Title: Managing The Anxiety of Knowing and Not Knowing – The Use of Mobile Messaging applications (MMAs) in Taiwan

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Abstract

The purpose of this study is to explore the impact of the mobile messaging applications (MMA) on consumers' behavior in Taiwan, by looking into Taiwanese consumers' perceptions and experiences regarding both the bright and dark sides of the MMAs which influence their everyday lives. One of the unique attributes of the MMAs, contains the ability to let message senders know whether their interlocutors read the messages or not, and such function has reported causing stress and anxiety. By understanding this phenomenon in Taiwan, it is hoped to provide more insights into studies relating to consumers' interaction with mobile technological products, as well as to provide practical suggestions and recommendations to the industry.

Keywords: Mobile messaging applications(MMA), anxiety, consumer adoption of MMA

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1.   Introduction

The pattern of interpersonal communication has been changing through time because of the technological advancements. In the old times, people communicated face-to-face verbally or via exchanging letters in a written form, which takes time to reach one another. The inventions of telephones, followed by faxes, allowing people to talk (the former) and send written texts (the latter), despite the distances between them. Due to the growing needs of mobile communications, mobile phones were invented. By the end of 2015, the mobile phone subscription rate is 98.6% against the world population, averaged by 125.7% in developed and 93% in developing countries (ITU, 2016). The advancements of this technology have further developed to be able to facilitate video conferences and text communications on the go. Mobile messaging applications (MMAs) are the collective term for these applications (Apps) running in the mobile phones or devices, allowing more effective communications via texts, voices, even pictures, images and videos. As a result, already a surprising over-100% growth rate of the Apps for smartphones in 2013, the development of the MMAs alone has a 316% growth rate (Galligan, 2014). In 2015, 75% of internet users use MMAs via their mobile devices, and the retention rate of MMAs for the first year users is over 60% (Statista, 2017), depicting the popularity of the use of MMAs among mobile device users. Based on Statista (2017), the most popular MMA in the world in 2016 is WhatsApp, followed by Facebook Messenger, QQ and WeChat. In Asian market alone, WeChat dominates this marketing by having most of the Chinese users, followed by LINE, which is widely adopted by users in Japan, Thailand and Taiwan.

The popularity of the MMAs is evidenced by the adoption rate shown above. However, behind the scenes, there are some drawbacks perceived by the App users. The most controversial, even paradoxical function of the MMAs is probably the 'read receipts' function, enabling the senders to know if their messages are read by the receivers or not. Being a paradoxical function meaning that people have ambivalent feelings towards this function. People who like the function because of the assurance it provides to the senders (''when the message is read, she/he is alive!'') (Parkinson, 2015). From message senders' perspective, they are 'in the know' of what the recipients are up to. However, it may also create some unnecessary imaginary scenarios by the senders when their interlocutors read but do not reply to the messages (Johnston, 2013). In other words, senders have no knowledge about the reasons behind the unresponsiveness. Some think the read receipts function is a good way for the recipients to demonstrate their real intention to ignore someone, by simply reading the messages but not responding them (Lende, 2013). On the other hand, some forums and studies (e.g. Johnston, 2013; Pielot, et al., 2014) have shown their concerns of this particular function, as recipients are expected to reply the messages in a timely manner after the read receipts are sent, further to cause unwanted social pressure.

Ambivalent or paradoxical feelings of mobile technology, pertaining to the contradictory feelings when using this technology, are widely perceived and studied (e.g. Jarvenppa and Lang, 2005, Loebbecke et al., 2008, Mak et al, 2009, Li, 2014). However, the studies relating to MMAs are limited in numbers and focusses. For example, Church and de Oliveira's (2013) study compares using MMAs and the traditional SMSs; Huang and Li (2013), Peng et al. (2016) and Oghuma et al. (2016) focus on MMA users' satisfaction and the relationship with loyalty, switching factors for choosing different MMAs, and the intention to continue to use MMAs respectively. There is no research focussing on how people feel and manage the read receipts function brings to users. Furthermore, it is not clear how much the MMAs influence people's behavior. Hence, the present research is planned.

The present research intends to understand how people manage the anxiety created by the read receipts function, further to understand the change of behavior, if any. It also intends to know the insights of how people really feel about this function. Taiwan is chosen as a country under investigation, as it has one dominated MMA (LINE) possessing a 83% adoption rate among all MMA users (Alpeyev et al., 2016). It is also reported that LINE has become the most popular app among all the social media Apps in Taiwan (The China Post, 2016). Furthermore, the 'read but not reply' (RBNR) phenomenon, particularly using LINE, is constantly reported and discussed (e.g. Business Weekly, 2013; 2015). That makes Taiwan an ideal place to conduct such an investigation.

The paper is structured as follows. Firstly, the literature review is presented, which includes the relevant studies and the cases reported in the media. Then, the research design is outlined and the findings from the data analysis are presented and discussed. Finally, the implications based on the findings are elaborated.

2.   Literature Review

2.1 Studies of text-based communications via technology devices

Before the invention of mobile messaging applications (MMAs), a few of researchers investigate user behavior in texting to communicate. These studies can be divided into two main streams: short message service (SMS) (e.g. Birnholtz *et al*., 2013; Reid and Reid, 2005; 2007) via mobile phones, and instant message (IM) (e.g. Birnholtz *et al*., 2013; Pierce, 2009), mediated by PCs and mobile devices. These studies provide rich information about why people text instead of talk (Reid and Reid, 2005; 2007), the demographic influences of the usage (e.g. Forgays *et al*., 2014; Reid and Reid, 2010) and etc. However, after the emergence of the MMAs, studies related to mobile instant messages (MIMs) are limited in numbers and scales. It may be due to the fact that there are a few similarities between SMS and/or IMs and the MIMs, as they are all mainly text-based communications. However, MMAs, enabling MIMs, have different functions, and one of them allows users to know when their interlocutors were 'last seen' (WhatsApp), how long ago were 'active' (Facebook messenger) online, as well as to know if their interlocutors messages were read (LINE) or seen (Facebook messenger). The latter, which is a similar function to emails and mails' ''return receipts'' (Johnston, 2013), is called 'read receipts'. The read receipts appear next to the sent messages, and they are shown once the messages are tapped to be read by the receivers. For some of the message senders, this function provides visual feedback for them to know if the messages are delivered or read by the receivers, and the feelings of trust to the MMA are increased (Church and de Oliveira, 2013). However, some recent reports and studies (e.g. Church and de Oliveira, 2013; Johnston, 2013; Tay, 2014) show that most people do not like to be known when was the last time they used the app, or read/saw the message, as it creates social pressure (Johnston, 2013; Pielot, *et al*., 2014). A good example to reflect this is the case of WhatsApp's unpopular development of the 'read receipts' in 2014. Right after their announcement of the new feature 'double blue ticks', allowing senders to know two time slots: the time when the message is delivered (first blue tick), and the time when the message is read (second blue tick), many people have started sharing information such as how to disable WhatsApp blue ticks and read receipts (e.g. TechWelkin, 2014; Zafar, 2014), or how to work around / remove the read receipts in WhatsApp (e.g. NDTV, 2014; Tay, 2014). Until now, the same issues are still discussed in forums and media (e.g. Carey, 2016; Curtis, 2016; Griffiths, 2016). Other MMAs, containing the similar functions, have the similar issues among their users.

2.1.1 MMAs' unique attribute

The motivation of creating the 'read receipts' function may be explained by some findings from some empirical studies (e.g. Jarvenppa and Lang, 2005; Li, 2014), revealing users' anxiety and stress caused by receivers' inattention. The senders might wait for a reply without knowing if the messages are either delivered, read or not, and subsequently worrying about or feeling disappointed with the message receivers. That is considered as a negative attribute of mobile technology (Li, 2014). By having the read receipts function, it seems to fulfil the need for reassuring the messages are sent and read, and it may reduce the stress and anxiety caused by uncertainty perceived by the senders. However, new problems seem to have been observed which are caused by this function to both senders and receivers. First of all, similar to technostress, occurring when the communication through technologies overwhelm the users for simply having information overload (Ragu-Nathan *et al.*, 2008), MMA users have too many messages to check and reply. On top of this, the read receipts function promotes senders to expect quicker replies, and receivers have the impression to reply

within a short period of time, as they know most of the senders' expectations, leading the receivers to have cognitive overload (Le, *et al.,* 2015). It is recognised as an unwanted social pressure (Pielot *et al*., 2014). It seems like the anxiety and stress are on receivers' shoulders now, but it is not entirely true. Owing to the new attribute, senders expect quicker replies, so senders may get even more anxious when the replies are not given in a timely manner (Johnston, 2013; Pielot *et al*., 2014) . The senders were trapped in 'not knowing' if the messages were read or not, and now trapped in 'knowing' they were read but 'not knowing' the reasons of unresponsiveness. Therefore, it seems to come back to the same problem before the MMAs are invented – anxiety and stress still exist, and now it even affects both senders and receivers.

Based on the extant studies above, most of them discuss the negative attributes of MMAs, and they are mainly stress-related issues. It seems to neglect the positive impact, with the intent to make people's life better. It is important to learn both positive and negative impact of MMAs on people. Accordingly, it prompts the question:

RQ1: How do people perceive the communication via MMAs?

2.1.2 Read but not reply (RBNR) behavior

After seeing the messages are read, people would expect the responses from the message receivers right after they read the messages (Church *et al*., 2013; Reynolds *et al*., 2013). It is often heard and seen in the news about some arguments between people over an issue – why you read (the messages) but did not reply! Read but not reply (RBNR) has been widely observed, particularly in Taiwan after the popular MMA – LINE – has been widely adopted and dominates Taiwanese' MMA market since 2011. The RBNR and similar situation have created new kind of stress to both senders and receivers (Pielot *et al*., 2104).

As mentioned, not only the senders feel anxious about the responses, but also the receivers feel pressure to check incoming messages and comply with senders' expectation (Oulasvirta, *et al*., 2012). In the electronic world, people receives emails or MIMs every day but may have different strategies to manage their responses (Church and de Oliveira, 2013; Pielot *et al.*, 2014; Tyler and Tang, 2003). Tyler and Tang (2003) found that several factors may influence email senders' expectation of the responses, for example, personality of both senders and recipients, urgency of topics, a follow-up email or pre-email negotiation. People might be tolerant to wait for responses from hours to even a day. When the communication platform is extended to individuals' mobile devices, the time for people to receive and read the messages is shortened, and so is the senders' tolerance on the speed of the responses. Therefore, the read but not reply (RBNR) behavior may not refer to only total ignorance of the messages, but also the late responses. Therefore, it prompts the question:

RQ2: How are RBNR perceived by message senders and receivers?

2.2 The changes of communication styles via technologies

There was a time that people sat at home and waited for a phone call from others, because they could not be reached if they went out. Voice-to-voice conversation is the first technology-mediated communication, followed by text-to-text enabled by fax machines. Then, internet and mobile phones started getting their popularities, the ways of communications have been changed since, so as the change of people's behavior towards communications. As mentioned, some people now prefer text-based communications than voice-based ones. One of the reasons for the shift from talk-to text-based communications may be that people feel overwhelmed by the closeness and intimacy that mobile phones bring to them, they appreciate the psychological distance text-based communications create (Morey and Gentzler, 2013).

Leonardi et al. (2010) and Reynolds et al. (2013) both reveal the fact that some users use the communications via technological devices to avoid instead of enabling conversations, in order to create such psychological distance.

Reid and Reid's (2007) findings in people's choice of using text-based communications (SMS and Internet) reveal that the affordance of disengaging themselves from immediate interaction with others is the main key. By using text-based communications, it also allows people to have more time to think, then compose and edit messages (Ellison et al, 2006; Reid and Reid, 2007). Particularly when it comes to SMS, which is almost the predecessor of MIMs, it is reported that people find it as an informal and candid approach to communicate with friends (Reid and Reid, 2005), and some even develop a braver self, which is different from their normal self, when communicating via SMS (Kasesniemi and Rautiainen, 2002). It is evident that people change their communication styles based on, either their needs (e.g. for keeping psychological distance) or the comfortableness of doing it (e.g. allow time to think and compose messages). Therefore, it can be said that people's communication styles and behavior are changing along with the evolution of the telecommunication technology. Therefore, it prompts the question:

RQ3: How people perceive their communication styles via MMAs?

3.   Research Methods

3.1 Sampling Techniques

This study intends to understand the topical issues when using the MMAs in Taiwan. In order to gather all relevant issues, semi-structured in-depth interviews are employed as the techniques for exploring individual's perceptions and experiences.

The sampling techniques the study employs are purposive/judgement sampling, as a specific group of people should be included in the present research. The target audience has to be Taiwanese residence and MMA users. Also, they have to fit in a certain age range, 16 plus to 65, which are considered to use the MMAs actively in Taiwan. In order to include audience from different demographical levels (mainly gender and age), quota sampling is also employed to avoid sampling bias (Saunders *et al*., 2016). Therefore the number of the participants for each gender and age range is equal. A reasonable attempt is made to randomise their occupation background, as well as their physical locations. The present study chose LINE users as the target audience as LINE was the most used MMA in Taiwan (The China Post, 2016). In addition, LINE contained most of the features in the existing MMAs, particularly the 'read' function.

The interview guide is designed to gather information in three main areas: general user behavior, perceptions in the dis-/advantages of LINE, and finally the perceptions of the read receipt function.

3.2 Data Collection and the Procedure

The interviews were conducted for a period of two weeks in January 2016 via Skype, with both of the researchers presented in the interviews. The anonymity of the participants is required to enhance the comfortableness of the participants, so that they could talk more freely. Accordingly, telephone conferences via Skype were chosen although video conferences were also used frequently in online interviews.

The recruitment of the participants followed national and international ethical guidance. Prior to their agreement of participation, all of them were briefed the purpose of the research, and their expected roles in the interviews.

3.3 Data Analysis

In total, 20 interviews were conducted. Two male and female participants were included in five different age ranges. Thematic coding analysis was employed.

4.   Research Findings

In this section, the findings based on the data analysis are presented. An overview of the findings is presented in Figure 1.
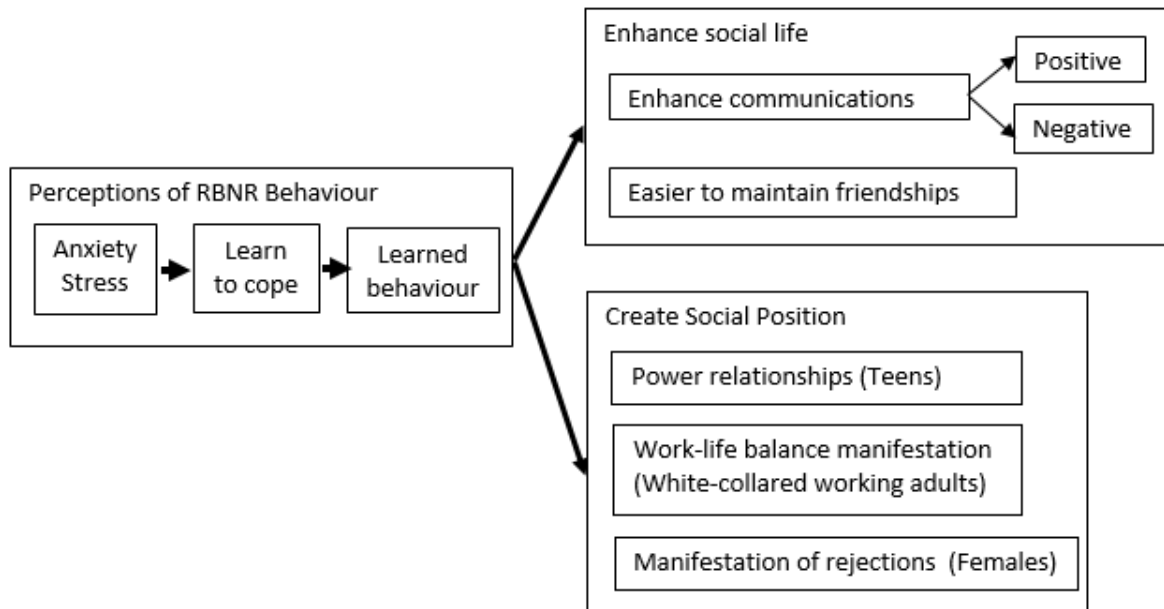

Figure 1: Research Findings

From the findings, it appears that the perceptions of the read but not reply (RBNR) behavior should be discussed first, as it affects how people perceive the communications via MMAs and their communication style.

4.1 The Perceptions of Read But Not Reply (RBNR) Behavior

All participants when asked the perceptions towards RBNR, they did not seem to be bothered about others' RBNR to their messages. However, their contradiction is shown when asked about their own MMA behavior:

> *I always reply to others' messages….I think it is not polite to RBNR. (F1, 45+)*
>
> *When I receive a message when I am free, I normally reply immediately…… because I don't like to wait for a reply, I don't want others to wait for my reply either. (M1, 20+)*
>
> *If it is a SMS message, no one knows if you read it or not if you don't reply. Using LINE, if you RBNR, you give people (senders) a lot to imagine – they try to ignore me? They are still thinking about a proper way to say no? Maybe they are really busy..(M2, 20+)*
>
> *RBNR doesn't really bother me….but I always reply to others' messages as soon as I can……if I don't reply to them…you know….you really give them a lot of space to think of any possible reasons about why I do not reply. I don't like to create any misunderstanding…[F2, 25+]*

It is also shown when they were asked about their perceptions towards the 'read receipts' function of MMAs:

> *The 'read receipts' function does not affect me, but I think it is a necessity…….I think I still like to know if she/he reads it or not. (F2, 19)*

> *The 'read receipt' function is not important, because It is not about 'when' (the time is shown in the App) they see the messages, it is about 'when' they reply!* [M2, 35+]
>
> *When texting via SMS, you cannot know if he/she receives/reads the messages or not…so when he/she does not reply, you tend to think …'maybe they are busy'. But texting via LINE….if you know they have read it or even they haven't read it after a while, normally there is a lot going on in my head..* [M1, 20+]

From the results, it can be seen that most of our participants still perceive the social pressure in replying the messages, as they know the interlocutors' expectations and perceptions in RBNR. It is also logical to assume that while they perceive the interlocutors' reactions towards their RBNR, if it does happen, they have the same feelings when encountering their interlocutors' RBNR behavior.

The perceptions towards RBNR behavior also reveal a common concept, which is about either knowing or not knowing the messages are read, the senders would feel anxious because it creates 'a lot of space to imagine' the reasons for the non-responsiveness. In other words, it is the uncertainty that they feel.

4.1.1 A learned behavior

Most of the participants admitted that they were puzzled and even furious when they started using LINE to 'talk' to others, as sometimes it was like talking to someone in real-time, and sometimes the message receivers read the messages but did not reply immediately, that disappointed the senders. They might get a late reply with some explanations, or they simply confronted them with the reasons for not responding. Now, they would interpret the late or non-reply with many possible reasons, and feel more relaxed with it:

> *When I started using LINE, I was very excited to have real-time text communications with friends. But sometimes I did not receive any reply from my (sent) messages, I just waited, and waited…and thought the replies would come in anytime right after the messages were sent. Then I learned that some people don't reply immediately – maybe they were eating lunch, driving or having a nap. And now, I can even guess what the person is doing when he/she doesn't reply at some particular time!* [F2, 45+]
>
> *I learned from others how to communicate via LINE. I used to reply very quick...now I always wait for a while before I reply.* [F2, 18]
>
> *You can always avoid being known you read the messages, by using the preview function. My friends told me that!* [F1, 19]
>
> *I am now very easy to be found by my friends….but I know how to manipulate the App so that I won't be found when I don't want to……….(F, 30+)*

It can be concluded that people started from feeling stressed/anxious, and then they started knowing the reasons towards the interlocutors' RBNR behavior. Gradually, their reactions towards RBNR are milder, as they are more relaxed about such behavior.

4.2 The Perceptions of Communications via MMAs

As most of the MMA users in Taiwan have come to the stage that less stress and anxiety are perceived, more positive perceptions than negative ones are observed regarding the communications via MMAs. Based on sample in the present research, the results can be divided into two categories: enhance communications and easier to maintain friendships. Both of them relate to users' social activities. It can be concluded that MMAs enhance their social life.

4.2.1 Enhance Communications

From the data, it shows that most of the participants agree that MMAs help them communicate with others better. Particularly, LINE's stickers are considered as a good tool to express their feelings and emotions. It is found that having this particular function (stickers) is one of the reasons for them to choose LINE as their main MMA. Stickers as a communication enhancer are thought to pass messages through quicker without typing many words:

> *You know, it takes time to type (Chinese characters), so it is easy just to choose a sticker (which represents what I want to say) to send or reply, like a smiley face, or angry face.. and I think stickers help me express my emotions easier than before. (F1, 45+)*

> *It is very intuitive when using LINE…..and the words can be replaced by stickers, it helps me communicate with others better…you know, sometimes it's difficult to express the feelings with words…(M1, 17)*

And when receiving some messages which they do not know what to reply, most of them think it is rude not to reply at all, so they choose a sticker to reply to avoid awkwardness:

> *Sometimes, for some questions, or they are not even questions, I really don't know what to reply….. I just choose to rely with a smiley sticker….. thus, it wouldn't feel awkward when they or I start a new conversation, or even next time we meet face to face..(F2, 25+)*

It also improves the communication between children and their parents.

> *My mum is more responsive than before after we use LINE. Before, I asked my mum something verbally, if she didn't reply to me immediately, she would not come back to me, and I was afraid of asking her again. Now, she replies almost all of my questions via LINE (texts), maybe when she wanted to talk (text) to me (via LINE), she saw the questions again, so she replied…..(F2, 18)*

> *I think I talk to my children much more than before via LINE, it was difficult to find time to sit together and talk to them before…and also, from the stickers my son and daughter sent to me, I just realised how funny they are! We seem to have a new topic (stickers) to talk about, like 'where did you get those funny stickers?'(F2, 45+)*

It is found that using MMAs enhances communication by allowing time-lagged text communication. Quite a few of the participants express that they do not like to be put on the spot to answer questions, so phone calls are sometimes not effective as some people are reluctant to make decisions in the real-time conversations. Also, people are not always available to pick up phone calls, but they can check messages when they have a moment:

> *I think I have more time to react to questions from friends when using LINE. I have problem with reacting with stuff quickly, so I am very bad with face-to-face or even phone conversations…. I think I have time to ponder my thoughts, and the senders will not see me anyway, I feel more comfortable and have less pressure to reply quickly too…….So, if someone calls me, I may not take the call. But if they send text messages to me, I always read them, then I will reply….well, mostly.. [F1, 40+]*

> *If that's a phone call, I always feel obligated to take it even when I am having lunch or in the middle of something. If they send me messages through LINE, I can always reply them after I have done what I have been doing. If the messages are not very important, I can even reply to them a lot later. [M2, 35+]*

However, enhancing communication is not always a good thing for everyone. Some participates expressed the feelings when they encountered unwanted communications:

I could ignore someone when they tried to reach me by phone calls, but it is difficult to ignore the text messages....[F2, 35+]

It is good to be found (when the text messages come in), but sometimes I do not want to be found or reached. [F2, 45+]

4.2.2 Easier to Maintain Friendships

Most participants think LINE (MMA) helps them get in touch with their friends, as it allows less effort to maintain friendships.

Before, we knew what's going on with friends' lives through meeting up or having phone calls. You wouldn't make a phone call just a quick hi and bye, you would talk to them for a certain period of time. So, when someone phoned me up, it normally took a long time, sometimes hours to finish the conversation.......Now I use LINE, and if I want to know how someone is, I send a sticker (such as one written 'How are you" on it) to her/him. They reply sometimes also with a sticker, and then we exchange some short texts....I can even know how friends are through one message (to a group)...I am glad to know how they are, without spending too much time on the conversations..... the content (of the conversations) is not as rich as before, but I think we both know we care about each other, that's more important. I think the conversations we had before are indeed richer but they are mostly not important anyway. (F1, 50+)

Someone from my high school created a (LINE) group (conversation) for most of the classmates after the last reunion. Although I don't know what to talk about in this group, I sometimes just share some links for information that others might be interested, or some funny photos or memes with them...... others people do that too.....I think we are not as close as before, but somehow it feels like we are somehow linked, and I can reach them very easily if I want to. (M2, 35+)

It also shows that people who are not proactive, personality-wise, benefit from having LINE as a medium to keep in touch with their friends.

I do not like to proactively make contact with people, but I can still keep in touch with my friends by replying the messages they send. I think LINE makes it easier for me to maintain my friendship with others.... If we were still using phone calls as the main way to keep in touch, I don't think I would make any phone calls, and neither would my friends. [F2, 18].

After having LINE, I think the significant difference is that I am easier to be found. I could ignore their (friends) messages but I felt ok to read it and then joined some of the gatherings with them. Before, I wouldn't really want to make initiate contact with anyone. Now I still don't like it but I don't mind receiving invites...well, still very passively, and I can decide if I like to reply or not. [F2, 35+]

Using LINE to send messages is so much better than sending it via SMS.....I can send a message to many people at the same time...it is so much easier to keep in touch with many people... and it doesn't cost any extra money. Using SMS messages from the network provider, I need to pay for each SMS message, and I need to be careful with the word limits...I think no one is using the SMS messages now. (F2, 19)

4.3 The Perceptions of People's Own Communication Styles via MMAs

When asked about their own communication styles, it reveals some fascinating motivations behind their behaviors. It seems like how people behave around the read receipts function has formed new social norms, which is to create social

positions. Such phenomenon can be divided into two types relating to age, and one relates to gender. In terms of age, the first one is the teens (aged between 17 and 19), who use the MMA communication to create power relationships between them and their interlocutors; the other is the white-collared working adults who use it to demonstrate their work-life balance notion. In terms of gender, female participants show a new way to say no to unwanted conversations, termed as manifestation of rejection.

4.3.1 Power Relationships

In the teen group, all participants in this age range reveal an interesting insight of their usage of LINE. They do not check the messages right after they are sent in. They identify the senders first, and determine when to read the messages. Also, they do not reply messages right after they see them, they normally wait for a while before replying, if they think they feel like replying it or they need to. The length of time between the messages are received and responses they make demonstrates a power relationship. The longer the time is, the more superior the repliers are.

> *When I receive a message, I will see who sends the message, then decide if I want to read it….if I read it, and I think I need to reply, I normally don't reply immediately…it's like an unspoken rule - if someone replies one's message right after it is sent, people find this person creepy – is he/she waiting for my messages all the time? It seems like she/he is checking the mobile phones all the time…. does she/he have other things to do?* (F1, 19)
> *I reply most of the messages sent to me, and I reply when I am free…..but I never reply immediately after receiving them..(M2, 17)*

It is only found in this age group, therefore it is believed that teenagers use LINE to demonstrate their social positions with each other. In order to show that they are in control of the friendship, they take their time to reply messages.

4.3.2 Work-Life Balance Manifestation

The second type relates to the adult, working group. They take their LINE behavior as their work-life balance manifestation and show that they have the control over 'when' they wish to reply. Particularly when LINE is used in communicating work-related tasks, quite a few of conversations and communications after office hours are widely reported in Taiwan, and they are considered to be extended off-the-record extra works. Some of the participants may have experienced it, so they make their attitude clear by the way they respond to the messages.

> *When I get a message from my office after work, I normally read it but I will not reply until the next morning. I want them to know I do have a life!* (M1, 35+)
> *I prefer not to use LINE for work, so if my colleagues want my LINE account ID, I always tell them I won't deal with any work-related stuff if they talk to me on LINE.* (F2, 30+)
> *If my colleagues try to send messages to me regarding work after the office hours, I always tell them that if they think that is important, they should just call me. I use LINE mainly for social activities…then, they never call! Why do they want to send me a work-related message after office hours, since it doesn't seem important or urgent?* [M1, 40+]

4.3.3 Manifestation of Rejections

There is another type of behavior which is regardless of age, it seems to be related to gender, as only female participants raise this issue. Some of the female participants stated that by reading the messages but not replying (RBNR), it shows that they deliberately want their interlocutors to know that they do not want to reply. The indirect message from the people who have the RBNR behavior, seems to be ''I am not interested in making further conversations with you''.

I actually do not care about my RBNR behavior to those I don't really care. Sometimes it is a good way to let them know 'I am not interested in you'. [F1, 19]

I don't do RBNR to people I care. But if I do RBNR, that means I don't really care about this person, and he/she should know by not getting my reply. [F2, 35+]

I couldn't care less about my RBNR behavior if the message sender is someone I don't really want to have further interaction with. I can't even bother to come up with any excuse. So maybe, by not replying, he/she will get the idea? The point is, I really don't feel comfortable to tell someone that I don't like him... [F2, 45+]

5.   Discussion

The goal of the present research is to understand people's perceptions regarding the use of MMAs, and their unique attribute – the read receipts function. From the findings, it shows that most of people consider MMAs (LINE in particular) enhancing their social life, by improving communications between friends, making people easier to maintain their friendships. The findings are similar with Church and de Oliveira's (2013) findings, where show the results using WhatsApp. The slight negative effect of MMAs found in the present research is the feeling of 'forced' interactions with others. Although people can always try to manage their usage of technologies, in this case, ignore the unwanted messages, it is still difficult for some people. Chandler's (2012) obligatory technologies studies may provide some insights to explain this situation. Obligatory technologies refer to '*technologies that must be adopted*' (Chandler, 2012 p. 254). It is said that once a technology enables people to take certain actions, the existence of the actions are considered to be moral obligation to be taken (Chandler, 2012). This may explain why those participants still reluctantly interact with others, as they may feel obligated to do so.

In terms of creating social position via MMAs' unique function, the results from the female participants, manifestation of rejections, are consistent with Lende's (2013) findings, where the read receipts function is a good way to demonstrate their intention to ignore someone. It is intriguing to see Chandler (2012) and Lende (2013) providing two opposite explanations of behaviors, when people are facing similar situations (forced to interact). The other two themes emerging under creating social position are the creation of power relationships and work-life balance manifestation. These findings are unique from the extant research, and provide new insights into people's behavior when using the MMAs to conduct communications. New behaviors have been observed, which provide some information for the App developers to consider – if any new changes, or new inventions are needed? In fact, this draws forth a topic for further discussions. Do people's needs determine the creations of technologies, or the technologies determine people's social behaviors?

Some scholars (e.g. Chandler, 2012; Sismondao, 2007) in deterministic studies have two main different views on the relationships between technology and social factors, stressing on whether technology causes the change of society and the people (and the behavior) within, or the needs of society and people within cause the evolution of the technology. In the case of changing communication styles, it is arguable if the MMAs change people's behavior, or people's behaviors cause the development of the new communication technologies. The former is termed technological determinism, and the latter is social determinism. There are also a few scholars rejecting the dichotomy of the relationships between technological and social changes. Instead, they claim the two have mutual influences, resulting in ''co-construction, mutual shaping" (Lock, 2007, p. 876; Oudshoorn and Pinch, 2007, p. 544), so either technology or society does not determine the other, they rather develop together simultaneously (Chandler, 2012).

Based on the findings of the present research and the conclusion from the extant studies, the relationships between

technological and social changes can be drawn in Figure 2.

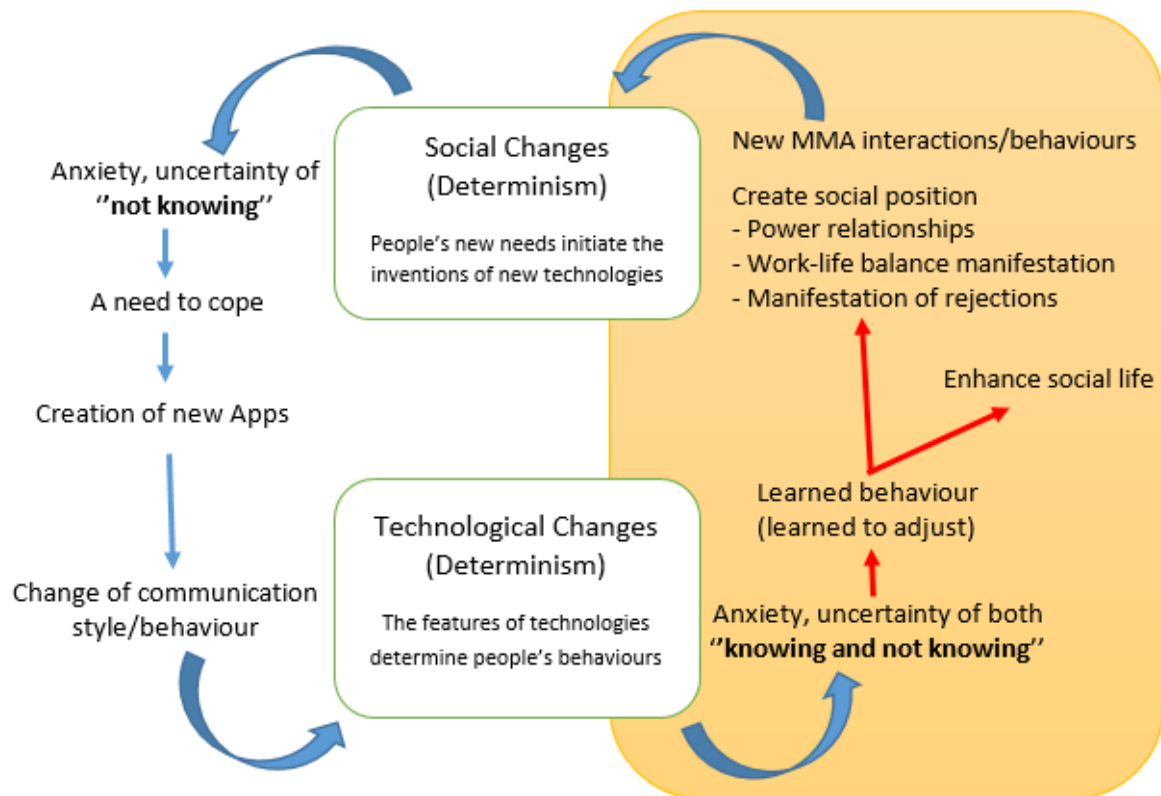The relationships between the two elements work like a loop in the ever-changing mobile technology world.

Figure 2. Technological Changes vs. Social Changes

The left-hand side provides the process of the creating new technologies to deal with people's needs, and then people's behaviors are changed because of the functions of the technologies. The present research findings are on the right-hand side, which provides the insights of the changes of people's behaviors through time based on the functions of the MMAs. Based on the combinations of the extant and present research, it is believed that the new behaviors would prompt more new functions to be added to MMAs, in order to fulfil people's needs. As a result, the App developers should think ahead when it comes to new functions of the MMAs, by checking which part of the loop the current users are in.

6. Limitations and Directions for Future Research

The present research is exploratory research in nature, aiming at understanding people's perceptions towards the use of MMAs to communicate. It is important to note down some limitations. First of all, as the present research is conducted in Taiwan, it limits its scope and contributions. Secondly, the findings relating to specific age and gender groups are based on limited number of participants. Based on these limitations, future research can expand the geographical areas into studying new countries or conduct country comparisons. It is also worth looking into different age and gender groups' behaviors by conducting a cross-country investigation.

7. Conclusion

In summary, the present research provides new insights for the MMA market, as well as echoing findings with the extant studies. The mobile technology and MMA industries can take the findings into account when they want to develop new

applications or functions to attract more users. The use of technological and social determinism studies to conceptualise the relationships between people's needs and technological developments helps to provide useful insights to the industry.

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