people to disseminate religious and non religious narrative among their fellow beings.

WhatsApp is being used as a medium to promote Islamic values and culture by students.

### **Methodology:**

Content analysis method was used in this study. A total of 50 conversations (mostly group chats) of 15 days were analyzed with the help of Python language program in order to analyze the nature of the content being shared by professionals and students in Karachi.

### **Unit of analysis:**

Each and every message of the conversation was considered unit in this analysis.

### **Categories:**

Following are the main categories:

- Religious: This category includes conversation about any religion or religious sector.
- Non Religious: This category includes conversations against the basic islamic principles.

**Sampling:**

Due to the law and order situation of Pakistan, mostly students and professionals were not agreeing to share their private conversation with the researcher. So, convenience sampling technique was used in this regard. Distribution of conversations is given below in chart;

	Personal Chat	Group chat	Total
Number of professional Conversations	9	16	25
Number of Students Conversations	14	11	25
Total	19	31	50

**Discussion:**

Discussion section is divided into four main sections.

**1. Frequency and composition of WhatsApp messages**

The summary of the major findings related frequency of words, messages and media files is given below

- A total number of 33 messages were sent in a single day by each user of WhatsApp living in Karachi
- A total number of 430 words were shared in a single day by each user of WhatsApp living in Karachi
- A total number of 3 media files were shared in a single day by each user of WhatsApp living in Karachi.
- A total number of 66,327 messages were sent by 2,023 WhatsApp users in 30 days
- A total number of 869,404 words were shared by 2,023 WhatsApp users in 30 days
- A total number 6163 media files were shared by 2,023 WhatsApp users in 30 days.
- 23620 (35.61%) messages were sent at A.M and 42707 (64.39%) messages were sent at P.M
- The tone of 21 (42%) conversations was informal. The tone of 13(26%) conversations was semi formal and the tone of 16(32%) conversations was formal
- The first most used language was roman English which was used in 25(50%) conversations where as English was used as a first most used language in 14 (28%) conversations and urdu was used as a first most language in 11(22%) conversations.
- 22 (44%) Conversations were in single language (Roman English) where as 28 (56%) conversation were in two language(English and Roman English). 11 conversations were in three languages ((Urdu, Roman English, and English)

We may conclude that people living in Karachi prefer to send messages in day timings. The findings are broadly consistent with the findings of Patil (2016)<sup>6</sup> that

maximum conversation takes place after noon. The tone of their conversation is mostly informal. They prefer to send messages in roman English. As far as Pakistani society is concerned, mostly Urdu, English and Roman English are used in the domain of mobile phone communication. (Ali, I., and M. T. Aslam, 2012)<sup>7</sup>

## **2. Emoticon Analysis**

It was observed that a new kind of emoji language and emoji grammar is emerging on digital media. Apart from text and media files, people communicate through emoticons. When we write something, emojis act as non verbal cues that provide so much information which is not possible to deliver through words only. These pictorial reflections of sentiments are playing a vital role in our everyday conversation.

### **The meaning of emojis**

Emoticons are “graphic representations of facial expressions” (Walther & D’Addario, 2001, p. 324)<sup>8</sup>. Emoji is a Japanese word comprised of two parts – the e means “picture” and moji means “letter”. Emojis are a form of non verbal communication (Derks et al., 2008)<sup>9</sup> or combination of keyboard characters that depicts the writer’s mood ( Crystal, 2001)<sup>10</sup>. Emojis are the way through which we express our emotions (Kelly, 2015)<sup>11</sup>.

### **How emojis are affected by different factors**

It also turns out that the use of emojis varies from person to person. According to a study 73% respondents do not send same emojis to their parents and friends (Kelly, 2015). The way WhatsApp users use emojis is affected by their age, religious beliefs, nature, culture, relationship, and context. Dunlap et al. agrees that different people use emoticons in different ways and the usage is affected by experience, context and preferences. Furthermore, these emojis are not labeled on WhatsApp so their meaning is up to those who use them. According to the findings of a survey done by Kelly (2015), 70% students interpret the emojis differently, depending on the sender of the message.

It was observed that the choices of emojis are influenced by religious beliefs. As Karachi is cosmopolitan city so it is comprised of people from all religion. Some major religions include Islam, Hinduism, Christianity and Buddhism. It was observed that kneeling person under a roof emoji is the most common religious emoji among Muslims. Om symbol and praying hands emoji are the most common religious emojis among Hindus. Orthodox cross symbol is the most common religious emoji among Christians. The findings are consistent with the findings of a survey from twitter data that praying hands is the most popular emoji in India (Briese, 2016)<sup>12</sup>.

However it was also noticed that the use of emojis are criticized by Muslim clerics in Pakistan and around world. A Saudi based preacher, Wajdi Akkari issued



a fatwa declaring 'angle with a halo above face emoji' haram. He also warned Muslims to avoid using 'sign of the horn' emoji on WhatsApp as it symbolizes two horns of Satan. (Verkaik, 2016)<sup>13</sup>

Moreover, it was observed that people signed different petitions to request the concerned authorities to add emoji of a woman wearing hijab. As a result now we can see emojis of a woman wearing hijab and a heavily bearded character emoji in our WhatsAppemoji list. It indicates that people associate emojis with religion and the choice of emoji is affected by the religious beliefs of person.

### 3. Language Analysis

An attempt has been made to analyze the language used in WhatsApp conversations. The language of conversation is categorized according to their characteristics.

#### Initialism:

Initialism is an abbreviation consisting of initial letters of a word, sentence or phrase e.g. hru (how are you), omg (oh my God). Yeboah, J. and Ewur, G. D. (2014)<sup>14</sup> assert that students usually adopt short hand form of writing (WE THANK GOD written as 'WTG') due to laziness.

List of top ten frequently used initials in 50 WhatsApp conversations

Initials	Frequency	Original words
LOL	172021	Lots of Laughter
TC	87213	Take Care
GM	10431	Good morning
KHI	9752	Karachi
LVU	8621	Love you
WS	6399	Walikumsalam
BC	5290	Slang word
AOA	4793	Asalmoalikum
BRB	4372	Be Right Back
MA	2154	MashAllah

The findings show that along with English, Arabic, Roman English and Urdu words are also adapted as initials. Malik Naseer, Hussain (2013)<sup>15</sup> posits that 'AOA' and 'SAW' are frequently used to replace Asalmoalikum and sallallahuelaihiwasalam in SMS languages in Pakistan. Likewise, students are following the same language pattern in WhatsApp.

#### Clipping (Morphology):

Clippings are small piece of words that have been clipped off or out something e.g. exam (examination). Rafi (2010)<sup>16</sup> say that people prefer to use shortened words like 'intro' for introduction, 'bro' for 'brother', 'sis' for 'sister in SMS

language. They start using in WhatsApp as well. Some of the major examples from WhatsApp conversations are given below

List of top ten clipped words from 50 WhatsApp conversations:

Clipped words	Frequency	Original words
ok	19822	Okay
Uni	8219	University
congrats	5191	Congratulations
exam	7280	Examination
bro	911	Brother
mid	2440	Midterm
sec	1201	Second
prob	232	Problem
mon	496	Monday
salam	256	Asalamoalikum

#### 4. Topic Analysis of WhatsApp Conversations

In recent years, WhatsApp has become a global phenomenon. People share valuable and interesting content, develop relationship and discuss different social, political, religious and economic issues on WhatsApp. Previous studies have focused on linguistic features and its effect on education and business activities of students and professionals. In this study, researcher investigates the role of WhatsApp in disseminating religious narrative.

#### Discussion about Religious Events

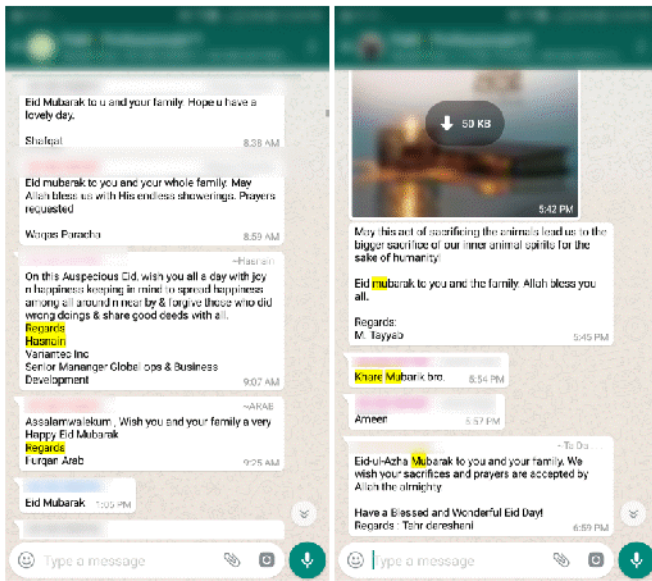
It was observe that people celebrate different religious events like EidulFitr and EidulAza on WhatsApp by wishing each other in form of different text, audio and video messages. People plan to go to cow mandi together. They share pictures of cows, camel and goats with each other on WhatsApp. They talk about the prices of animals and often sell and purchase them on WhatsApp group.

*27/7/2017, 5:48 PM – Saud: Mandikakya scene hae Boss*

*27/7/2017, 6:02 PM – Ehitisham Khan: Mandika scene ho to apkabhai always ready*

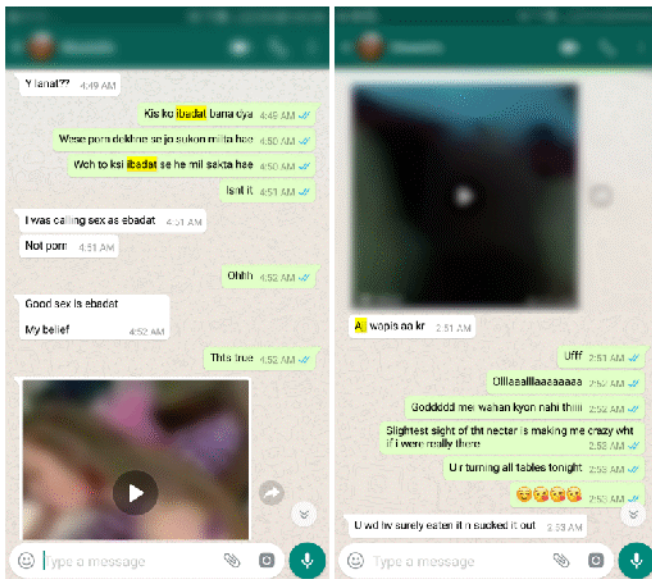
*27/7/2017, 6:05 PM - Saud: 11 pe pick kartahunFaheembhichalrahahaesath*

They share pictures, plan gatherings and send invitation letters to each other on WhatsApp. Screenshot is attached to see the way WhatsApp is being used to promote religious events.



### Anti religious Activities

It was observed that mostly students are involved in different antireligious activities on WhatsApp. They share adult pictures videos images and get involved in sexual conversation on WhatsApp. Some examples are given below.

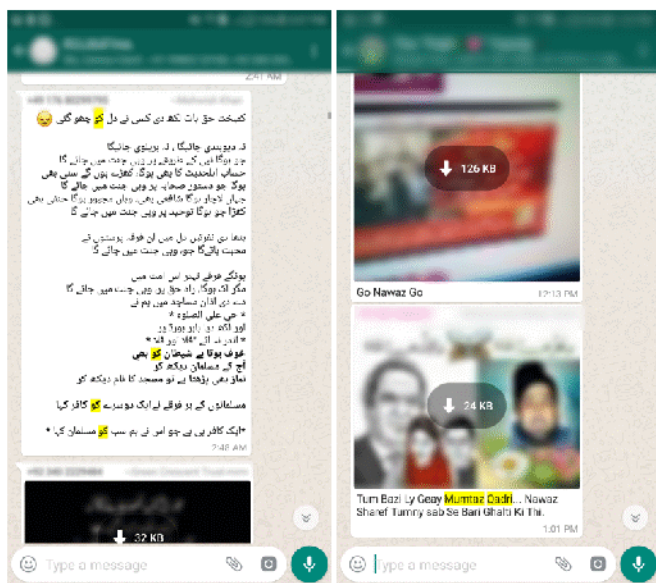


They also play 'role play' game in which they act as if everything is happening in real. It shows that WhatsApp is being used in bad ways as well. Now almost every student male or female has camera in his/her room. They can write about everything even if they are sitting in front of their parents. They can share

pictures, videos and audios with opposite sex without any additional cost. Living in a conservative society mostly students are not allowed to talk with opposite gender openly. Due to some cultural restrictions it is not considered good. Girls and boys are not allowed to meet physically in our religion but WhatsApp give them chance to share their sexual desires in very affordable manner. It's easy to hide conversations from parents. As several lock codes are available on smart phones. They can also delete media after chatting. So it rejects the notion that WhatsApp is being used as a medium to promote Islamic values and culture by students.

### Religious Extremism

It was observed that there are few people who condemn religious extremism on WhatsApp. They share and forward messages against religious extremism. On the other hand, there are also some people who support religious extremism. Consider the following:

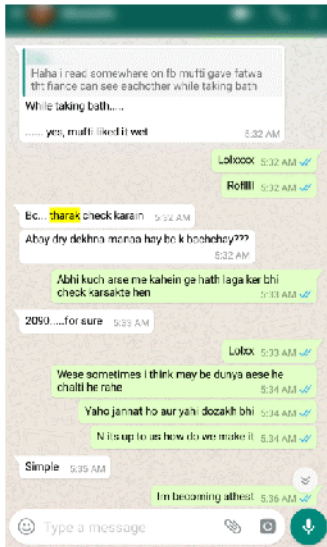


### Sects/Other religion

Karachi is a cosmopolitan city so people from different religions and sects are using WhatsApp in Karachi. It was mentioned in rules and regulations of few WhatsApp groups that no flaming of person belongs to other sect or religion is allowed on this group. Admin immediately block the person from the group who gets engage in any kind of religious conversation. . It was also observed that Muslim people do not want to listen against their religious beliefs and if any one talks against their religious belief they start criticizing them. Consider the following example in which a WhatsApp user is criticizing people who celebrate Christmas day.

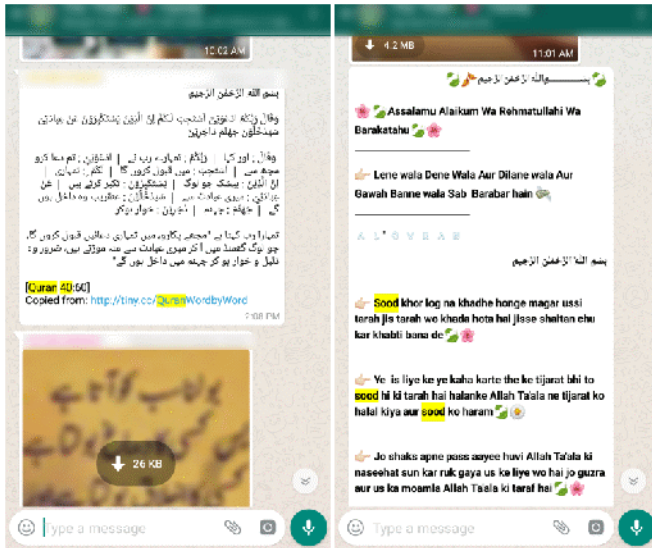


religion after having religious discussion with atheist on WhatsApp. So we may say that WhatsApp is being used as a medium through which people can switch or leave religion.



### Sharing religious stuff

It was noticed that people forward Islamic ahadees, quranicayat, and Islamic lectures to each other in the form of text messages, videos and pictures on WhatsApp without even investigating about its authenticity.



Thus it supports our hypothesis that WhatsApp help people to disseminate religious and non religious narrative among their fellow beings.

## Conclusion

Our life has been changed drastically with the innovation of WhatsApp messenger. It has transformed a talkative social Pakistani citizen into a mobile addict. From reducing boredom to spreading harmony, WhatsApp has managed to become an important part of lives. On one hand it has affected physical relationship and on other hand it has kindled romances and affection between people. It's sometimes proven to be a best way to kill time and sometimes it is being considered wastage of time. Sometimes it's a source of information and sometimes it's causing disturbance, disagreements and creating misunderstandings between people. It helps people to plan and arrange events and they can often invite people to their events through WhatsApp. It has brought together people on one platform and enabled them to metaphorically flock together. The sight of a son and father sitting on two corners in a home with smart phone in their hand is a common sight in Karachi. Friends, Relatives, family, colleagues, acquaintance, fiancé, and siblings are all connected to each other through WhatsApp. It was observed that different kind of people exist on WhatsApp. Some people have secular mind while some are so extremist about their religious views. They talk about different religious topics in entirely different way. Thus we can say that WhatsApp can be used to promote religious sentiments, personalities and acts. On the other side it can also be used as a tool to promote extremism and hatred against other religions and minorities.

The findings also show that a lot of people are forwarding religious content to each other which shows the religious interest of people living in Karachi.

Hence we can conclude that WhatsApp is being used for all type of discussions. The conversations of professionals provide more in-depth understanding of the usage of WhatsApp application. From national to international issues, from fitness to health issues, from psychological to mental issues, from economic to domestic issues, from religious to extremism issues, from terrorism to political issues, from entertainment to taboo issues, from personal growth to learning, from promoting business to helping clients; WhatsApp has covered each and every domain of life.

## REFERENCES

1. Broadband Commission for Sustainable Development. (2017) The State of Broadband: Broadband catalyzing sustainable development September 2017 Retrieved from [https://www.itu.int/dms\\_pub/itu-s/opb/pol/S-POL-BROADBAND.18-2017-PDF-E.pdf](https://www.itu.int/dms_pub/itu-s/opb/pol/S-POL-BROADBAND.18-2017-PDF-E.pdf)
2. Saudi man divorces wife for ignoring his WhatsApp messages. (2014, Nov 17). Times of India. Retrieved from <http://timesofindia.indiatimes.com/world/middle-east/Saudi-man-divorces-wife-for-ignoring-his-WhatsApp-messages/articleshow/45177224.cms>
3. R.Sivaraman (2015, June 08). Picture outraging religious sentiments posted on WhatsApp. The Hindu, Retrieved from <http://www.thehindu.com/news/national/tamil-nadu/picture-outraging-religious-sentiments-posted-on-whatsapp/article7293656.ece>
4. Telenor Group. (2016). Youth hooked on mobile messaging but preference varies, says Telenor research. [online] Available at: <https://www.telenor.com/media/press-release/youth->

- hooked-on-mobile-messaging-but-preference-varies-says-telenor-research/ [Accessed 2 Feb. 2017].
5. Bansal, T., & Joshi, D. (2014). A study of students' experiences of mobile learning. *Global Journal of Human Social Science*, 14(4), 40-47.
  6. Patil, S. (2016). WhatsApp Group Data Analysis with R. *International Journal of Computer Applications*. 154. 31-36. 10.5120/ijca2016912116.
  7. Ali, I., and M. T. Aslam. 2012. Frequency of Learned words of English as a Marker of Gender Identity in SMS Language in Pakistan, *Journal of Elementary Education* 22(2): 45-55
  8. Walther, J. B., & D'Addario, K. P. (2001). The impacts of emoticons on message interpretation in computer-mediated communication. *Social Science Computer Review*
  9. Derks D, Bos AE and Von Grumbkow J. (2008) Emoticons in computer-mediated communication: Social motives and social context. *Cyber Psychology & Behavior*, 11(1), 99-101.
  10. Crystal, D., (2008). *Txtng: The gr8 deb8*. Oxford: Oxford University Press. MoF, 2008. Economic survey of Pakistan 2005-06. Ministry of Finance, Government of Pakistan
  11. Kelly, Caroline (2015): Do you know what I mean > :( A linguistic study of the understanding of emoticons and emojis in text messages. Bachelor Thesis, Halmstad University.
  12. Briese, N. (2016, July 18). Check Out the Unexpected Most Used Emoji by Country. Retrieved January 01, 2018, from <https://www.brit.co/most-used-emoji-by-country/>
  13. Verkaik, R. (2016, May 4). Islamic preacher BANS text emojis for Muslims because 'angels don't have halos and we don't know what the devil really looks like' . Daily Mail. Retrieved from <http://www.dailymail.co.uk/news/article-3571462/Islamic-preacher-BANS-text-emojis-Muslims-angels-don-t-halos-don-t-know-devil-really-looks-like.html>
  14. Yeboah, J. and Ewur, G. D. (2014). The Impact of Whatsapp Messenger Usage on Students Performance in Tertiary Institutions in Ghana. *Journal of Education and Practice*, Vol. 5, No. 6, pp157- 165.
  15. Malik Naseer, Hussain (2013). *Language Of Text Messages A Corpus Based Linguistic Analysis Of Sms In Pakistan*. Doctoral thesis, International Islamic University, Islamabad.
  16. Rafi, M., (2010). *Sms text analysis: Language. Gender and Current Practices*.