Read Receipts Feature in Mobile Platform: An Investigation Study Based on Social Tie Between the Sender and Receiver

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Read Receipts Feature in Mobile Platform:
An Investigation Study Based on Social Tie Between the Sender and Receiver

by

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Thesis submitted in partial fulfillment of the requirements for the degree of

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Rochester Institute of Technology
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of

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Abstract

Read receipts is a built-in feature in all mobile instant messaging applications. The number of mobile instant messaging applications users is steadily increasing as a result of increasing the number of smartphone owners. This study investigated people's desire of using the read receipts based on the nature of the relationship between the sender and receiver. The research classifies relationships as strong and weak ties. An online survey was conducted, in which the majority of the participants were Middle Eastern. The survey investigated two factors that affect people's desire of using the read receipts feature, the social tie with the sender or receiver, and their role in the messaging loop, as a sender or receiver.

The study found that people have the awareness of the existence of read receipts feature, but they might not know the purpose of it. The influence of the social tie factor was proven as well as the influence of the role in the messaging loop. The results show that people willing to receive the read receipts regardless the social ties. However, they don’t mind to send the read receipts to their strong social ties, but they seem more willing to use the feature freely in the romantic relationship more than the friendship. They are more welcome to receive the read receipts than send them to their close friends. In the weak social ties, the study doesn't answer the question of people's willingness to send the read receipts. The researcher considers the effect of the culture on people’s opinions, but because the gap between the numbers of the participants from the Middle East and the other regions, the study don’t have a valuable contribution to this aspect.
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Introduction

The technology has affected all aspects of life, even the way of communicating with people. The short messaging service (SMS), for example, is a method of communication after invented mobile phones. And after mobile phones developed to smartphones, the SMS also developed to mobile instant messaging applications.

This research focuses on read receipts feature in mobile instant messaging applications. The mobile instant messaging applications are a type of the mobile social media applications that use for texting, chatting, sharing photos and voice messages with an individual or group by using a phone number or username. Read receipts are a tool used by the mobile instant messaging applications to indicate the delivery of messages. This feature becomes one of the main features of mobile instant messaging applications, and it has an impact on people’s relationships and their attitudes.

The study focuses on two factors that affect on using the feature. The implications of social ties, strong or weak, could be different on usage, as well as the role in the messaging loop. The meaning of strong tie is any close relationship, for instance, close friends and spouse. And the weak tie is any distant relationship, like a distant friend or distant acquaintances. The study also considers the cultural difference and its influence on people’s opinions of using the read receipts.
Theoretical framework

As a new venue for relationship formation and communication, social networking sites (SNSs) have formed as one of the most popular of Internet communication media. SNSs have attracted numerous users around the globe.

Boyd and Ellison’s (2007) have defined them as web-based services that allow individuals to:

1. construct a public or semi-public profile within a bounded system,
2. articulate a list of other users with whom they share a connection,
and (3) view and traverse their list of connections and those made by others within the system (p. 211).

Mobile social networking (MSN) applications are the new version of SNSs that use through a range of mobile devices, such as smartphones and Tablets. The growth and the rise of smartphones have become a global phenomenon. According to Social Network Fact Sheet (2014), 40% of smartphone users access their social network accounts from smartphone’s applications rather than using websites. And 28% of them use these applications on a daily basis. In another aspect, WhatsApp CEO Jan Koum said that the application has hundreds of millions of users, and this number is more than twitter’s users, although the WhatsApp application is available only on smartphone (Somerville, 2013). Moreover, GSMArena Team (2011) reported that 53% of mobile users in North America used these applications (Most used, essential section). All these percentages show the attraction of mobile applications to gain the attention of mobile users. The
reason behind this shifting is that users want to communicate and use social networks services anytime and no matter where, and that is what the MSN applications provide.

**Mobile Instant Messaging (MIM)**

One of the MSN types is mobile instant messaging applications (MIM). The difference between the short message service (SMS) and MIM is that MIM is Internet-based mobile application such as WhatsApp, LINE, Kik, iMessage, Facebook Messenger, ChatOn, telegram and BBM, etc. The Internet-based refers to the requirement of Internet connection to send or receive messages over the Wi-Fi or mobile data. These applications are used increasingly, see Figure 1, and the users number reached to 616 millions as of third quarter 2014 (GlobalWebIndex, 2014).

Users of these applications tend to expect responses to their messages within few minutes. In 2013, Reynolds, Smith, Birnholtz, and Hancock found that the expectations come from cues that these applications use to share the user’s availability status (pp. 769-778). These cues are a built-in feature in the applications, such as “last-seen” in
WhatsApp, “last-X-hours” in Facebook messenger, and read receipts in most of MIM applications. The last-seen is the time that the user had last opened the application, referring as an automatic approximation of availability, and the last-X-hours in Facebook messenger serves the same concept (see Figures 2 and 3).

![Figure 2: Last seen in WhatsApp](image1)

![Figure 3: “last-X-hours” in Facebook Messenger](image2)

**Read Receipts Feature**

The read receipts are cues or indicators for monitoring the message delivery to intended recipient. The read receipts present different indicators synchronizing with the message status next to or under the message (see Figures 4 and 5). There are three levels of read receipts indicating the message status, for example, in WhatsApp, one gray check mark means message successfully sent, two gray check marks mean the message successfully delivered to the recipient's phone and two blue check marks mean the recipient has read the message (“What are those check,” n.d.). The other MIM applications use the same
concept of message status but in another form of indicators such as letters or words. Also, the read receipts in some applications include the time and date of delivering and reading the message (see Figures 6 and 7).

Figure 4: Blue double checks in WhatsApp

Figure 5: “Seen” in Facebook Messenger

Figure 6: A read receipt in WhatsApp

Figure 7: A read receipt in Facebook Messenger
The concept of read receipts is not a new, as it started in the regular mail under the name of Return Receipt. According to Johnston (2013), “Upon delivering a letter or package, the postal worker would return to the sender with a piece of paper verifying the delivery.” Thenceforth, the feature appeared in email as Delivery Status Notifications (DSNs), and it is email notification indicates that the message has delivered, whether the receiver opened it or not. Then, the feature of Message Disposition Notifications (MDNs) rolled out, and it opened up a host of other options by allowing the sender to be notified whether the message was opened or deleted (Johnston, 2013).

Recently, the read receipts become a built-in feature in most of the MIM applications. Some of the applications give users the option of controlling the feature by turning it on or off. However, some other applications use the feature as always-on, such as the Facebook Messenger. And this non-availability of controlling drove people to find out a solution to disable the feature by using a browser’s extensions, for example, Facebook Unseen in Google Chrome or an external application like Unseen Facebook application (D’onfro, 2014). However, these tools are on a desktop platform, and they are not available on a phone platform, thus, there is no way to disable the read receipts in the mobile Facebook Messenger.

Studies have shown that read receipts create a social pressure to respond to the message immediately (Church & de Oliveira, 2013; Pielot, de Oliveira, Kwak & Oliver, 2014). Research by Tyler and Tang (2003) found that “expectations for quick responses reflected a high level of knowledge about the recipient’s availability”, and that comes when the read receipts indicate that messages were opened. In addition, the study found out that one of the behaviors to avoid the auto-send a read receipt is avoiding open the
message until having a replay prepared (Tyler and Tang, 2003, pp. 239-258). This lack of control of what information others have of your activities can be frustrating and create privacy concerns.

In a situation, when your close friend or spouse send you a message and for some reason you don’t reply but your friend or spouse got a read receipt for the message. In this situation, the read receipts leave them with questions and worry about the reasons behind the non-responding. He or she would think that you ignore them because you are mad at them, or something bad had happened to you and any other unwanted imaginations. In the part of the interaction, these receipts force recipients to interact and respond while no one should feel that (McDonald, 2013).

In contrast, sometimes read receipts can be an excellent tool. In SMS, we can’t know if the message had arrived or not, or even had gone through. And if we have sent more than a message at the same time, we would not know in which order they might have arrived. But the read receipts fix these issues. However, the comfort level between people to share the information that the read receipts provide could be different. “But that level of comfort seems reserved for close relationships; in most other cases, it can create unwanted social pressure” (Johnston, 2013). Also, another benefit of read receipts according to Lende (2013), is being honest when need to ignore someone. However, ignoring a message is a harsh reaction and under some circumstances it could cause divorce, like the Saudi man who asked for a divorce because his wife ignored his WhatsApp messages (Harding, 2014).
The read receipts in some cases seem useful. For example, don’t need to re-send a message when the recipient has not read the first one as the receipt indicates, and they insure the delivery of important messages. In another case when the recipient needs to replay to a message that only contain a confirmation to a meeting time, the read receipts will save time from send this kind of messages and tell the sender that the message has read (Lende, 2013).

**Social Ties**

Many researchers have studied the technology impact on different types of relationships and social ties, such as the relations in couplehood, parenthood, workplaces and among family members. There are many types of relationships but according to classic research by Granovetter (1973), two types are considered as main types of social ties: strong and weak (pp. 1360–1380). Strong ties refer to the social distance of a close relationship such as close friends, spouse or romantic partner who communicate and interact frequently. Weak ties, in contrast, are the relationships with acquaintances who interact fairly infrequently. That could involve the friends and relatives who are not close and don't see one another often but they keep in touch (Cho & Hung, 2015, pp. 544-569).

**Cultural Difference**

In cross-cultural research, the individualism and collectivism are a description of societies culture. Talukder and Yeow (2007) have identified individualism and collectivism as the most cultural dimension related to social ties (pp. 82-90). A study by Jackson and Wang (2013) has shown that cultural differences between individualism and collectivism have different impacts on societies, motivations and usage (pp. 910-921).
People in collectivist culture are more dependent on each other and their groups, unlike individualist cultures, who are more independent from their group (Triandis, 2001, pp. 907-924). The researcher believes that differences between these two different societies would be an influence on people using technology and their satisfaction with it.

The Purpose of Study

This research aims to investigate the relation between the social ties and people's desire of using read receipts. In particular, I study how the factor of social ties, weak or strong, could impact varying opinions of using read receipts. The study investigates some supporting questions, such as the level of awareness people have of the existence of the feature. Additionally, because culture is likely to be an important variable, study subjects were screened to investigate culture. These goals are significant since the usage of mobile instant messaging applications have been increased, and they have the read receipts feature built-in, and in some case, with no control to turn the feature off.

Hypotheses

This research studies the effect of social ties on people's desire from using the read receipts feature in mobile instant messaging applications. The social ties have been divided into strong and weak ties. The strong tie is operationalized as two types of relationship: a close friend and romantic partner. (Although both relationships are considered a strong tie, the researcher prefers to analyze them separately because the different nature of the romantic relationship from the friendship.) In contrast, the weak tie includes distant acquaintances. Since the read receipts behave like messages with two directions, send and receive, the researcher believes that will cause differences in
people’s opinions if they are senders or receivers. Thus, this study proposes the following hypotheses:

$H_{1a}$: People who have strong social ties with their close friends want to receive read receipts when they send messages in mobile instant messaging application.

$H_{1b}$: People who have strong social ties with their close friends want to send read receipts when they receive messages in mobile instant messaging application.

$H_{2a}$: People who have a strong social tie with their romantic partner want to receive read receipts when they send messages in mobile instant messaging application.

$H_{2b}$: People who have a strong social tie with their romantic partner want to send read receipts when they receive messages in mobile instant messaging application.

$H_{3a}$: People who have weak social ties with their distant acquaintances want to receive read receipts when they send messages in mobile instant messaging application.

$H_{3b}$: People who have weak social ties with their distant acquaintances want to send read receipts when they receive messages in mobile instant messaging application.

**Research Methodology**

**Sample and procedure**

To examine people’s usage of read receipts, the researcher conducted an online survey that posted on Facebook and sent as broadcast messages in WhatsApp. Also, the participants who received it via WhatsApp shared it with their contacts. The survey has three demographic questions about the general cultural region, gender, and age. The researcher used these variables to investigate if one of these factors might have an influence on people’s opinion and their responses.
Data Collection and Analysis

The survey was distributed via WhatsApp application and Facebook. The total number of responses is 811, divided into six different regions. According to the Table 1 below, the number of participants from Middle East region is the highest comparing with the other regions.

<table>
<thead>
<tr>
<th>General region</th>
<th>No. of respondents</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>South America</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Europe</td>
<td>14</td>
<td>1.7</td>
</tr>
<tr>
<td>Asia/Pacific Islands</td>
<td>6</td>
<td>0.7</td>
</tr>
<tr>
<td>Africa</td>
<td>3</td>
<td>0.4</td>
</tr>
<tr>
<td>Middle East</td>
<td>763</td>
<td>94.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>811</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: The number of responses and regions

The researcher divides the age groups into four groups. Younger than 18, who consider in teenage phase. Then two youth groups, who are between 18 and 34, and latest the group of 35 old and older. The number of participants younger than 18 is 155, in 18 to 24 age group is 353, in 25 to 34 age group is 211, and 35 old and older is 92. The number of female participants is 312, and 219 for male participants. The following Figures 8 and 9 illustrate the percentage of participants groups.
Results

The participants were asked about their habit of using mobile instant messaging applications to determine their engagement with these applications. 98% rated their using positively between sometimes, often and always as the Figure 10 illustrates, and only 2%
of them responded negatively. Among the positive choices, the highest percentage of participants, 61%, said they always use the applications. While only 2% said they rarely use the applications, less than 1% said they never use them.

These responses indicate that a high number of people use instant messaging applications frequently.

An important underlying factor is measuring if the participants have noticed the read receipts feature in the applications they use or not. Recall that the feature is built-in and its default setting is on. The Figure 11 shows that 68% of the participants have noticed the feature, in contrast to 32% who have not noticed it. As it was mentioned earlier, the default setting of read receipts is on, so almost half of the participants, 48% as shown in Figure 12, kept the default setting of the feature. In contrast, 17% of the participants made a decision and turned the feature off. However, there is a percentage indicates
unawareness of the feature where 35% of the participants don’t know what is the setting of the feature in the applications they use.

In Table 2 below, 68% of the participants have noticed the read receipts when they send messages in MIM applications. However, 14% of them and even they have noticed them, they don't know what their setting is. On another hand, the researcher expected from
people who have not seen the feature say that they do not know about the feature setting. But some participants who have not noticed it said that the setting is on or off. The researcher assumes that people checked the applications while taking the survey.

<table>
<thead>
<tr>
<th>The setting of Read Receipts in the response phone</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of respondents</td>
<td>%</td>
</tr>
<tr>
<td>On</td>
<td>371</td>
<td>68</td>
</tr>
<tr>
<td>Off</td>
<td>100</td>
<td>18</td>
</tr>
<tr>
<td>I don’t know</td>
<td>77</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>548</td>
<td>263</td>
</tr>
</tbody>
</table>

Table 2: The noticing of read receipts and its setting

From Table 2, people may notice the feature but they might not know what it is, and what if they able to change its setting in case that the used application allow them to.

The participants were asked to scale their opinions among five options, strongly disagree, disagree, neither agree or disagree, agree and strongly agree, in several statements about receiving and sending read receipts with their people. The statements are:

When I send a message to a close friend, I want to know if the message was received or read.

When I receive a message from a close friend, I want them to know if the message was received or read.

When I send a message to a romantic partner, I want to know if the message was received or read.

When I receive a message from a romantic partner, I want them to know if the message was received or read.
When I send a message to a distant acquaintance, I want to know if the message was received or read.

When I receive a message from a distant acquaintance, I want them to know if the message was received or read.

In Figure 13 below, the options of agree and strongly agree were combined into agreeing in general. The options of disagree, strongly disagree were counted as disagree, and the options of neither agree or disagree didn’t count because it doesn’t belong in these categories. The main reason for this question is to answer the research hypotheses and determine the desire of using the read receipts feature in MIM applications based on the social tie between people.

Figure 13 shows the results of the two of research hypotheses $H_{1a}$ and $H_{1b}$. The researcher stated in $H_{1a}$ and $H_{1b}$ that people want to use read receipts with their close friends. The Figure shows that 62% of participants want to receive a receipt indicates that their friend read their message. Also, they want to use the feature in return. 48% of the responses agree to send an indicator to their friends when they receive and read the messages, and only 24% disagree with that. In other words, people want to know if their friends read their messages, and they also don’t mind to notify their friend when they read the messages. However, even that participants agree to use the read receipts with close friends, they seem more willing to receive the receipts more than send them as it is visually shown in Figure 13, 62% vs. 48%.
Figure 13: Responses to “I want to receive read receipts from close friends” and “I want to send read receipts to close friends”

One Sample z-Test for Proportions

The one sample z-test proportion was used to test the research hypotheses and determine the participants’ desire of using the read receipts feature in MIM applications. Table 3 shows the results of testing two of research hypotheses H_{1a} and H_{1b}. The results in Table 3 denote that proportion of people who want to receive a read receipt from their close friends when they send them a message is greater than half of the total number of participants in “Agree” and “Disagree” categories, which is 603. Also, the proportion of people who want to send a read receipt is greater than half of the total number of participants, which is here 581. The results show that the p-value < 0.05, (0.05 is the significance level) when the participants want to receive a read receipt from their close friends, as well as send a read receipt.
People usually have different opinions when it comes to their romantic relationships. Figure 14 presents the result of the second type of the strong ties in the research that is stated in hypotheses H\textsubscript{2a} and H\textsubscript{2b}. The hypotheses stated that people want to use read receipts with their romantic partners. 72% of the participants have expressed their willingness to receive a read receipt, and 60% of them have expressed their desire also to send a read receipt when they exchange messages with their partners in MIM applications. Apparently, the difference between the two categories, “Agree” and “Disagree”, is big in both roles of the messaging loop, and more than the difference in close friends.

![Figure 14: Responses to “I want to receive read receipts from a romantic partner” and “I want to send read receipts to a romantic partner”](image-url)
One Sample z-Test for Proportions

Table 4 shows the results of testing two of research hypotheses H\textsubscript{2a} and H\textsubscript{2b}. In a romantic partner relationship, more than half of the total number of participants in “Agree” and “Disagree” categories, which is 665, indicated their willingness to receive, and also more than half of 620 participants willing to send the read receipts when they text their partners. In Table 4, p-value < 0.05 in the two directions, receiving and sending the read receipts from and to the romantic partner.

<table>
<thead>
<tr>
<th>Read receipt</th>
<th>Social tie</th>
<th>No. “Agree” category</th>
<th>No. “Disagree” category</th>
<th>Total of participants</th>
<th>z score</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving</td>
<td>Strong/romantic</td>
<td>580</td>
<td>85</td>
<td>665</td>
<td>19.195</td>
<td>0.000</td>
</tr>
<tr>
<td>Sending</td>
<td>Strong/romantic</td>
<td>484</td>
<td>136</td>
<td>620</td>
<td>13.976</td>
<td>0.000</td>
</tr>
</tbody>
</table>

*Significant at p-value < .05

Table 4: One sample z-test of strong tie “romantic partner”

On another hand, Figure 15 shows the result of the participants’ opinions from using the read receipts with their distant acquaintances. Distant acquaintances represent the weak tie in the research, and the result answers H\textsubscript{3a} and H\textsubscript{3b}. The hypotheses stated that people want to use the feature with their acquaintances. 47% of the responses, which are 538, indicate that people don't mind to receive a read receipt from acquaintances. However, the percentages of people who agree and disagree of sending read receipts are very close, 33% and 31%. Thus, the researcher can’t answer this question.
Figure 15: Responses to “I want to receive read receipts from distant acquaintances” and “I want to send read receipts to distant acquaintances”

One Sample z-Test for Proportions

Table 5 shows the result of one sample z-test proportion of weak tie. The p-value of the test in receiving the read receipts is greater than the significant level. However, it is less in sending the read receipts to distant acquaintances, which is 0.229. That means the researcher can’t prove any result in sending the read receipts in weak social ties.

<table>
<thead>
<tr>
<th>Read receipt</th>
<th>Social tie</th>
<th>No. “Agree” category</th>
<th>No. “Disagree” category</th>
<th>Total of participants</th>
<th>z score</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving</td>
<td>Weak</td>
<td>378</td>
<td>160</td>
<td>538</td>
<td>9.399</td>
<td>0.000</td>
</tr>
<tr>
<td>Sending</td>
<td>Weak</td>
<td>270</td>
<td>253</td>
<td>523</td>
<td>0.743</td>
<td>0.229</td>
</tr>
</tbody>
</table>

Table 5: One sample z-test of weak tie

*Significant at p-value < .05
Discussion

This paper has two major contributions, measure the degree of awareness that people have of the existence of the read receipts feature, and investigate the relation between social ties and people’s desire to use the feature.

Awareness

From analyzing the survey, 68% of participants indicated that they have noticed the read receipts feature in the applications they use. Although, 14% of them don’t know if the setting of the feature is on or off. This ignorance might be because the limitation of controlling the setting of the feature in some applications. However, 18% of them decided to turn off the read receipts but the majority, 68%, don’t make any decision as along as the default setting is on. In other words, people have the awareness of the existence of read receipts feature but there is no evidence if they know the purpose of it or their ability to control its setting in some of the applications.

The Desire to Use Read Receipts

The second finding of the research is people’s desire to use the read receipts feature based on their relationship and social ties. The researcher divided the relationships to two ties, strong and weak ties. The research finds out that people have varying opinions about the feature based on two factors, the social tie with the sender or receiver, and their role in the messaging loop, as a sender or receiver.
**Strong Ties**

The strong ties include two types of relationships, close friends, and a romantic partner. The results support the hypothesis that people want to receive read receipts to ensure the delivery of their message when the receiver is their close friend. Also, they wish to send the read receipts to their close friends; however, their willingness to send the read receipts is less than receive them. In other words, people want to know if their close friends receive their messages but they less likely to send them to let their close friends to know if they receive their messages.

The second type of strong ties is the romantic relationship. The findings support the two hypotheses that related to a romantic partner. As a result, people want to use, send and receive, the read receipts feature with their romantic partners. Namely, people want to send and receive read receipts when they message their romantic partners.

Table 6 reports a summary of the findings of strong ties. Survey support for each hypothesis is marked with a plus.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Social tie</th>
<th>Read receipt</th>
<th>The result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a</td>
<td>Strong/friend</td>
<td>receive</td>
<td>+</td>
</tr>
<tr>
<td>H1b</td>
<td>Strong/friend</td>
<td>send</td>
<td>+</td>
</tr>
<tr>
<td>H2a</td>
<td>Strong/romantic</td>
<td>receive</td>
<td>+</td>
</tr>
<tr>
<td>H2b</td>
<td>Strong/romantic</td>
<td>send</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 6: Summary of strong ties hypotheses based on one sample z-test proportion

**Weak ties**

Weak ties include any distant relationship and any other relationships than close friends or romantic partners. The researcher used distant acquaintances phrase to represent the weak ties. The data denotes that people don’t want to use the read receipts, neither sending or receiving when they use MIM with distant acquaintances. These data don’t
support the hypotheses of weak ties as it shows in Table 7. Survey support for each hypothesis is marked with a plus, and lack of support for hypotheses were marked with a minus.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Social tie</th>
<th>Read receipt</th>
<th>The result</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_{3a}$</td>
<td>weak</td>
<td>receive</td>
<td>+</td>
</tr>
<tr>
<td>$H_{3b}$</td>
<td>weak</td>
<td>send</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 7: Summery of weak ties hypotheses based on one sample z-test proportion

**Conclusion**

The study supposed six assumptions about read receipts feature in mobile instant messaging applications. The researcher assumed that there are two factors affect on people’s opinions about read receipts, which they are social ties and people’s role in the messaging loop. The study proves the assumptions that the two factors influence on the people’s desire to use the feature. Strong or weak tie between the sender and receiver play a role in whether people want to use the read receipts or not. Besides, the person's role in the messaging loop, as sender or receiver, impact on their willingness of using the feature.

Thus, the finding of this study is that people want to use the read receipts with their romantic partner as well as their close friends. In another word, they want to use the feature when they have a strong social tie with the sender or receiver. However, it seems people like to use the read receipts more freely with the romantic partner than close friends. Their willingness to send the read receipts is less when the receiver is their friend. The other finding is in the weak social ties where people would like to be informed when their acquaintances receive their messages. However, there is no
conclusion when it comes to sending a read receipt to acquaintances because that the views almost equal between agreement and disagreement.

**Exploratory Analysis**

**Culture**

The researcher believes that regionally people might be different based on their culture, either collectivism or individualism. From collected data, North America and Middle East regions were compared to find if there is any cultural difference between them. They have chosen because they have the highest numbers of participants. North America considers an individualistic culture and Middle East a collectivistic culture according to Hofstede. Figure 16 shows the distribution of individualism and collectivism worldwide (TargetMap, 2011).

![Figure 16: Individualism vs. collectivism according to Hofstede](image)

Previous studies show some cultural differences in using social media and applications. The intention of the study was to look at results by different cultures. However, (as
noted) the responses were predominantly from the middle east – and therefore, almost any analysis would be distorted by the uneven response sizes. However, the responses were analyzed and visually, we can see that, there are similarities in the responses. Figure 17 shows that both regions highly agree to use the read receipts with their romantic partner, and highly disagree on using it with distant acquaintances. The only differences are with close friends where Middle Eastern more willing to use the read receipts with their friends than North American. And with distant acquaintances where North American more willing to receive the read receipts from them than Middle Eastern.
Age group

There are several findings by comparing age groups. Every new generation is more likely to use MIM more than the previous, see Figure 18 and Table 8. That means teen are the most frequently used MIM, however, they are the least aware of the read receipts setting as it is shown in Figure 19. The read receipts include information about the actual delivered and read time of a message. If the sender of read receipts shares this information without his/her knowing, then that will be a problem with their privacy. 56% of teen participants, 100 out of 155 participants, don't know what is the setting of read receipts in the applications they use on daily basis. This result tells that teen doesn't have the perception of the risk they could have with the lack of maintaining the privacy.

![Figure 18: Age group's usage of the read receipts](chart.png)

<table>
<thead>
<tr>
<th>Age group</th>
<th>No. of participants using read receipts on daily basis</th>
<th>No. don’t know what is the setting of read receipts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18 (n=155)</td>
<td>100</td>
<td>87</td>
</tr>
<tr>
<td>18-24 (n=353)</td>
<td>224</td>
<td>130</td>
</tr>
<tr>
<td>25-34 (n=211)</td>
<td>124</td>
<td>40</td>
</tr>
<tr>
<td>35 and older (n=92)</td>
<td>49</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 8: Numbers of participants by age group and their usage of read receipts
The age group of 25 to 34 is more willing to use the read receipts feature regardless the social ties. As is shown in Figure 20, more than 91% of them agree to use the feature with everyone.

Figure 19: The lack of knowledge of the read receipts’ setting among age group

Figure 20: Age group 25 to 34 more willing to use read receipts with both social ties
References


Pielot, M., de Oliveira, R., Kwak, H., & Oliver, N. (2014). Didn't you see my message?: Predicting attentiveness to mobile instant messages. *Proceedings of the 32Nd Annual ACM Conference on Human Factors in Computing Systems* (pp. 3319-


Appendix A – IRB Form C

Form C
IRB Decision Form

TO:          Lujayn Alhddad
FROM:        RIT Institutional Review Board
DATE:        October 13, 2015
RE:          Decision of the RIT Institutional Review Board

Project Title – An Investigation of User Satisfaction of Read Receipts Feature in Mobile Platform Based on Social Tie Between the Sender and Receiver

The Institutional Review Board (IRB) has taken the following action on your project named above.

☐ Exempt   46.101 (b) (2)

Now that your project is approved, you may proceed as you described in the Form A.

You are required to submit to the IRB any:

• **Proposed** modifications and wait for approval before implementing them,
• Unanticipated risks, and
• Actual injury to human subjects.

________________________________________________________
Heather Foti, MPH
Associate Director
Office of Human Subjects Research

Revised 10-18-06
Appendix B – Survey

Read Receipts Feature in Mobile Instant Messaging Applications

Thank you for agreeing to take part in this survey, we are going to ask you some questions about “Read Receipts” feature, and mobile instant messaging applications, such as Facebook Messenger, WhatsApp, iMessage, Kik and etc. The Read Receipts feature tells the sender that the message was delivered and/or opened. For example, the double blue check marks in WhatsApp tell the sender that the message was received and opened, and “Delivered” and “Read” next to the message in iMessage and Facebook Messenger. This survey should only take 4-5 minutes to complete.

* 1. Which general region are you from?
   - North America
   - South America
   - Europe
   - Asia/Pacific Islands
   - Africa
   - Middle East
   - Other (please specify)

* 2. What is your age?
   - Under 18
   - 18 to 24
   - 25 to 34
   - 35 or older

* 3. What is your gender?
   - Female
   - Male

* 4. How often do you use mobile instant messaging applications?

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

* 5. Have you noticed Read Receipts feature in your mobile instant messaging applications?
   - Yes
   - No
6. Currently, the settings of Read Receipts in your mobile is:

- On
- Off
- I don't know

7. Do you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I send a message to a close friend, I want to know if the message was received or read.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>When I send a message to a romantic partner, I want to know if the message was received or read.</td>
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</tr>
<tr>
<td>When I send a message to a distant acquaintance, I want to know if the message was received or read.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>When I receive a message from a close friend, I want them to know if the message was received or read.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I receive a message from a romantic partner, I want them to know if the message was received or read.</td>
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</tr>
<tr>
<td>When I receive a message from a distant acquaintance, I want them to know if the message was received or read.</td>
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</tbody>
</table>