A Study of Information Sharing on Whatsapp

Design Research Seminar
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1. ABSTRACT

Smartphones, internet and social media have become an integral part of our daily communication. One such digital medium of communication currently popular in India is Whatsapp. I conducted semi-structured interviews with digitally literate active Whatsapp users to identify different file sharing patterns. A detailed analysis of various use cases of information sharing was done using screenshots of corresponding Whastapp screens shared by the users. This led to the undertsanding of how users seem to appropriate and exploit the features of this medium to accomodate their varying needs and modes of communication. This report presents a study of Whatsapp's file sharing features, and how a variety of information is shared by different user groups using these features.

2. INTRODUCTION

Whatsapp offers fast, simple, secure, reliable messaging and calling for free (data charges apply), across phones all over the world. It is available on Android, iOS, Windows phones, Mac and Windows PC. As of February 2018, WhatsApp has 1.5 billion monthly active users, with 200 million users in India alone.

Group chats here allow sharing messages, photos, and videos with up to 256 people at once. A user can share PDFs, documents, spreadsheets, slideshows etc up to 100 MB, without the hassle of email or file sharing apps. Photos and videos can be captured with an in-built camera and sent quickly even while on a slow connection. It lets users record voice messages using a single tap, to tell a quick hello or a longer story. Also, Whatsapp Web enables seamless syncing of all chats to the computer so that the conversation is kept going on any device at the user's conveneince.

2.1. SENDING INFORMATION ON WHATSAPP

In order to send a document from within WhatsApp, the document must be saved locally on phone. Alternatively, WhatsApp appears as an option in the share menu of apps like Google Drive that handle documents .
The following are the *Share* features available in both individual and group chats on Whatsapp (access permissions are requested while installing the app or changed later in the Phone Settings):

Document— to select a document from phone.

Camera— single tap to take a picture and long press to take a video with Whatsapp camera. A vast GIF library is also included.

Gallery— to select an existing photo or video from phone. Multiple images can be selected by tap and hold. Captions can be added to each.
Edit option on any image to be sent lets the user insert text, emojis or free hand drawing. Crop option and photo filters are also avaialble.

Audio— to record a message or send an existing audio from phone.

Location— to send your live location or a nearby place.

Contact— to send the information of a contact saved in phone's address book over WhatsApp.

Status— to share text, photos, videos and animated GIFs that disappear after 24 hours. In order to send and receive status updates to and from contacts, both parties must have each other's phone numbers saved in the address book.

Broadcast Lists—to save lists of message recipients that can be repeatedly sent broadcast messages to, without having to select them each time. This is useful for publicity and constant updates. The recipients will receive

the message as a normal message.
WhatsApp also allows formatting selected text inside messages. Italic, Bold, Strikethrough, Monospace formatting options are available.

2.2. RECEIVED INFORMATION ON WHATSAPP

When a document is downloaded, it gets automatically saved in WhatsApp Documents folder. Images and videos get saved in the media gallery.

Reply allows to respond to a particular message, both in a group and in an individual chat. When individual messages are responded to, context is provided, taking the reply back to the original message being replied to.

Pin Chat allows users to pin up to three specific chats to the top of the chats list. Pinned chats will always stay at the top for easy access.

Starred Messages lets users bookmark specific messages for future references.

Forward lets single/multiple files received to be shared to one or more recipients.

Delete lets user delete an entire conversation, or specific messages received. Sent messages can be deleted for self (doesn't affect the recipients' chats) or for everyone (message will be replaced with "This message was deleted" in the recipients' chats).

Archive Chat doesn't delete a converstaion, but hides it from the chats screen to better organize conversations. It can be retrieved anytime.

Interaction options on screen for Send, Reply, Forward, Delete, Share etc vary in android, iOS and windows phones; functions remian the same.

Each received and sent message has a timestamp. Whatsapp also allows users to see if a particular message/file has been sent, delivered and read by the user. This is indicated by a single grey tick, a double grey tick and a double blue tick mark respectively. User's presence on Whastapp is shown under the 'Last seen' timestamp. But current privacy settings allow users to restrict access to user information like profile picture, status message, last seen, read receipts etc. Notifications can be muted or customised per user or group.

Such ease of usability has made daily Whastapp usage almost inevitable for digitally literate users across demographic groups.

3. THE STUDY

3.1. USER GROUP

The study involved 53 participants (friends, family, neighbours, colleagues, other mutual acquaintances and local business owners) from Powai, Chennai and Bangalore. These participants were digitally literate active smartphone and Whatsapp users, aged between 19 to 52 years. Almost all of them had data plans on their smartphones along with WiFi access, except a few older people who had access to internet only through WiFi at home. All the participants used Whatsapp on a regular basis and were a part of at least two active whatsapp groups. Students and professionals were active Whatsapp Web users too, while the rest were aware of it's existence but had not used it, or did not know how to access it on a computer and didn't have the need to.

3.2. PROCESS

I explained the context of this study to the participants individually, in person and over phone, and also collectively, through detailed text messages on five of my most active Whatsapp groups (family, school friends, undergrad batchmates, undergrad hostelmates, IDC batchmates and workplace colleagues). Semi-structured interviews followed. The objective of this interaction was to undertsand the participants' general Whatsapp usage. The most frequently used means of sharing, frequency of file sharing, types of content generally shared, and the actions on files received were discussed.

3.3. INSIGHTS FROM USER INTERVIEWS
Before and After the emergence of Whataspp

Printed copies of tickets are used lesser. Travel websites send PDF of tickets and other travel related updates on whatsapp.

Going on treks and trips organised by travel enthusiasts/ communities is safer now as Whatsapp groups are formed for each trip. Hence user gets acquainted with fellow trekkers prior to the trip and also gets constant updates before and during the trip. Better human to human interaction happens during the journey because of initial virtual acquaintance.

Sharing/ travelling alone in cabs now feels safer because of live tracking facility that can be directly shared from the travel app to Whatsapp.

Calling up people multiple times to ask for their exact location or asking strangers on the roadside for the correct route is now replaced by sharing a location pin directly through google maps using location share feature on Whatsapp.

Earlier, multiple iterations followed a delivery becasue of difference in customer expectations and product outcome. Businesses have now improved quality and user base and hence have profited because of better customer interaction through Whatsapp. Tailors, designers, make-up artists give a variety of options to the clients on Whatsapp and also give progress updates. Discount sales and new product promotions have better visbility with a wider audience, thanks to publicity through Whatsapp.

Better shopping choices can be made over virtual discussions in Whatsapp by sharing links and screenshots from various e-commerce websites.

Parent-teacher communication was earlier dependent on scheduled meetings in person, written notes or information through phone calls. Now the parents of children studying together are up-to-date on their child's school and extra curricular activities. Teachers also find it a lot easier to communicate information to all the parents at one go through Whatsapp.

Connecting remotely and being in sync with the peers in study groups or distance education classes was difficult earlier. Now students and professionals preparing for any exam are well connected and updated through Whatsapp Study Circle groups.

Knowledge sharing has improved with students constantly sharing tends in technology and updates in their rrespective fields. Learning happens outside textbooks. Whatsapp groups provide a good platform to share learning resources and to gett feedback.

Inviting people to social events, making announcements, promoting products and new ventures is now a click away. Social conversations are less awkward as there is no face to face interaction.

Trying out new recipes, new fitness regimes, new clothing, new hobbies etc and asking for opinion on Whatsapp by sharing the results/output as images and videos gives users instant gratification. This also motivates others to pick up new skills.

Whatsapp group serves as a one stop option for planning a trip or event or business, as all sort of files, from agenda, receipts, budget, photos, travel updates, hotel bookings, to any kind of third party involvement can be kept track of and updated effortlessly.

Whatsapp also has reduced personal human interactions. Phone calls or meet-ups for Birthdays and special occassions have been replaced by Whatsapp wishes using text/gif/emojis. Peronsal chat conversations seem miscommunicated and misinterpreted. There are many occurances of shared images and videos being misused. More time is spent starring at the mobile screen than in having real time conversations and experiences.
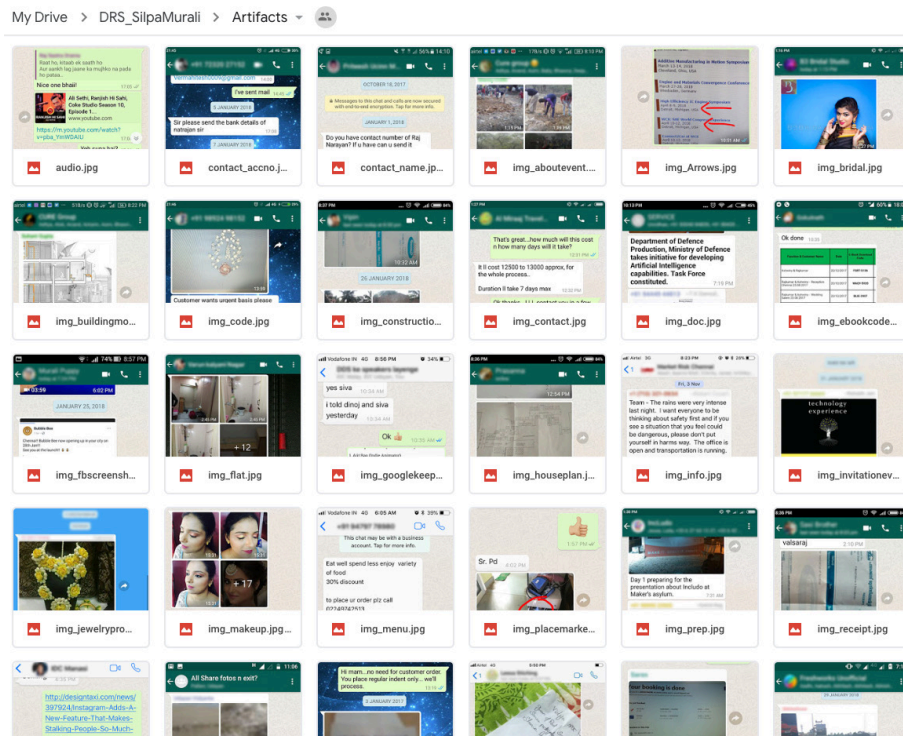
3.4. USE CASES

Based on user inputs, a simple list of possible use cases in File Sharing was charted. I included Sender, Receiver, Activity and Artifact columns for each use case as shown here. This formed the initial template to analyse the data that I would receive from the participants of this study.

FROM	TO	ACTIVITY	ARTIFACT	CATEGORY
Redbus/ Goibibo/ third party services	passenger	inform passenger about travel schedule	copy of ticket (document), bus tracking (link), delay updates (text messages)	travel
student	student(s) / staff	sharing academics related works/ information	assignments (images/ link), mails (screenshots), web articles (links)	academics
teachers	students	sharing information	announcement, tasks, reminders (group/ broadcast messages)	academics
teachers	parents	information related to academics/ sports/ misc. school activities	meeting invites (RSVP links), student's progress (link), official forms/ documents to be filled	academics
tecahers	teachers	passing on general managament/ academics related info	notices (images), official information (text msg forwards), changes in schedules (image), documents (links)	academics
user	user	making shopping decisions	image/ video of the product(s), website links	retail
user	user	informing train details	text copy of the IRCTC PNR sms received	travel
salon services	regular customers	informing about offers and services	offer details (text msg), new services (photo/ video)	business
restaurants	regular customers	spreading word	new dish(es) in the menu (photo)	business
job seeker	friend/ acquanitance	asking for referral/ suggestions on CV/ portofolio	document (link/ document)	professional
tailor	customer	queries on stitiching/ providing options	photos	business
plumbers/ electricians/ other hardware related works	supplies store/ workshop person	asking for availibility of a particular part/ product	product/ problem space photos, list of items required (text msg)	business
parent	son/ daughter	instructions for cooking/ any household fix	text msg/ audio file	activities
family store/ utility person	user	monthly bills	ledger book receipts (photo), total amount details (text message)	business
user	user	online shopping decisions	directly send product page's link through the app's share option	personal
trek/ fitness communities	registered users	information of travel plans	broadcast messages : online link, poster photo, trip fee and other details (text message), map location, POC details	activities
cleanup communities	registered users	location fo the cleanup drive and other details	broadcast messages- RSVP, social media links to follow, misc. details (text messages), map location, POC details	activities
registered students	gurus (skype classes for performing arts)	proof of practice sessions	audio and video files of performances	activities
small scale businesses	random users	ads for their products	text messages, posters, images of the products available	business
team mananger/ lead	team members	call details, discussion material etc	text message, dropbox link with assets	business
event leads	volunteers	schedule and roles for event managemnet purposes	online docs, contact info, create event calendar option	activities
user	user	visit for the first time	pt.A to pt.B map location	travel
user	user	informing wherabouts	ola/ uber trackers (link), ride details (copy text msg)	travel
money sender	moner receiver	transaction receipt	transaction successful' screenshot from web/mobile banking	personal
user	user	sending reminders of money owed	thirdparty apps (eg. splitwise screenshots)	personal
event hosts (bride, grrom etc.)	participants	sending out invites	RSVP link, invitation cards (images)	personal
event organisers	users in context	publicity/ promotions	group forwards of audio, video and image files	business

4. DATA COLLECTION

The participants were asked to share with me the screenshots of all possible file sharing scenarios over the month of January, 2018. Some (people in business) were not comfortable in sharing screenshots.
Some others were used to clearing chat history and media gallery very frequently/ as soon as the purpose was met, to avoid clutter.
216 screenshots were received in total, out of which repetitive use cases were omitted and 127 screenshots were considered for the final analysis.

5. DATA ANALYSIS

The screenshots obtained in the Data Collection process were categorised based on the following aspects for analysis:

CHAT TYPE
Anyone in contact list
Direct
Group

FILE TYPE
Audio
Contact
Image
Link
Location
Documents
Text
Status

CONTENT TYPE
Academics
Business
E-Retail
Personal
Professional
Travel

ARTIFACT	DIRECT/ GROUP MSGS	FILE CATEGORY	CONTENT		SHARED BETWEEN		SHARING ACTIVITY	COMMENT
			CATEGORY	SUB-CATEGORY	FROM	TO		
https://drive.google.com/open?id=1pVGpPsi2VLzUTemkyly4SIeiRsrQk1YA	direct	audio	personal	social	friends		audio message of a poem	along with the audio message, the lines of the poem are sent as text message transcript.
https://drive.google.com/open?id=1enJtCBH_wta4JUcwp0Uze7ftQOf5gEA8	direct	contact card	business	information	colleagues		bank account details	bank account number of a person is saved as a contact number for easy access.
https://drive.google.com/open?id=1Uwgp8iC3i5kqazlZ9AEhru5LcZTq1kuw	direct	contact card	personal	information	friends		contact number	two numbers saved under that contact name, sender unticks the old number to avoid confusion.
https://drive.google.com/open?id=1nEuRjCPeMftKXwJu1maPFifnXMb_6rfw	group	document	academics	information	batchmates		schedule for conference	deadline for final submisons and agenda of conference downloaded and shared from conference website.
https://drive.google.com/open?id=1lzFtZxpDIQpiWIaxlKGkwBQevM6dCll9	direct	document	personal	social	siblings		ebook	ebook shared to read while travelling.
https://drive.google.com/open?id=1g6U16YYrUq_1d_PvjteptHsamf5DD_Mm	direct	document	professional	invitation	friends		seminar invitation	document mailed, but shared on whatsapp also for easier access.
https://drive.google.com/open?id=1-4AdwDNVkUboD6_f6pBdm9tyu806zbXH	direct	document	business	booking	goibibo hotels	client	hotel booking confirmation	goibibo sends ticket on whatsapp directly. also initially gives option to discontinue whatsapp communication and stick to only mail.
https://drive.google.com/open?id=1mw3MxK0adGj5AQXRVGxFAEwkVRJCBjaY	group	document	professional	information	headmistress	staff members	holiday list fot the year	saved as starred message in the group for quick references.
https://drive.google.com/open?id=1o1W8ctIjXceJmWCeecULM4CFNQykYV1j	direct	document	business	updates	builder	client	final house plan	along with the document of the plan, the builder also sends independance day wishes from the company, maintaining cordial customer relations, and at the same time, including their website link for publicity.
https://drive.google.com/open?id=1iBwLC0uOsM23nIeFqhiXTPmoLNCTrVr9	direct	document	professional	knowledge sharing	colleagues		lesson plan documents	teachers teaching different sections of the same class share their lesson plans to be in sync with each other in their teaching materials/methods.
https://drive.google.com/open?id=1oihtKbr9k4knnaq1VJqm9ktJk4wqpZxN	direct	document	professional	updates	client	LIC agent	paperwork	meeting in person is avoided by virtually exchanging paperwork and other details required for approval.
https://drive.google.com/open?id=1cNKxTpt8GKiYr-rXzdd8nyE2Ezs_HZCj	group	document	personal	social	community members		festive recipes	recipes shared to plan a potluck for Diwali among the families in a gated community.
https://drive.google.com/open?id=1jy-2b4BYWbb8A91r_R4aofh6A5ff4udi	direct	document	academics	information	student	professor	resume for higher studies	multiple iterations in resume and job applications suggested over whatsapp messages.

Link	Mode	Type	Category	Purpose	Sender	Recipient	Subject	Description
https://drive.google.com/open?id=1k5onetsjhilC1TzmW_W8hSTc9_e227Wh	direct	document	professional	information	colleagues		service rules	document sent to a person (who responds regularly on whatsapp) as backup because the sender is not sure the intended people might see the message on time.
https://drive.google.com/open?id=1qtOm-tm7PCx9D9pdbJbx2JmnV18hTWsh	group	document	academics	event	coordinator	class representatives	schedule for prientation sessions	document sent to CRs who ensure that their respective classmates are made aware of the same.
https://drive.google.com/open?id=1xPnkN_Ojp0NAyIBqKTmoZP7xKCkbFwtH	group	document	academics	knowledge sharing	batchmates		sharing test results	test results and answer keys shared to help peer group in the online study circle.
https://drive.google.com/open?id=1bF_vYYy0SCw0ssnjqgjuCBsPq8EjvPR1	group	document	travel	information	friends		eticket	one person books tickets for all and shares e-ticket as proof of travel.
https://drive.google.com/open?id=1keM8NbCoV_MeRvLZH3DVuJdXE4EnI_SL	direct	image camera gallery	business	information	beautician	client	choice of bridal get-up	bride gets to choose her wedding look based on the beautician's past works.
https://drive.google.com/open?id=1HKYCOYEW6Aw9egiOjkOc_YLadElKunPD	group	image camera gallery	business	publicity	salesperson	friends and family	jewelry varities for sale	salesperson creates a group with friends and relatives who might be interested in accessories; sends products photos regularly .
https://drive.google.com/open?id=1yox5b79oVZnhI9R52iWrGSxU5Ypz2axD	group	image camera gallery	personal	information	friends		multiple members pooling in photos	creating a group specifically to pool in photos of an outing. The group name itself conveys the purpose.
https://drive.google.com/open?id=1t6vJ2gbhakbWwHYZlx81Ai2qX63XKg7I	direct	image camera gallery	business	information	tailor	client	design options for stitching salwar kameez	tailor sends options based on the client needs and the material given.
https://drive.google.com/open?id=1Hq1F8vMKSNnj-BCsnv2OB_bJWo7-0D4Q	group	image camera gallery + text	professional	updates	colleagues		event brief	text update supported by pictures taking during the event.
https://drive.google.com/open?id=1T1Wk_CoyAHKGj0tdCShY3uLXfDiTdj4	group	image camera gallery + text	professional	information	project lead	team members	information regarding safety at work	ensuring safety first at work, images included to update workplace situtaion after days of heavy rainfall.
https://drive.google.com/open?id=1ubuF9j62rgD25bV1rxYR3odIOJv5DVrs	direct	image digital poster	business	publicity	travel agent	client	agency's contact information	serves as a visiting card saved in phone gallery. But contact number and email ID from the poster have to be typed out again by the user; sending as text would have enabled single click call/mail.
https://drive.google.com/open?id=1WtZkHrvTRtTtYMieI_jc7EYOdvZbZp6T	group	image digital poster	academics	invitation	batchmates		invitation for an art and design gallery event	publicity for an event in a group that was formed much earlier for a different conference. Target audience is similar.
https://drive.google.com/open?id=1c16IcieyoUGTmdsVzCmZ_jpRHsGuK2ku	direct	image digital poster	business	publicity	restaurant owner	unknown people restaurant	promotional boradcast message for new restaurant	send such broadcast messages to hundreds of people, a few might definitely respond asking for more details .

URL								
https://drive.google.com/open?id=1g3oFbDTV--6KPnwhAsW7IZhn_-Hb9S1t	direct	image digital poster	personal	invitation	bride	friends	wedding invitation	wedding invite available as both document and jpg. image is used for easier access through phone gallery
https://drive.google.com/open?id=1rTRNrwWVz4SvZJgi6Nux4eBlfwXBtanv	direct	image phone camera	personal	information	family members		status of house being constructed	video too long to cover the entire plot. Multiple photos taken instead to show all rooms in the plot.
https://drive.google.com/open?id=1RZAlMnQ5MdLBByBnoGB3nXUsQF8bVmma	group	image phone camera	professional	information	colleagues		notice pinned on the office notice board	sharing incase somebody did not take a look at the notice board. But the image apparently wasn't clicked properly and hence not legible.
https://drive.google.com/open?id=1Xunv7N5M4lvarEjZfBdh9xzvM7dZyBp2	direct	image phone camera	business	information	make-up artist	client	choices from the make-up trials	looking at all the trials options back to back helps the bride decide better on the final look.
https://drive.google.com/open?id=1x0vQkyWcH1ymltqNP9Y07Sd7aeiWpNBq	group	image phone camera + text	travel	information	colleagues		traffic jam update	route based traffic update and alternate options so that people are not late for work.
https://drive.google.com/open?id=1pxlQy58GUyjlv6mlrSvv4S1rqHoqVRdA	direct	image phone gallery	business	information	house broker	client	ameneties in different houses	based on the budget, ameneties in each house are sent as photos so that client doesn't have to visit each house personally
https://drive.google.com/open?id=1v_C4SRHQ6csbszNMQqjWpoz4Vq9F9vPT	group	image saved from internet	academics	knowledge sharing	batchmates		examples for building models	pooling in ideas on whatsapp group helps in working remotely for group projects.
https://drive.google.com/open?id=14THA0jhrfU81iKWKoGfC_YvgvH1P12vD	direct	image screenshot	business	information	wedding photographer	client	codes for file access	screenshot of Google Sheets entry is taken, instead of typing the code as text. Even if the whatsapp chat is deleted later, info can be retrieved from the image saved in the phone gallery.
https://drive.google.com/open?id=1J5IHMLfw5Y0Rmh-qJ-3XLopfpd-PbT_2	direct	image screenshot	business	invitation	restaurant owner	friends and family	invitation for inauguration event	forwarding same sreenshot of an FB post to multiple people separately as personal invitation. not using facebook link as many family members are not on FB. image gets saved in gallery for future references.
https://drive.google.com/open?id=1FM-ohKdDPkSLBKNIpAvnI0zEHv5Kqfz-	direct	image screenshot	personal	information	batchmates		new app feature update	using whatsapp edit option to encircle a specific content on the screenshot.
https://drive.google.com/open?id=1FM5UOK_bGvz3yuwWaaDO72AmF-XZDyUA	direct	image screenshot	personal	updates	friends		online receipt for bank transaction	Some banks have share button too in their mobile apps. Screenshot was still preferred here as the content the receiver shall see is already known.
https://drive.google.com/open?id=1ZkA2NR_rjQZx_1UjH3AXUw-uqtnDW4k6	direct	image screenshot	personal	information	friends		doubt about notification	edit option on screenshot is used to clarify a doubt regarding a whatsapp feature itself
https://drive.google.com/open?id=18ycBvs-Pbz9FuiDmOwJGzmNPJNezsKjR	direct	image screenshot	personal	information	client	freelancer	query on the type used for a digital poster	zoomed-in the document to find a fault, screenshot the entire jpg and then used the crop feature on whatsapp edit to send the zoomed-in part

https://drive.google.com/open?id=1TQzhsELZJmu-c4AuoPQs22HZkmIXBbUN	group	image screenshot	e-retail	information	friends		product suggestion	direct screenshot, instead of having to click on the link to amazon page. But no product specs visible here.
https://drive.google.com/open?id=1egUzOWp4MnEtsQh796kqt7hZWKYd-ZMF	group	image screenshot + text	academics	information	coordinator	batchmates	step by step process of registration	screenshot of the laptop screen edited to highlight details is shared using whatsapp web
https://drive.google.com/open?id=1SPmmyV1o-0Ni4Z3sw33i-_s-FBaF5plG	direct	image whatsapp camera	academics	event	batchmates		conference choices	part of laptop screen cllicked using phone camera (easier than taking screenshot on laptop and using whatsapp web) whatsapp edit used to draw free-hand arrows to mark the user's choices.
https://drive.google.com/open?id=1Zz1s8ELg1fgydjq-Y8lnWpZnMG6RoGIM	direct	image whatsapp camera	business	information	salesman	delivery person	specific sales requirement	avoiding human error by sending photo of the product tag directly, instead of typing out the alphanumeric code.
https://drive.google.com/open?id=18nnCtjKQ-OsDqEEK7b0BjKMqeUAGkNPO	direct	image whatsapp camera	professional	information	architect	client	location plan for building house	hurried photo of a hardcopy of the plan sent right after a call with the client, to help understand the phone conversation better .
https://drive.google.com/open?id=12gU6RV97koJVNGIkRdMttuP7bdnEcjM5	direct	image whatsapp camera	personal	information	friends		location of a said object	using whatsapp edit option to encircle a said object in an environment.
https://drive.google.com/open?id=12hTmAIMN0c6mcbkAdVW_-0tReIZYnSFF	group	image whatsapp camera	professional	updates	teammates		event preparation status	status update from different teams on the same group to inform that everything's on track.
https://drive.google.com/open?id=1cQ26OcxxjwYOIFSXDg52G51Zo8IpMNsL	direct	image whatsapp camera	personal	information	family members		receipt from municipality	showing proof that a said transaction has been done on behalf of the receiver.
https://drive.google.com/open?id=1QaDO5CxqM_dChm-AjxM4Q3tm1mE01cyz	direct	image whatsapp camera	travel	information	friends		confirmation of holiday booking	a hurried poor quality phone camera photo of the laptop screen as the booking confirmation only needs to be notified, not the actaul flight details.
https://drive.google.com/open?id=1fM3yoVMvZoo9ywd0dw-kdajJ5AlbYLSy	group	image whatsapp camera	professional	updates	teammate	manager	status update on day's work	field work status given through multiple photos by EOD everyday
https://drive.google.com/open?id=1QWPCHW5vsrApfq1VIM57wGzZfaDLr2r8	direct	image whatsapp camera + text	business	information	colleagues		product availability check	product code noted down on paper is sent as image. Typed the same again to avoid misreading handwritten alphanumericals.
https://drive.google.com/open?id=1tKNVRIvon5bx-eK3IcxD3LQOB_x-DrGl	direct	link amazon	e-retail	information	daughter	father	product suggestion	sent the link but father did not click on the link and see the actual amazon page.
https://drive.google.com/open?id=1aGmCOBd7yleHlYVWFuZVQBfu7WRD2C6T	group	link article	travel	information	friends		flight ticket concession based on age	the text accompanying the link gives a gist of the entire article. Link forwarded to the younger members of the family who usually book tickets for the senior citizens at home .

URL	group	type	category	subcategory	role 1	role 2	note	description
https://drive.google.com/open?id=1Lmj5e_hiPdv7B5gddz_ArJsPOojxajIQ	group	link blog	academics	knowledge sharing	batchmates		blog with reference to a context of discussion in the group	star the message here for future reads.
https://drive.google.com/open?id=1wC0ybfD3vjQVg7PnOfSuiUb_xZbk29BT	group	link blogs	academics	information	coordinatory	batchmates	final result of placed candidates in different companies	the placement cell announces the names of placed candidates for each company through separate blogposts.
https://drive.google.com/open?id=1wGi0-lRcD5DKZyp-DmZZRjRA8ZvMN-kx	group	link facebook + text	academics	knowledge sharing	friends		new page on facebook	text accompanying the link explains the purpose of the page, acting as a trigger for the reader to click on the link and visit the page.
https://drive.google.com/open?id=1gAvMxsmLkMy_Q1Q-U3G6oWrHEDY5M1vg	group	link flickr	personal	publicity	photographer	friends	new account on flickr	trying to get more followers by posting same link in multiple whatsapp groups.
https://drive.google.com/open?id=1lMYCBJ8gLVv680hAweZ-1zBZV15wHpCy	group	link google docs	academics	event	batchmates		information gethering for a student-run event	list typed out separately in google docs and making it an editable shareable link to further contribute data in the same doc.
https://drive.google.com/open?id=1VQoTO_0N8g-eL5Tj8Ml4OuclFOHllMis	group	link google docs	academics	event	coordinator	batchmates	preference check before deadline	the direct share option from google docs comes with the accompanying introduction to context .
https://drive.google.com/open?id=1zqeASrwbWccz8B109xn6X_0sl_T70lO_	group	link google docs	academics	information	coordinator	batchmates	reminder for a task given earlier	using reply option to specific messages ensures the user is reminded of a task and doesn't have to go looking for the corresponding link in previous messages.
https://drive.google.com/open?id=1HIyzcGe8UFjwZNoqDrhS7nKMeiPFLOnY	group	link google docs	academics	information	coordinator	team members	call for updating a list	open doc available to choose preferences easily
https://drive.google.com/open?id=15Ow1kYKSa80OPGit3sGDJU5vEc_LnGJo	group	link google form	travel	information	coordinator	group members	form to collect interested members' details	google form inputs generate an xl sheet for the coordinator to get member information and plan trip accordingly.
https://drive.google.com/open?id=1qmDwB-Fv4SobJDca3WyWdDbGvgBbyGDa	group	link google maps	travel	information	coordinator	batchmates	route and destination information	map better than verbal/textual directions.
https://drive.google.com/open?id=1BDrZMMKqt86jVnz3qzqemLq6kFA1sZP0	group	link google maps	travel	information	family		destination infomration	sending out location to all guests so that they aren't late for the ceremony.
https://drive.google.com/open?id=1omkoaIGknkI_horXG2zLDHRc8iD1Wudv	group	link google maps	travel	information	coordinatory	volunteers	volunteer tasks for the day	all travel groups' info is given in a single message, so that one group can refer to the other group's task too.
https://drive.google.com/open?id=1X-tbrDR1jW1bS35HOLx8zZrzKjhh5Oih	group	link google maps	business	information	house broker	client	apartments availability	group of friends searching for accomodation options get inputs from a common broker based on their location preferences and budget

link	type	platform	category	info type	relationship (from)	relationship (to)	topic	description
https://drive.google.com/open?id=1Skxa81WExLqbl8NMkcLPIfDq2eECJfG2	group	link google play	personal	information	friends		app suggestion	instead of giving the app's name, the link to the app on google play is given, so that user doesn't download another similar app by mistake
https://drive.google.com/open?id=1MvglT4HoO9VG0OPwbEQSHhyYmRFtOdiu	direct	link jabong	e-retail	information	siblings		product suggestion	only link is needed. User knows to access ecommerce sites pretty well.
https://drive.google.com/open?id=1H6HvWh4jrwb4s2WMYcgP5EiXes05BrWv	group	link news	personal	information	colleagues		news regarding their school practices	sharing such information leads to nice staffroom conversations in person too.
https://drive.google.com/open?id=16u1pnqRdyHnSZAHxIEVc65luJ_dx6NvR	direct	link spotify	personal	social	friends		playlist of a specific singer	spotify share option is used to directly send a liked playlist to one/many people.
https://drive.google.com/open?id=1Mu7PvJMYha-XWL39CbTxN6AjN5c2CZaz	direct	link tickets	travel	information	trek organiser	previous trekkers	details of new treks	coordinator has contact details of members from one trek; keeps forwarding details of upcoming treks to the individuals hoping they might join again.
https://drive.google.com/open?id=1_Wbfc8xDeNfNoJYOqfT-HZ2UZDsdBC5g	group	link twitter	academics	event	coordinator	volunteers	twitter post announcing finalists	results are announced on multiple social media platform, and the same are shared with volunteers, to be forwarded to alloted participants, thus to boost footfall on the event's social media pages too.
https://drive.google.com/open?id=1VVaGq_YVJm8Bgwb-tZnlFEqK-xyRKczr	group	link website	professional	information	principal	teachers	e-certification for teachers	prize money mentioned in the description itself to put the reward mechanism out for motivation.
https://drive.google.com/open?id=1IYjfSN-oQl-pyv5u8-Q2hXK17C1oqKT8	direct	link website	e-retail	information	siblings		discount options	marketing strategy of companies where freebies are given to a few of the people who share the discount link from their website to atleast n number of people.
https://drive.google.com/open?id=1iJHhdYTwT2MDtP_ybY-EYixwlfdWALnY	group	link website	academics	information	coordinatory	batchmates	instructions specific to each company's interview agenda	common link that is starred in the group for easy access, as this link has various other important links within its homepage.
https://drive.google.com/open?id=1zA5ky4r3EQMfGWh-rZiwVD5jJcmgCPJX	group	link website	academics	information	friends		online practice tests	virtual study groups are formed with people working across different companies but preparing for the same entrance exams for higher studies.
https://drive.google.com/open?id=1kEuPtDHgTNoNtC8vDEyGcc2Hsz-BihYn	group	link website	academics	information	coordinator	volunteers	introduction to the invited lunch guests	the work profiles of the invited guests are shared right before the meet-up so that people have a context to initiate small talk over food or decide on which guest to interact with more based on own area of interest.

URL	group	medium	domain	purpose	from	to	subject	description
https://drive.google.com/open?id=1vL30Puqe9IidGvqRd_hL_kml4bW-82gy	group	link website	academics	knowledge sharing	colleagues		sample question papers	KVS whatsapp group with teachers from multiple KVs share sample papers for mock tests to help prepare students better for board exams. These teachers then share the same with their respective KV group.
https://drive.google.com/open?id=17eytUbAuW6aSyW6YiptHlM9VyUA5VT_i	group	link website	professional	information	family members		job opportunities	forwards that are sent hoping someone might benefit out of the info.
https://drive.google.com/open?id=1Y5OBQi2rLAjS4ODc4TFwRuD8LQ9cIqDG	group	link website	academics	knowledge sharing	batchmates		good online learning resource	sharing with batchmates when coming across good learning content online
https://drive.google.com/open?id=1udSP5FCBaSeR4PzP7c4EN2RCzERnrsRe	group	link whatsapp	professional	invitation	group admin	group members	invitation to join a whatsapp group	easier to handle work at events if volunteers are in another whatsapp group based on the tasks they are divided into. This helps to maintain the main event group only for common info, and not spamming it with minor tasks.
https://drive.google.com/open?id=1yARC-VK6COG4SJILSA04Me3pQ0hYgvYN	group	link wordpress	personal	invitation	bride and groom	group members	common wedding invite	when bride and groom are from the same friends circle, digital invitation to just let the other friends know the wedding details is shared on the common whatsapp group instead of sending formal individual invites.
https://drive.google.com/open?id=1Xb6QzmZQeR0vjsGBYY7MMU_nrR9tuHWX	group	link youtube	academics	publicity	student	group members	publicity to visit stall at tech fest	youtube trailer sent to all whatsapp groups that the student is a part of, to invite as many people as possible to his stall at tech fest
https://drive.google.com/open?id=1pgRmp2xQxHL-fv8wd0RNCxLC_oDYHhKI	group	link youtube	personal	social	colleagues		music videos	sharing a family member's talent with colleagues. Many appreciate the same, some seem to get annoyed with the irrelevance.
https://drive.google.com/open?id=15zEoiDrd3-UWONVhwfKrhfYtg1F9Oyhh	group	link youtube	academics	information	batchmates		campus based news	campus related controversial news shared to start a discussion on the same within the group.
https://drive.google.com/open?id=1tldOZxY6tfjVRIQArqFXlWd6J4C2MmG3	group	location	personal	information	friends		option for housing	easier to look up the nature of a house's locality through maps.
https://drive.google.com/open?id=1yp22dhGeyMfa9ver9HDFWKvJiaeIzXY2	group	location	travel	updates	friends		location update of one sub-group in a trekking group	keeping everyone in the group informed about their whereabouts and asking others to do the same at regular intervals.
https://drive.google.com/open?id=1N6feCjQx_xaJKiJhzerDu1LF7UTK5f6f	group	location	travel	updates	friends		location update of another sub-group in a trekking group	keeps a check on the safety and location of multiple sub-groups within a larger team of trekkers.
https://drive.google.com/open?id=1PAitq5I5CeYnS2Ch9p2upTiMqNJTyFfF	group	share google keep	academics	event	batchmates		information gethering for a student-run event	Google Keep app used to collect options, share button directly used form the app, instead of taking multiple screenshots.

https://drive.google.com/open?id=1Q3D4NI_vE5dO-WVF6b-fNMcI24f3OfAl	anyone in contact list can see	status FB link	professional	publicity	dancers	contact list	suggestions for host performance	each dance team member sharing the fb link as whatsapp story for a wider reach and better repsonse.
https://drive.google.com/open?id=17lZcDXOYt14eS4illhCv0rQu7e3MhIdt	anyone in contact list can see	status text	business	publicity	designer	contact list	sale announcement	just mentions the sale and does not give out enough information about the sale, so people DM her and better customised communication happens.
https://drive.google.com/open?id=1OzljhRnnsd5m6F4_F0lIVQr3jmbl3QV5	anyone in contact list can see	status bookmyshow link	professional	booking	theatre artist	contact list	link to the event details and ticket portal	last day sale of tickets for which all the event members put up swhatsapp stories to ensure a housefull show.
https://drive.google.com/open?id=1EtcmHRC-uFYKpfIkHJ4br4WzqVpVf2dQ	anyone in contact list can see	status image	business	publicity	tailor	contact list	new saree and blouse designs	sharing images of multiple sets of sarees and blouses everyday to promote new work.
https://drive.google.com/open?id=18uw_F5QkKpzEnXQK7f_Akft_jFIjD4jZ	anyone in contact list can see	status image	travel	publicity	trek coordinator	contact list	image of the trek location	puts up beautiful trek location images as whatsapp story paralle to sending direct messages about the trek details to previous trek members.
https://drive.google.com/open?id=1l2ownj7C1QTVZg-VRXVog24579tX7AjI	anyone in contact list can see	status medium link	personal	social	blogger	contact list	medium post of a story	increasing footfall on his medium post by sharing the Medium link as whatsapp story a couple of days after posting the article.
https://drive.google.com/open?id=1n0IjUbJ5eRoS1KmVVwkt12C9BB46CVFZ	anyone in contact list can see	status poster image	personal	publicity	organiser	contact list	potpourri event poster	event details mentioned in a simple digital poster.
https://drive.google.com/open?id=1ChZkxDRaELGBMZ3oYMm2fJzh3UsiPXu-	anyone in contact list can see	status poster image	professional	publicity	event organisers	contact list	poster for a new podcast	creating curiosity and hype for a new podcast.
https://drive.google.com/open?id=1rVtDiQKnucpPhMjVZo73duTr2b_Y2FiT	anyone in contact list can see	status poster image	academics	information	registered member	contact list	poster for a paid session/course	an alredy registered member shares a poster downloaded from the corresponding website, hoping that her friends might also regsiter.
https://drive.google.com/open?id=1AwvHqEzHnzGYca2REyN-iNqkEHJTm0z7	anyone in contact list can see	status poster image	business	publicity	restaurant owner	contact list	publicity poster	different sets of 'coming soon' posters posted everyday for a week before the grand opening of the restaurant.
https://drive.google.com/open?id=1baRDNjbU_Ju1EG-AlaAlHihZNX52RScJ	anyone in contact list can see	status poster image	personal	event	NGO supporter	contact list	bicycling event to visit children at an NGO	small event, so the organiser just limits event information to whatsapp story, so that a handful of close friends/family only turn up for the same.
https://drive.google.com/open?id=1_0ksE7D8ywPXBrVC_4vzlIpYWN8D2Y2L	anyone in contact list can see	status screenshot	business	publicity	accessory designer	contact list	client feedback	screenshot of multiple clients' feedback through whatsapp DM to publicise own brand.
https://drive.google.com/open?id=1ZhdWwchx3rqi9YHEzAUnHlRuxx6xVR5W	anyone in contact list can see	status video	business	publicity	restaurant owner	contact list	promotional video of the franchise	a peek into the menu highlights of the new restaurant to hype up its grand opening.

https://drive.google.com/open?id=1l3rMGarF26QO4dGvPXcRnFjZKzYy17Dr	group	text	academic	information	coordinator	team members	cost for multiple things for an informal gathering	coordinator found it handy to write down names and numbers every now and then in a pocket diary and then type it all out as text message finally, instead of using digital means, say a common google sheet to keep track of expenses.
https://drive.google.com/open?id=1mO5WaJB-CpWnIuy0prVEBlRZS8wCfTBx	direct	text	business	booking	bookmyshow	client	ticket purchase confirmation	bookmyshow sends a message first, giving option to stop/disable their whatsapp communication.
https://drive.google.com/open?id=1WD9MedV6KdCLtLMZwxeuGqBKwRAPdzul	direct	text	personal	information	couchsurfing host	couch surfer	contact details	types out contact numbers, instead of sharing the contact card dircetly through whatsapp. remembers the number by-heart, hence found it easier to quickly type it out.
https://drive.google.com/open?id=1GK4525OEN7b7JVtnSR1Zshv5h_QVdKQ8	group	text	academic	information	coordinator	volunteers	task and contact details	each contact number is typed out in a single list next to the name of the person assigned a particular task. Quick call access by single click on one number, if another is not responding.
https://drive.google.com/open?id=1XSS8VveHWE_n9nsqTYupLc7_Q08uLrAA	group	text	professional	information	organiser	friends	course details	organiser posts details about her course in generic groups, asking people to forward the same.
https://drive.google.com/open?id=1u_FZZzzoYjBLlry5RptEnTmz6dCelUAp	group	text	academics	event	batchmates		information gethering for a student-run event	typed out names as and when someone read them out loud from a whiteboard.
https://drive.google.com/open?id=1J1RVVEZR1XIp3K6XzOvFbFNrEw7_V_LH	group	text	personal	information	parents with special kids		information on therapy event	parents got acquainted through school, special events and clinics; formed a common whatsapp group. Share information that might help their kids.
https://drive.google.com/open?id=1Fv3__6Cz6poTcs0uNGn-Wp5u7d4j0Lzh	direct	text	business	invitation	whole sale dealer	previous customers	invite to his stall at a photo fair	inviting old customers to check out new products and technology., hoping to get new contracts.
https://drive.google.com/open?id=10wAIoYO-qy2qo1rq5q_IC56pP1tyU9gJ	direct	text	travel	information	goibibo	client	web checkin option on whatsapp	goibibo explains web check-in using color based emoticons on whatsapp and asks user to make a choice directly thru text.
https://drive.google.com/open?id=1c-T6hY9ahD-ocl7UILu4PCu2qLVkTiQ6	direct	text	travel	information	client	goibibo	web checkin for flight	the traveler can simply reply to this message with the choice of seat number, instead of going thru the actual online web check-in process.
https://drive.google.com/open?id=1bwMbmpDd1rCs7gpQeh8WYLi9L2pwAYF8	group	text	academics	information	coordinator	volunteers	venue, date and time for volunteers	typed in bold because information is important and shouldn't be lost in the sea of other task related messages in the group.
https://drive.google.com/open?id=12MzROIMo2lPsUEJWXOpiwn0BMHr5qJpe	group	text	professional	information	staff-in-charge	staff members	notice	types out the contents of a printed notice on whatsapp group to ensure that info has reached everyone, by checking who has viewed the instructions, using the 'delivered & seen' whatsapp feature.

https://drive.google.com/open?id=1_3PCtyUGCumO8FO_wpb4ShSLVcEVOJo	direct	text	travel	information	trek organiser	trekkers	short itinerary	forms a group of the members in the current trek and shares itinerary. Also sends direct message to each trekker in case they miss out the information in the group
https://drive.google.com/open?id=1qNRmhBMcudoolCjOzxBB6CSYJpa8IT4U	group	text	professional	information	HR	other HR members	job opening details	HR from one region shares details of job opportunities that require immediate action, to HR professionals of the same company in different regions, for easier allocation of resources.
https://drive.google.com/open?id=1IsMUUKaSW5bHQIFjiOMA1QiEOLkGQCMR	direct	text	professional	information	colleagues		HR details to get a task done	copies and pastes the content of a mail as text, so that the receiver can call/mail the said HR by just clicking on the phone number or mail ID.
https://drive.google.com/open?id=1HEOAqMa6l8W1GgRHO2vN-8cuaCYNfPpl	group	text	professional	information	team lead	team mates	call for important session	repeating mail content on whatsapp group to ensure that no one misses the session by giving the excuse that they didn't see the mail.
https://drive.google.com/open?id=1r3UyHWTNiLxDoaWZhmbMPcP0Eqp3XD-I	direct	text	professional	updates	dealer	manager	delivery update	dealer confirms delivery options by checking with the manager by text for immediate response; then ensures correct order placement. Might get confused with information over call, hence texts to double check when required.
https://drive.google.com/open?id=1Mjup-o51mtT7AIhmrJOmGgHCiExeTRG1	direct	text	professional	information	organiser	event manager	mail ID	after negotiating over phone call, sharing mail ID to keep things official and on loop.
https://drive.google.com/open?id=1ynVKgTzx8dc_2IdKppcFwnk7o6o1TphC	group	text	personal	updates	society president	gated community members	response to mail	keeping other members of the community in loop over a common issue that has been followed up by mail.
https://drive.google.com/open?id=1HvUcEDJmNUb9t_YEkOV6SBXuUkLqK0yl	group	text	personal	updates	gated community members		maintenance issues	members give updates on maintenance and other community related issues. Multiple concerns on the same issue gets escalated and resolved real quick.
https://drive.google.com/open?id=1OfzpaEn8O_Iz8xA-uoJAx-wwju6bDDbG	group	text	academics	information	parents of children in the same class		all class related information	parents discuss and keep a check on day-to-day school activities of their children through a common whatsapp group.
https://drive.google.com/open?id=1OE1xnR3QRllymQ75nelEoBFbTkH3YT5B	direct	text	professional	information	colleagues		username and password	shouldn't share such information, nevertheless most colleagues seem to do so to take help for easier completion of certain tasks.
https://drive.google.com/open?id=1eg2NAJXHlqed8h9mTORozYelGkGkluYL	direct	text	travel	booking	son	parent	ticket confirmation	son books tickets for parent online and copies the seating details text message from IRCTC to whatsapp chat; parent doesn't print the ticket anymore.

6. SOME INSIGHTS

Certain important messages get lost in the sea of messages that show up in whatsapp groups. Delivered and Seen/Read options in groups don't always serve the purpose as group members sometimes open the group messages late and scroll through to the end, skipping many/all messages. To avoid this, the information is copy-pasted to indiviual chats.
Broadcast Message feature is used for easy bulk messaging if there are too many members.
Important message is typed in all caps or formatted as *bold* text to catch attention while scrolling through messages.
Long message are sent in a single dialogue box instead of typing out chunks of the same so that they are easy to find on scrolling back later.
Members are asked to use Starred Messages feature for future references.
Sender can also scroll back and use Reply option on the said important message so that it is shown as the most recent text; clicking on it takes any user back to the actual thread in context.

Voice recorder is preferred by sender instead of having to type long comprehensive text messages. On the other hand, receiver may not always have a earphone handy or be in an environment where the audio can be played.

Images shared can be screenshots, images saved in phone media gallery, or the ones captured directly using whatapp's in-built camera feature. It's good to be able to accompany each image with a text caption to provide context. But the same caption doesn't get forwarded when the images are forwarded to other people/groups. So images and supporting text are sent separately in case they are meant to be forwarded.

Link or Screenshot option is used based on the receiver.
Information can be directly shared as links from various apps like Amazon and Flipkart (e-retail), Spotify and Saavn (music), Behance and Medium (websites), Youtube and Netflix (entertainment sites), all Google apps (drive, maps, play, docs, sheets, keep, photos etc), Inshorts and NDTV (news), Facebook and Twitter (social media) etc.
If unsure that the receiver may not open the link and consume the information, as is the case of most elderly, novice and intermediate users, screenshot or downloaded audio/image/video of the said content is shared. This also ensures that the content is automatically saved for future references in the media gallery.

A live location pin is sent directly if one is unsure about or too lazy to type out an address for a route to be followed.

Both digital and camera images of hard copies of documents are shared on Whatsapp. Sometimes the camera image of a document is not clear and hence information is not shared successfully. Scanner apps on mobile phones might be used in such cases on the image if hardcopy of the document cannot be scanned in real-time.

Status updates serve as good publicity medium as audio, video, image and link can be shared as status for 24 hours. All Whatsapp sharing features are exploited to the maximum for publicity when the same content is shared as direct message, as forwards in multiple groups irrespective of relevance, and used in display pictures and status messages. The receivers are bound to come across the said content one way or the other.
Same information can also be shared using all these features, but in different modes, say, image as display picture, video as status update, link as individual messages and screenshots as group messages. Status feature also lets the sender know who has viewed the content, along with the timestamp.

Use of text and image varies based on context.
Certain information like mail ID or contact number is specifically shared as text message for one tap call and mail options. RSVP is easy over text/ broadcast messages as long press on the time and date can sync them to Google calendar.

Certain content is copy-pasted from the actual source (mail/website) and typed as text message to make the work easier for the receiver if parts of the content are to be edited and used/forwarded; else screenshots of the said content or link of the entire page is shared in a couple of clicks. Informaiton sent as images also serve as e-invites or e-cards which are saved in the gallery and can be accessed or forwarded anytime. JPG invites are sometimes preferred to PDF or wordpress links as the image content is clealry seen on the screen even without clicking on the shared information to open it.

Some important/ confidential information like bank account numbers or secret codes/passwords are saved as Contact Cards with reference or context known only to the sender and shared directly using the Contact feature on Whatsapp when needed.

Ticket booking apps use different methods to share information. Goibibo lets user do web check-in through Whatsapp message by giving seat availablity information using color based emoticons. Redbus shares cotact numbers for boarding points and also location updates of the bus using google maps pins in case of delay. Bookmyshow sends pdf containing the ticket as QR code which can be directly scanned at the venue hall entrance.

7. CONCLUSION

The study involved analyses of about 127 use cases shared as screenshots by 53 digitaly literate active Whatsapp users. Various Whatsapp features used while sending and receiving files were discussed. Initial use cases were made based on information obtained through semi-structured interviews with the participants. This also lead to a discussion of scenarios before and after the emergence of Whatsapp. The data collected using screenshots helped to analyse how users approprite Whatsapp features for convenience while sharing files under different circumstances. This understanding can be put to use while designing new features for similar information sharing scenarios.