Analysis of Facebook Messenger

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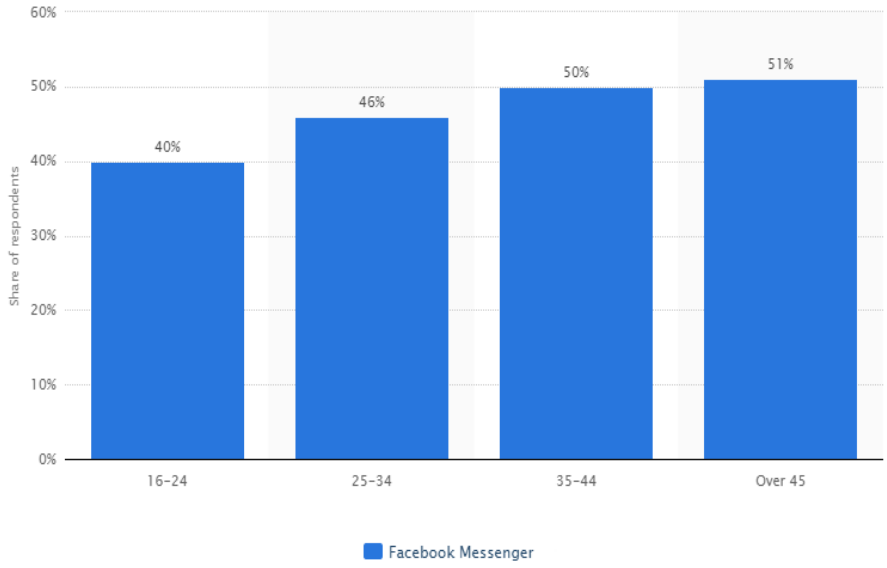
1. Introduction

Facebook Messenger was introduced on August 9th, 2011 as a standalone messaging application. Facebook Messenger separated itself from the rest of the Facebook platform, focusing solely on the chat functionality. Initially released on iOS and Android devices, an update on October 11th, 2011 brought the app to Blackberry devices. Windows Phone 8 later received the app on March 5th, 2014 with a few features missing from the iOS and Android versions. There was development on a desktop application, however it was discontinued as of March 3rd, 2014.[1] Users can use facebook.com to chat over desktop devices, however Facebook recently introduced messenger.com on April 8th, 2015 as an alternative to using the main Facebook website.[2] Despite this release, the chat functionality is still available on the main website, unlike the mobile apps. In April 2014, Facebook removed the chat functionality in the Facebook app and forced users to download the messenger app if they wished to chat with their friends. Facebook Messenger currently has over 700 million users[3] and according to a survey done in 2013, it is spread quite evenly over all age groups sixteen and older.[4]



2. Features

Facebook messenger released with only a few basic features, and has since been continually updating and adding more functionality.

2.1 Group Chat

Group chat was released with Facebook Messenger, allowing groups of friends to communicate with each other to organize events, discuss news, or just catch up with each other. No single person can have moderator powers. Anybody in a group chat can add a friend, remove others, or just leave themselves. The group chat can be given its own name and photo to reflect the group it represents. Group chat supports up to 150 people in any given chat room.

2.2 Video Chat

One of the more recent features added to Facebook Messenger was video calling. On April 27th, 2015, Facebook introduced this feature to allow users to call their friends and speak face to face with full audio and video support. This functionality first launched in only 18 countries, including Canada and the United States.

2.3 Stickers

Stickers are detailed illustrations of characters that can be used to reflect a user's emotion. They are not as limited as emoticons or emoji are. Instead of being a small smiley face or icon that can be inserted inline with text, stickers are meant to be sent on their own, and are much larger and detailed than an emoticon. In some cases, stickers come with an animation to further the experience. Facebook added stickers to messenger, as well as a "Sticker Store" in which users could pick and download various "sets" of stickers, usually focusing on a specific character. Despite being called a "store", Facebook has yet to monetize stickers like some other IM services, however the intention may still exist, as there is a space under each set of stickers marking them as "free".

2.4 File Sharing

Facebook Messenger allows the transfer of files between users. While it doesn't quite have the same functionality of something like Dropbox or Google Drive, sending a file to a friend can be as easy as dragging and dropping a file into a chat window. Photos and video can be captured and sent directly from the application, making catching important moments quick and easy.

2.5 Location Sharing

One of the more controversial features to be added to Facebook Messenger was locational services. The controversy did not come from the feature itself, but rather the fact that it was enabled by default, and sending your location with each message sent.

2.6 Money Transfer

Another more recent update on March 17th, 2015 allows users to send money to each other using the Facebook Messenger app. The functionality is restricted to only the United States however. Users can add their credit card information to the application and are provided with the functionality of free payments to friends. By doing this, Facebook is taking a stab at dedicated money transfer services such as PayPal and Google Wallet.

2.7 Chat Heads

Chat heads give Facebook Messenger much more of a presence on you phone. Each "active" conversation a user is a part of is turned into a stack of "bubbles" on the side of the screen that when clicked on, open that conversation up. These bubbles can be moved around to any edge the user wishes by simply dragging and dropping. Possibly the biggest feature of chat heads however, is that they will float over most other applications, as well as the phone's home screen. Some users view this as intrusive, but luckily the option is given to disable them.

3. Technologies

Since Facebook was built on a scalable platform that had already launched to hundreds of millions of users, certain assumptions and design decisions didn't always mesh well with the product they wanted to build. One of the largest problems they had was the latency of messages being sent and delivered taking multiple seconds. To solve this, they decided that they needed a persistent connection to their servers. Normally, doing something like that to a mobile device would kill battery life but using a protocol called MQTT, they were able to knock down latency to well under a second. MQTT was designed for sending data to space probes, so it is designed to use battery and bandwidth sparingly. [5]

4. Use Cases

4.1 Creating a Chat Room

Main Flow

1. User selects the "New Message" icon
2. User is asked to input the name(s) of the members they wish to message with, along with a checklist of friends most commonly interacted with to make selection easier.
3. User taps on the text input box and enters their message.
4. User sends the message, and the group is automatically created with a default name of the group participants.

4.2 Video Chat

Main Flow:

1. User A selects a recent conversation or uses the "Creating a Chatroom" use case.
2. User A then pushes the "Call" icon located in the top right corner.
3. A connection between the two users is initiated and User B will be notified that User A is attempting to call them
4. User B selects the "answer call" option and the call is initiated.
5. Users are given the options of muting or hiding their camera.
6. Either User can hang up at any time to terminate the call.

Alternate Flows:

User B chooses to decline the call at step 4

a. The connection is terminated and User A is notified that the call was declined

The call times out due to User B not answering the call at step 4

a. The connection is terminated and User A is notified that the call could not be completed
b. User B is notified that they missed a call from User A

User A selects a group chatroom at step 1

a. User A is presented with a list of members in the group
b. User A must select a single member to call. Group calling is not supported

4.3 Sending a Photo or Video

Main Flow

1. User A selects a recent conversation or uses the “Creating a Chat Room” use case.
2. User A presses the media icon and selects the “take a photo” icon
3. The camera UI comes up with a live preview.
4. User A either clicks the capture button to take a picture, or holds it to take a video
5. User A is prompted with a confirmation that the picture/video they took is what they want to send
6. The picture/video is sent to the participants of the chat room.

Alternate Flows:

User wants to send a photo or video stored on their device after step 1

a. User A pressed the media icon and selects the “choose from library” icon
b. User A selects a photo or video stored on their device that they want to send
c. After confirmation, the picture or video is sent to the participants of the chat room.

User would like to retake the photo or video after step 4

a. User A denies the confirmation
b. return to step 3

4.4 Sending a File

Main Flow:

1. User A selects a recent conversation or uses the “Creating a Chat Room” use case.
2. User A clicks the “attachment” icon illustrated by a paperclip.
3. User A is presented with the files and folders on their system, and may select one to be sent
4. After confirmation of the selected file, it is sent to the participants of the chat room

5. Analysis

Facebook Messenger is considered one of the most successful messenger services in the current market, only falling short in number of users to WhatsApp (which is owned by Facebook). A large part of it’s success can be attributed to the popularity of Facebook itself. Because Facebook had such a large user base, there was no need for account creation for most people when they used the Messenger application since they already had one. You would think that Facebook would require a Facebook account in order to use Messenger, however they allow non-Facebook members to sign up with a phone number and provide the same functionality that Facebook users receive when using Messenger. Another major advantage is Messenger’s “Chat Heads” that keep the application active and connected, and allow the user to open the conversation from nearly any screen without having to switch apps. In terms of platforms, it’s hard to find one that you can’t access Facebook from to check your messages. iOS, Android, Blackberry, and even Windows phones all have dedicated Facebook messenger apps and the browser version can be accessed from any major browser.

Where Facebook Messenger falls short is possibly the lack of team-focused tools for collaboration. A shared file can quickly be lost in the sea of messages. There is no way to quickly get someone’s attention or relay an important message to the group if other members continue to send messages, and quickly creates a scrolling nightmare of trying to catch up and read everything. Facebook has become big on its “Tagging”

feature for a long time, yet somehow it hasn't found its way into the messenger application. It could possible take a few lessons from the Slack platform and vastly improve their messaging system with these features. Facebook is also very transparent when it comes to viewing messages. A blue outline of a circle with a blue checkmark will appear when a message is sent. The bubble will become solid blue with a white checkmark when the message has been delivered. There is also an indicator for when the user opens the message, automatically marking it "read". This comes as a bit of a controversial feature, as some users prefer not having Facebook tell the sender that they have read the message.

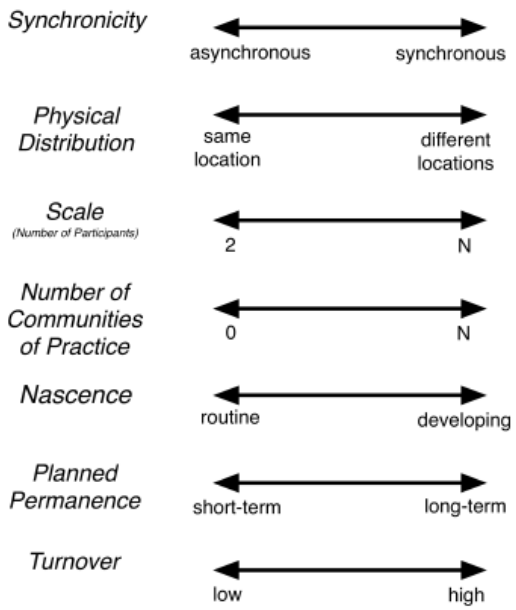


Figure 1: The Model of Coordinated Action (MoCA) and its seven dimensions with the end points of each continuum[6]

Synchronicity: While some features such as audio and video calling require the participating users to be online, the main messaging function of Facebook Messenger is asynchronous. A user can send a message to another user at any time, and it will be waiting for them when the receiving party opens the app. In fact, it is very transparent about this process, with indicators for when a message has been sent, when it has been delivered, and when it has been read.

Physical Distribution: It is used worldwide, and users can interact at any time from any location with internet or cellular service.

Scale: The scale of Facebook Messenger can technically be as low as 1, since messaging yourself is supported. You can message anybody who also uses the app, so long as you have them as a contact. As far as a single group conversation, up to 150 people can be present in a single chat room. With this said, audio and video calling is limited to only two users at any given time. Group audio and video calls are not supported

Communities of Practice: Groups or Teams can consist of any number (although limited to 150 / group) of users from any kind of specialty. This is why Facebook Messenger leans heavily to the right of this scale.

Nascence: Facebook Messenger has been updating with new features since its release. Notable additions it has seen since being introduced are stickers, gifs, and video calling.

Planned Permanence: Collaboration can be considered long term in Facebook Messenger. Messages are achieved, and there is no limit on message space.

Turnover: Many people have a Facebook account or at least a messenger account. At this point in time, the number of users is still growing quicker than it is falling and appears to have a very low turnover rate

6. Conclusion

Facebook Messenger is one of this generation's most popular and widely used messenger services, however it just simply isn't meant for productivity and teamwork. It is rich with features, however most do not add to productivity much. It is heavily geared towards social conversation, as made obvious by its lack of team features and it's abundance of silly, unproductive features such as stickers, gifs, and emoticons. With that said, Facebook Messenger makes it unbelievably easy to start a conversation with a friend or a group of friends in no time at all. Its UI is slick and very easy to understand and is also consistent from platform to platform. Chat Heads make it always seem like a priority by positioning bubbles containing conversations on the top of your screen for an easy way to quickly open a message and respond before going back to what you were doing. Facebook knows what it is doing when it comes to networking, so it has a very strong and reliable backend to ensure messages are sent and delivered in no time at all. Facebook Messenger is just easy to use for almost anyone and doesn't overload the user with options unless the user decides to start digging through them.

7. Sources

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