

# James Lynden and Teis Rasmussen:

## Exploring the impact of 'read receipts' in mobile instant messaging

### RESUMÉ

Sete meddelelser ("read receipts") signalerer til afsenderen, at en besked er blevet læst af modtageren. Dette er en udbredt funktion på Mobile Instant Messaging (MIM) applikationer såsom WhatsApp og Facebook Messenger. Anekdotisk betragtet, synes sete meddelelser at være en kilde til frustration blandt MIM-brugere. Trods dette, har forskningen i sociale netværksmedier ikke specifikt undersøgt effekten af sete meddelelser. Ved at bruge en mixed methods-forskningsstrategi, undersøgte vi i dette studie, de følelser, attituder og adfærdsmønstre, som er forbundet med sete meddelelser, og udforskede de sociale og kontekstuelle faktorer, som indvirker herpå. Vores resultater forbinder sete meddelelser med en række adfærdsmønstre og emotionelle følgevirkninger; herunder undvigelsesstrategier, forøget tilbøjelighed til at tjekke sine MIM-apps, ængstelighed, samt stærkt negative attituder mod funktionen.

### ABSTRACT

"Read receipts", which signal to the sender whether the receiver has read a message, are a common feature of mobile instant messaging (MIM) applications such as WhatsApp and Facebook Messenger. Anecdotaly, read receipts are a subject of frustration among MIM users. Yet, no existing research on networked communication has specifically investigated read receipts. In this paper, we investigated the emotions, attitudes and behaviours around read receipts and explored the social and contextual factors that influence those effects, employing a mixed-methods research strategy. In our findings, we link read receipts to an array of behaviours and emotional effects including avoidance strategies, increased app checking and feelings of anxiety as well as strong negative attitudes to the feature.

### EMNEORD

Read receipts, Mobile Instant Messaging, mixed methods, netværksmedier, WhatsApp, Facebook Messenger

### KEYWORDS

Read receipts, Mobile Instant Messaging, mixed methods, networked media, WhatsApp, Facebook Messenger

## Introduction

Picture this situation: you receive, via SMS, a text message on your mobile from a family member while you are casually drinking coffee with a friend at a cafe. You glance at it and decide to reply later. Now, picture that same message arriving through WhatsApp and a familiar ‘tick-tick’ appearing by the message showing to the sender that you have both received it and read it. Does this influence how you respond or how you feel about the conversation?

“Read receipts” are a feature of mobile instant messaging (MIM) applications such as WhatsApp, iMessage, Snapchat and Facebook Messenger. They signal to the sender of a message that it has been received or read and, potentially, when and even where it was read. While networked media research has investigated the role of these MIM applications in recent years, no networked media research, apparently, has explicitly focused on read receipts as an object of enquiry. Meanwhile, we observe that in everyday life people do seem effected by and aware of read receipts, a trend which is also reflected in media commentary on the topic. The purpose of this research is to fill this gap in the academic literature by understanding the attitudes and emotions that people have towards read receipts and to identify how read receipts might influence communication behaviours across various MIM applications.

This research will employ a mixed-methodologies research strategy. First, explorative qualitative research through semi-structured interviews will be used to explore the domain and generate theory about the role read receipts play. Then, deductive quantitative research through a survey design will be used to test these hypotheses and identify broader patterns. We find read receipts exerting some sense of pressure to respond in the form of increased app checking, avoidance behaviours and anxiety at lack of response, thus creating strong negative attitudes towards the feature. These effects are dependent on a nuanced web of influences including personality, situation, content, social context and gender differences. We hope these findings allow us to move toward situating read receipts within the broader theoretical backdrop of networked media research.

## Theoretical background

A Google Scholar search (7 May 2016) of “read receipts” and variants such as “delivery receipts” reveals no specific reference to read receipts within networked communication research; and, outside this academic field, references to the feature are limited. They have been considered by organisation theorists as a feature of e-mail (Tyler & Tang 2003) and problems concerning their technical implementation have been addressed in computer science publications (Govans & Ovens 2014). These studies, however, are not concerned with the effects of read receipts on human behaviour and communication in an interpersonal setting.

This is likely because most existing networked media research focuses on instant messaging (IM) platforms confined to the desktop computer or restricted to SMS on first generation mobiles. Studies such as those by Katz and Aakhus (2007) and Licoppe (2004) provide an understanding of the dynamics of interpersonal communication mediated by the mobile or desktop IM. However, this research generally predates the advent of read receipts, which was first introduced to iMessage in 2010 and Facebook in 2012. The project of updating networked communication research about MIM apps is in its inception. One example is Cui’s (2016) study of Wechat, exploring patterns of social interaction in this app, which is popular in China.

Nonetheless, the theoretical backdrop of networked media and communications theory provides a range of sensitising concepts that help direct the research to understand the role played by read receipts in MIM applications. Valuable theoretical contributions include Baym’s (2010) analysis of media in comparison to face-to-face communication and resulting seven media characteristics, and research around the cultural impact of communication such as the theories of perpetual contact (Katz & Aakus 2007) and reachability (Baron and Segerstad 2010).

In addition, social cognitive research on message clarity through e-mail suggests that people are worse than they think at getting their intended message across to the recipient - an effect that may spill over to communication through IM (Kruger, Epley & Ng 2005). Thus, even when we look at areas other than networked media research, we find a motivation for studying the role of read receipts in MIM applications.

The lack of discussion around read receipts is also in stark contrast to the attention the topic gets outside academia. In blogs and editorials, several commenters have written about the supposed social pressure, annoyance and loss of control in communication that occurs as a result of read receipts in MIM applications (*The Guardian* 2015; *Ars Technica* 2013; *The NY Magazine* 2014). Meanwhile, we have observed concerns about read receipts in our own social groups.

For these reasons, we consider the study of the effects of read receipts on emotions, behaviours and attitudes to be an interesting and neglected topic, which provides the motivation for this study. Networked media research needs updating for a smartphone world, and looking deeper into read receipts will contribute to this current objective in the field.

### **Research strategy**

To fill the gap in networked communication research on read receipts, our objective is to analyse the behaviours, emotions, attitudes and contextual factors surrounding them. To this end, the research questions are formulated as follows:

1. What attitudes and emotions do people have towards read receipts?
2. How do read receipts influence communication behaviours in MIM applications both for senders and for receivers?
3. What contextual, social and personal factors play a role in the effects of read receipts?

These questions are formulated as an explorative starting point. During the qualitative phase, we remained sensitive to other influencing factors as they became apparent, which could then be explored further in the quantitative phase.

The scope of this research focused specifically on read receipts within MIM applications. The most popular of these include WhatsApp, iMessage, Facebook Messenger and Snapchat. Although they are primarily mobile apps, many of them are multi-device. For example, Facebook Messenger is integrated with the Facebook website. Variants of MIM read receipts, including

confirmation of delivery, confirmation of reading, and time of reading, are within the scope of this study.

We chose to focus the research exclusively on interpersonal communication, be it one-to-one or multi-person chats. This leads to several delimitations. We did not study the “seen by” notifications that appear on public posts, which are a one-to-many type of communicative act. Neither did we study e-mail, in situations in which the sender of an email requests a read receipt. These read receipts are different in that they are usually found in an organisational or professional setting, using more asynchronous e-mail platforms, and give the reader an option of whether they wish to supply the sender with a read receipt or not.

A mixed-methods research strategy was employed to generate and validate theory around read receipts. This approach allowed us to generate theory through qualitative investigation and confirm and claims with quantitative investigation within the same project (Bryman 2016). In our research, the quantitative and qualitative phases have equal weight and priority. This strategy is what Bryman (2016) describes as a “QUAL > QUANT” approach in that the qualitative precedes the quantitative temporally, but they are both equally important with respect to investigating the research questions.

Each phase has a different focus. The qualitative phase was designed to generate a hypothesis around the effects of read receipts with a very broad net. This approach took inspiration from grounded theory (Charmaz 2013.) It was highly iterative and purposive, using a process of sampling, data collection, coding, concept generation and categorisation until a hypothesis could be developed into a substantive theory (Bryman 2016). Meanwhile, the quantitative phase took a deductive approach. It aimed to find new patterns, assess the validity of the qualitative findings and offset anecdotalism (Bryman 2016).

The research was directed by the same research questions and conducted within the same population during a short time span of three weeks. The qualitative research helped develop instruments for the quantitative phase - for example, by using the language of interview respondents in survey questions. As researchers, we worked closely together to validate each other’s methods and findings throughout the research. The findings are integrated in our

analyses of both data sets. As such, this mixed-methods approach should be considered highly integrated. We now turn to a sequential reporting of the methodology and key findings for the qualitative and the quantitative phases, respectively, before integrating the findings into the discussion.

## Qualitative phase

### *Methods*

The main purposes of the qualitative phase were to develop theory around the topic and identify a hypothesis to operationalise quantitative testing. An iterative approach was used whereby the interview guide and sampling was adapted to seek out the themes salient in first cycle coding conducted throughout the research.

### *Sample*

Maximum variation sampling was used within the population of Copenhagen University humanities students. Ten participants were selected to achieve diversity across gender, subject groups and nationalities. An example of the purposive nature of this sample was the recruiting of a couple, who were interviewed independently when it became apparent that dating was an influencing factor. The following names are aliases to anonymise the participants. All participants were between the ages of 20 and 29.

*Fig 1: Sample*

Lars: Male, Danish, media student (pilot interview)	Michelle: Female, Danish-American, migration studies student (in a relationship with Jeppe)
Jeppe: Male, Danish, language student (in a relationship with Michelle)	Christine: Female, German, film student

Peter: Male, Danish, political science student	Katrine: Female, Danish, communications student
Andrea: Male, Italian, film student	Clara: Female, Spanish, film student
John: Male, British, communication student	Charlotte: Female, Danish, linguistics student

### *Interview approach*

The interviews were conducted over the course of two weeks on the humanities campus. Efforts were made to ensure the interviews were done in a naturalistic setting. Each interviewee was simply bought a coffee for their time. All the interviewees provided their consent for the interviews to be recorded and quoted, and they were made aware of the purpose of the project. Each interview was recorded and fully transcribed.

The interviews were semi-structured to ensure that key points from the research questions were covered consistently, while allowing flexibility for exploring new themes as they arose. A narrative interview technique (Holloway 2000) was used to elicit participants' memories of an occasion relevant to read receipts, such as "can you tell me about a time that you sent a message and were waiting for a response?" This technique allowed for the exploration of memories in more depth by discussing their attitudes and feelings toward read receipts on a certain occasion. In addition to narrative components, questions were asked directly to elicit contextual information such as "please, tell me what applications you use for instant messaging?" An initial interview guide was drafted and piloted, which confirmed the strength of the questions and the length of the interview.

### *Coding*

The coding process was performed using QADCAS software NVivo. This was valuable, given the sheer volume of codes in what turned out to be a richly nuanced domain. There were two cycles of coding (Saldaña 2013).

First cycle coding was performed each day of interviewing while the interviews were still fresh in the interviewer's mind. Analytical memos, an initial identification of codes and key quotes were noted during the interviews (Miles & Huberman 1994). Coding was done line-by-line, employing a mix of descriptive coding and converting quotes directly into codes to reduce likelihood of "imputing motives" or biasing data (Charmaz 2013.) The detail of this approach captured nuances of the behaviours, emotions and attitudes of the participants. The process resulted in a richly textured primary set of over 300 codes. These codes were then organised, categorised and supplied to the co-author of this paper to verify by independently reviewing the transcriptions and codes.

A leaner approach was taken through the second cycle coding, which grouped together codes into broader categories and themes (Miles & Huberman 1994.) This process of rationalisation and structuring resulted in a more manageable code list of roughly 220 codes across 17 categories. This code list has consciously been kept detailed to provide the right language and categories to use in the quantitative phase.

Conclusions were drawn broadly following Miles and Huberman's (1994) tactics for generating meaning - that is, by (1) noting patterns and themes, (2) seeking plausibility, (3) clustering, (4) seeking metaphors, (5) counting codes, (6) making contrasts and comparisons, (7) partitioning variables and (8) seeking factors or causation (p. 245). This analysis allowed for a mapping of the core concepts and the relationships.

### *Findings*

We shall now present an overview of qualitative findings, following the lines of the research questions, and then sum up the hypothesis brought forward for operationalisation in the quantitative phase. All in-text quotes reference the words used by participants.

### *Overview*

Read receipts do affect MIM users in terms of emotions and behaviours, and these effects are different for both sender and receiver. The emotional effects of read receipts are diverse. Commonalities include negative emotions such as



a pressure to respond for receivers or anxiety when awaiting a response for senders. The behavioural effects are less diverse, including avoidance strategies for receivers and increased app checking and speculation for senders. Attitudes towards read receipts range from slightly positive, because they have a functional purpose, to hatred of the MIM feature. Attitudes also include etiquette for response times, centring on "equal expectations".

This mix of attitude, emotions and behaviours is particularly influenced by personality and social context as well as situational context, message content and platform features. For example, extremely close relationships are less at risk of the negative effects of read receipts. However, in a dating context, read receipts may be seen as having a role in "mind games."

#### *Awareness*

Few participants knew the term "read receipts." However, once the term was explained, all participants had previously noticed the feature. Some participants are highly conscious of them in their day-to-day interactions and may have given the subject some previous thought - particularly, those experiencing more negative effects.

#### *Quote 1*

Interviewer: So, people don't normally talk about read receipts; so, how aware of them are you? Have you noticed them before?

Charlotte: Yeah, I noticed them. It's quite stressful that they are there. I feel like I always have to respond as soon as I open the Facebook message. So, I tend to ignore the message for some time.

#### *Effects on receiver*

The presence of a read receipt and the knowledge that the message's status is available to the sender can create a sense of being "forced to respond." This pressure can cause frustration or stress for the receiver, a desire "to be left alone," a sense of being "overwhelmed" or even a "guilty conscience." Some

participants (interestingly, exclusively male) claimed not to be affected by read receipts. Nevertheless, all participants employed avoidance strategies such as reading snippets on the mobile home screen or avoiding opening the application or the message in order to "pretend that I didn't see it." This is particularly the case when they are less invested in the conversation or the relationship, do not want to disturb what they are doing, or want to wait "to give a more meaningful response." There was a sense that the read receipt increased the likelihood of an immediate or faster response.

*Quote 2*

John: I remember when they brought in read receipts – they said “read by blablablabla” and that very much annoyed me because it makes – I felt it put pressure on my – on me – to read things. And also, erm, it panned into my own anxiousness about whether other people were reading my messages.

*Effects on sender*

For the sender, the message being marked as “read” can cause concern about "being ignored", which may bring about “anxiety,” "insecurity" - perhaps, even "triggering underlying emotions" such as "jealousy" or "loneliness". The “silence” of an unread message awaiting a response can feel "uncomfortable," "upsetting" and even "unsettling." Nevertheless, some try to "not take it personally". They try to avoid "over-thinking" and, sometimes, recognise a "need to be patient."

The read receipt may cause participants to check their phone more often and cross-check with the online status of the receiver, potentially "calling out" the receiver for not responding. Senders "speculate", "interpret" and "imagine" what is going on at the "other end" and reach conclusions about the lack of response, referring to their knowledge of the person and their situation. Ultimately, the read receipt allows the sender to "assess the other person's interest" in either the conversation or them.

*Quote 3*

Charlotte: I think they just - it, like, makes people worry and overthink about stuff. And you get quite, like - oh, start to question everything that just happened. I think it makes people insecure. ... You have time to overthink about that situation for I don't know how many minutes, hours, it takes until the person responds.

*Effects in general*

In MIM, sender and receiver are in a rapid reversal of positions, and some effects of read receipts cannot be assigned to either side. Both the pressure to respond and the anxiety in waiting for a response can disrupt attention or interrupt "trains of thought". With messages to respond to and people to initiate conversation with, many keep a "mental list" of the status of their various conversations in order to "plan" communication. One participant felt she was constantly "juggling conversations" and part of a "horrible game of catch-up." Due to these effects, some have deactivated read receipts (where that option is available).

*Quote 4*

Michelle: I hate read receipts. I am someone who is constantly behind in my life and, umm... since I'm playing this horrible game of catch-up, sometimes it takes me a while to respond to people.

*Attitudes*

Attitudes to read receipts ranged from slightly positive to very negative. Highly negative attitudes include seeing the feature as "evidence against you," which can be used as a "personal attack," supplying "unwanted information." They are "intrusive" and influence behaviour in negative ways to the extent that "they are not good for me." Most participants had mixed feelings, simultaneously seeing negative effects but recognising that they were "useful" in some circumstances. These include emergency situations, when "knowing

the other person is alive" is enough, and functional messages with questions that do not need a response.

*Quote 5*

John: It's an intrusive thing. It means that you can, erm, you can constantly be thinking about and rechecking your messaging app to see if someone's read your message.

Participants seem to have available to them an implicit code of conduct involving "equal expectations", that is, participants expect conversation partners to respond as fast as they would do themselves. People who break these norms are considered rude or "bad at responding".

*Influencing factors*

Two key variables seemed particularly to influence how participants reacted to read receipts. These were personality factors and social context. In terms of personality factors, participants observed that their more socially-insecure contacts were more affected by the negative effects of read receipts. Meanwhile, it appeared that participants with busier or planned lifestyles, who treat time as a precious resource, are more likely to find read receipts stressful and intrusive.

*Quote 6*

Jeppe: Because it's her personality that makes me feel, like - less obligated. I know that if it meant a lot to her, then I would probably feel, like ... really obligated.

In terms of social context, it seems that relationships that are closer in terms of both physical proximity and the strength of the relationship cause participants to worry less about read receipts. With strangers, the read receipt is interpreted as gauging interest in building the relationship. A dating context exerts the

most powerful effect. The read receipt becomes part of a "mind game" in which people attempt to seem "not desperate". It is here that participants were most aware of the feature and the first circumstance that participants considered when asked to talk about read receipts.

*Quote 7*

Peter: Because if it's, like, a good friend, for example, who is not very sensitive to language or to - how fast I get back to him or whatever, it doesn't really matter how I get back to him.

Cutting across personality, lifestyle and social context variables, the content of messages, the situation in which it was received, the platform on which it was received and the type of read receipt also play a role. Some messages are not considered to need a reply. The read receipt is just enough information to act as a confirmation of receipt. For longer or more "meaningful" messages, the read receipt matters more. Most participants recognise that there are situations in which it is an inconvenience to respond immediately, such as work or being engaged in another social activity.

In terms of platform factors, there seems to be a "ranking" of read receipts in terms of how intrusive they are: at the lowest end delivery receipts are the least intrusive, followed by read receipts, then timestamps which tell when a message was read and then the 'writing now' symbol, which are considered the most intrusive. This ranking appears to be in terms of how much information is provided on the user's behalf by the app.

*Quote 8*

Peter: I guess it depends on the context of the conversation because if it's something important or if it's ... something which is emotionally upsetting, then you would have to feel that you have to get back to them as soon as possible. But if it's just like practical information, then it doesn't really matter to me.

Finally, the subject of gender - particularly, the idea that women were more affected by read receipts - came up in several of the interviews, but participants were keen not to employ stereotypes.

*Quote 9*

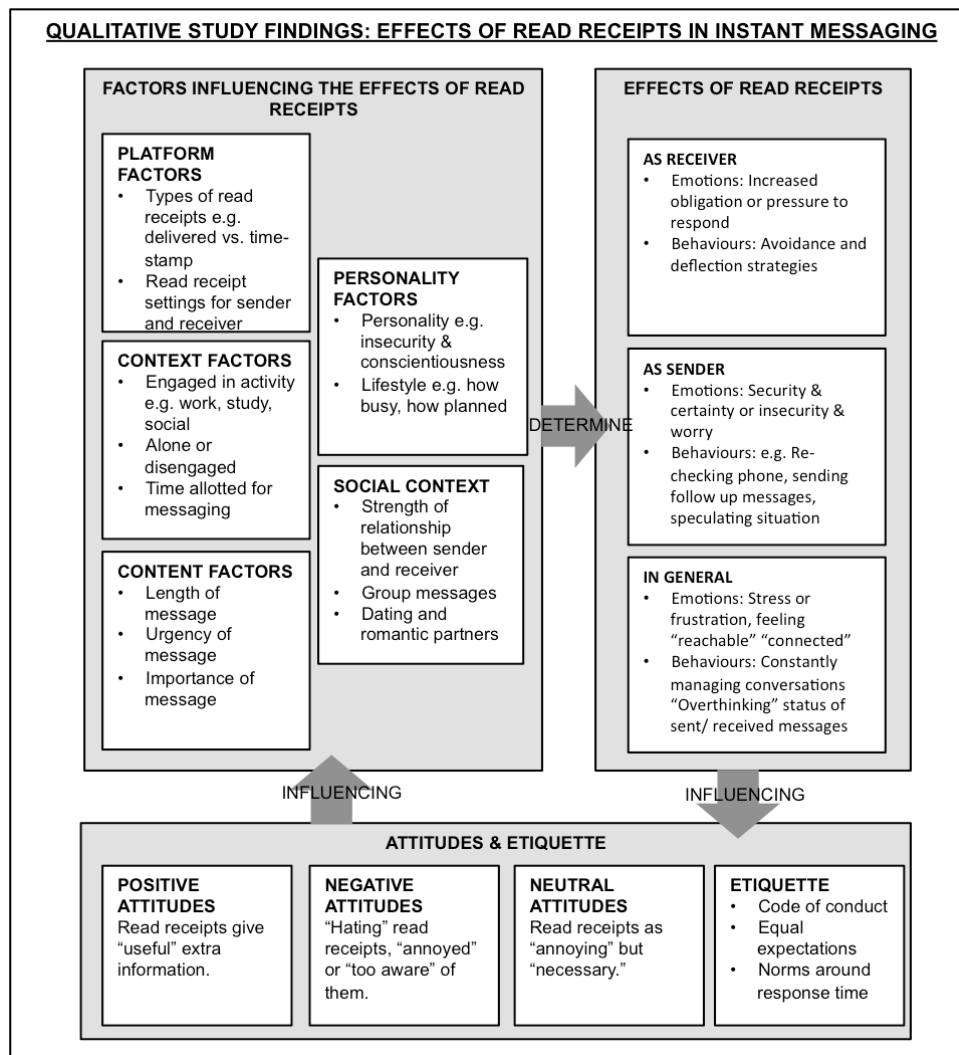
Andrea: I actually feel less pressure when a male friend sends me a message and I read it and don't respond to it. I don't know why, but I feel more pressure when I'm texting to a woman. Because. I don't know. They might have a different perception on WhatsApp or whatever. It's not a sexist topic, but I don't know.

*Hypothesis for the quantitative investigation*

The figure below tracks and summarises the relationships between the themes discussed and represents. For an overview of the relationships between these themes, please see the figure below.

The qualitative phase revealed such a wide range of insights that it was required to narrow down the hypothesis for operationalisation in the quantitative phase. It was decided that the quantitative phase should assess the prevalence of the behaviours, emotions and attitudes among the population and the extent to which this is mediated by situational and relationship factors.

Fig 2: Relationships between themes



## Quantitative phase

### Methods

A questionnaire, created in *Google Forms*, was designed to test the hypotheses developed in the qualitative phase.

### Sampling

A convenience sample was obtained on the humanities campus of the University of Copenhagen (KUA), where responses were collected both on-site and online. On-site, the students were offered a free cup of coffee in exchange for filling out the survey. Online, the questionnaire was posted in the following

Facebook groups: "Cognition and Communication '15", "Cognition and Communication", "KUA", and "Cognition and Communication '14". Using this approach, we could reach a response rate satisfactory for the limits of a student project ( $n = 108$ ). The gender ratio of the sample pool was skewed towards females with 67 respondents being female (62% of the sample) and 41 being male (38% of the sample).

### *Questionnaire design*

An initial version of the questionnaire was piloted ( $n = 9$ ). Based on the pilot, we adjusted the questionnaire in terms of the ordering and phrasing of question items.

In the finalised questionnaire, respondents were asked about socio-demographic and contextual factors such as gender and MIM application usage. Respondents who did not use MIM applications were filtered out. Respondents were also asked about their awareness of read receipts prior to taking the survey. As the concerns shown by several interviewees depended on whether they were sending or receiving messages, we included categorical question items for both senders and receivers of messages. We applied this distinction to feelings towards read receipts and behaviours involved in managing them.

We enabled questionnaire respondents to indicate by category any avoidance strategies they might engage in. We were also interested in exploring attitudes towards read receipts. Thus, the questionnaire included three Likert items, which asked respondents to report how useful and likeable they found read receipts.

We also asked respondents to indicate how their awareness of read receipts varied across situations (e.g., at work, at home alone or at a coffee shop) and relationships (e.g., a close friend, a stranger and a date). The questionnaire also included questions about respondents' read receipt settings and lifestyle.



## Findings

The questionnaire data was exported from *Google Forms* into *Excel* for data clean up. The data set was then imported into *IBM SPSS Statistics* for analysis, the results of which will be presented in this section.

### *App usage and awareness*

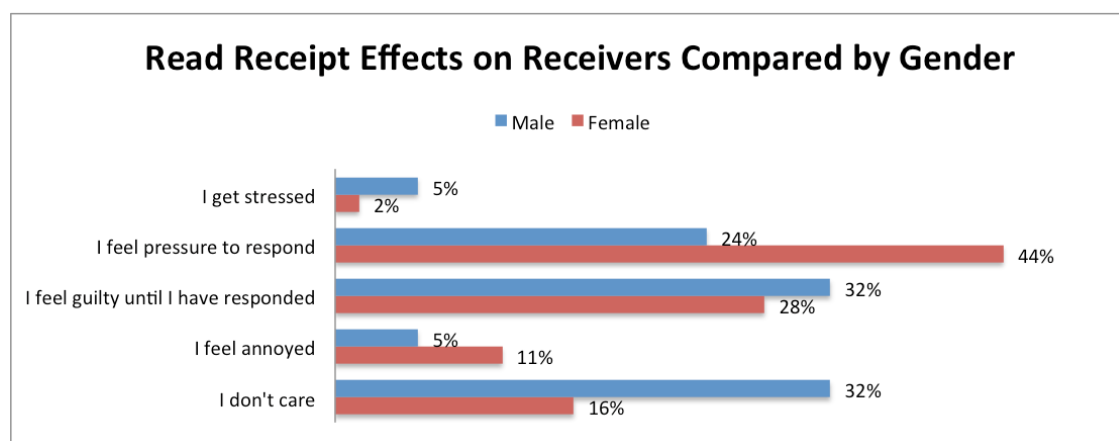
Of the 101 respondents, 93.5% use MIM apps, including Facebook Messenger (94.1%), WhatsApp (37.6%) and Snapchat (60.4%). Of MIM application users, a massive 92% had noticed read receipts before taking the survey. This should increase the validity of our findings since it indicates that the surveyed students are familiar with the issues we asked them about. However, the high awareness may be slightly inflated because many of the participants came from the humanities and, specifically, communication studies and related fields.

### *Emotional effects*

When asked about how they react to receiving messages on MIM apps, respondents provided a broad range of affective responses. The most prevalent answer was feeling pressured to respond (36%), followed by a sense of guilt (30%). Interestingly, 22% claim “not to care” about read receipts on MIM apps.

It appeared that these emotional effects have clear gender differences. For example, 44% of women reported feeling pressured to respond when a message has been marked read, as opposed to 24% of men.

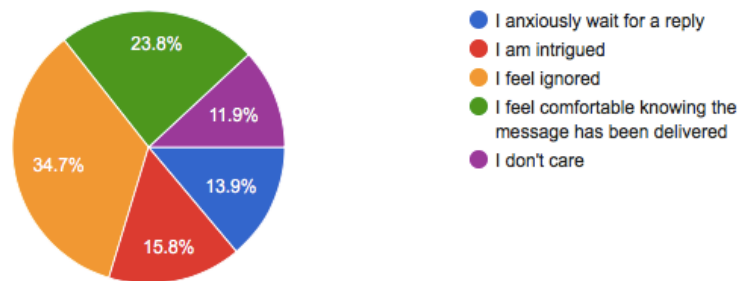
Figure 3: Relationship between gender and feelings when receiving a message



Effects are mixed in the assessment of how people react to having sent a message -- with a feeling of being ignored as the most prevalent answer. There are positive reactions, however. 40% of respondents reported feeling comfortable knowing their message had been delivered or even feeling intrigued.

Figure 4: Emotional effects on sender

Tick the option that comes closest to describing what you feel in this moment  
(101 responses)



### Behaviours

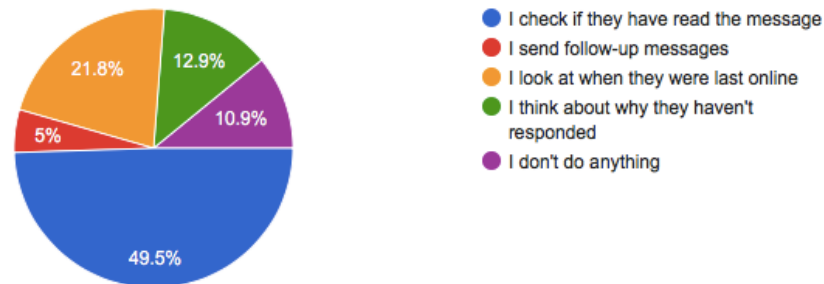
When looking at behavioural responses for receivers, we found that participants prefer to respond whenever they feel they have the time (64.4%). However, roughly one third of respondents claim they ignore a message for as long as they can or, on most occasions, they respond instantly.

Half of the respondents claimed to react by checking the read receipt to determine whether the recipient had read the message. As for the other half of the sample, responses were mixed. Options included checking when the recipient was last online and wondering why the recipient had not responded.

Fig. 5: Behaviour of senders

Which of the following best describes what you do when you send a message and are waiting for a response?

(101 responses)

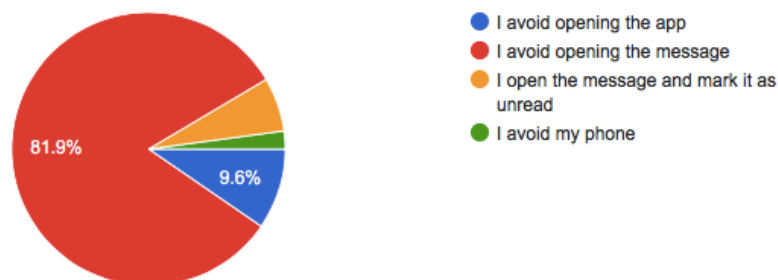


Another interesting finding was that avoidance behaviours turned out to be very prevalent. Virtually every participant surveyed (93%) claimed that they sometimes avoided marking a message as being read – specifically, by not opening the message at all. This indicates that people have an aversion to opening messages on MIM apps due to read receipts.

Fig. 6: Avoidance behaviours

Which of the following best describes what you do to avoid marking a message as read?

(94 responses)



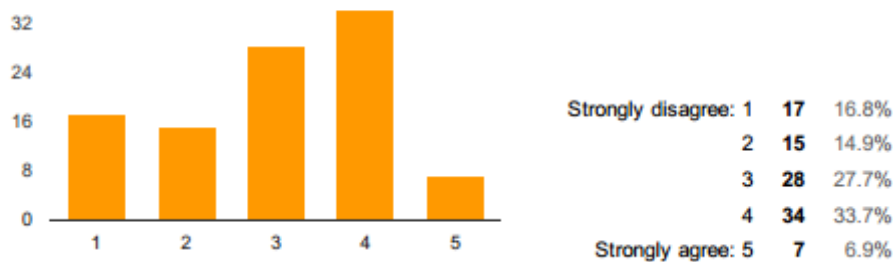
### Attitudes

The items tracking the attitudes towards read receipts provide some interesting insights into their effects. Attitudes varied substantially about the usefulness of read receipts. A third of respondents (34%) recognise that read receipts are

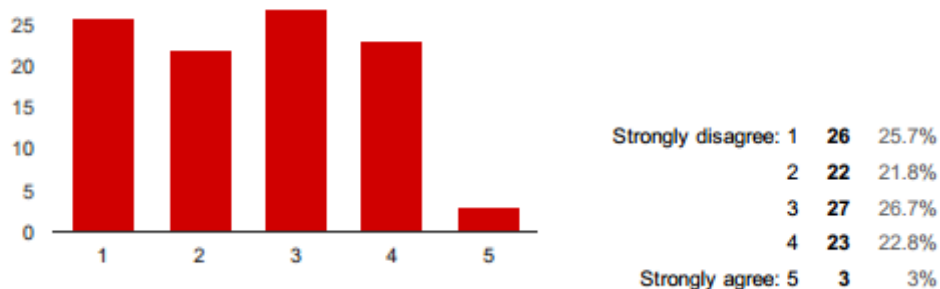
somewhat useful, whereas another third (32%) either strongly or moderately disagree with read receipts being useful. Notably though, just 7% of respondents strongly believed read receipts to be useful. Meanwhile, when asked if they liked read receipts, just 3% of respondents were strongly in their favour, in contrast to 47% either strongly or moderately disliking them. In other words, whilst some find that read receipts can be useful, still nobody loves them.

Fig. 7: Usefulness and liking of read receipts

#### Overall, I find read receipts useful



#### Overall, I like read receipts



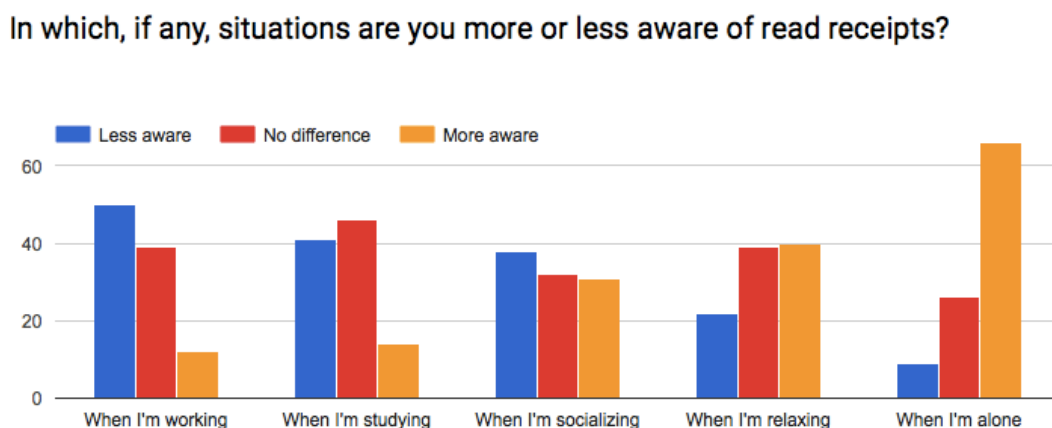
We also found a great deal of ignorance about read receipts. Over a third of the respondents did not know how to change settings. This indicates room for improvement: if more people could be made aware of the possibility of changing the settings, perhaps, less frustration would result. On the other

hand, perhaps, if people were truly as frustrated by read receipts as they commonly report, more people would have actively sought the settings to turn them off.

### *Situational factors*

Different situations appear to evoke different effects. Respondents reported being more aware of read receipts when alone than when in the company of others. Additionally, it seems that, as the informality of the situation increases – from working to studying to socialising, the more aware people become of read receipts. In short, the less occupied by other things people are, the more conscious they are of read receipts.

*Fig. 8: Situational influences*

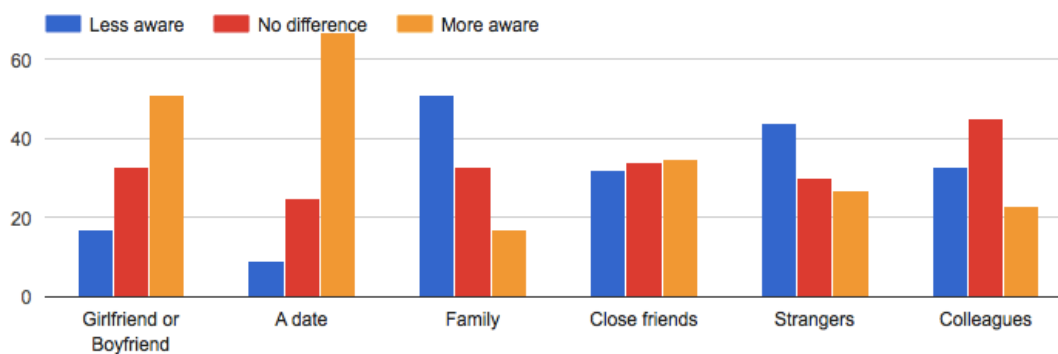


### *Relationship factors*

Across different types of relationships, respondents reported differing degrees of awareness of read receipts. The largest effects were seen in a boyfriend/girlfriend relationship or on a date. A dating context seems to be where people are most aware of read receipts, which confirms the findings of the qualitative phase. Nonetheless, these results go somewhat against the qualitative phase in finding that participants are also more aware of read receipts when messaging a girlfriend or boyfriend. When dealing with family, close friends or co-workers, respondents seem less concerned.

Fig 9: Awareness of read receipts in different types of social relationships

In which, if any, types of relationship are you more or less aware of read receipts?



## Discussion

The diversity of emotions elicited by read receipts discovered in the qualitative research was confirmed by the quantitative; few have neutral attitudes to read receipts both as senders and as receivers. The pressure to respond, and the anxiety in waiting for a response, which were the most common and strongly felt emotions among the interview participants, also accounted for the largest portion of respondents in the quantitative phase. This confirmation was also apparent in the sheer awareness of read receipts and the negative attitudes toward them, which appeared in both phases of research.

Whereas the qualitative phase revealed avoidance behaviours associated with read receipts for receivers and increased checking and speculation in senders, the quantitative phase revealed the prevalence of these behaviours. These kinds of behavioural effects associated with read receipts are not merely the anecdotal finding of a dozen interview participants; almost everyone in our sample reported a behavioural effect as a sender or a responder. Nevertheless, while the qualitative phase made out these specific behaviours to be highly diverse, the quantitative revealed them to be less so: Most respondents simply avoiding opening messages as receivers or increased checking as senders.

Where the qualitative phase pointed towards these emotive, attitudinal and behavioural effects as differing based on a set of factors including situation, relationships, content and personality, the quantitative phase through bivariate analysis came into its own by discovering how exactly these factors play a role. This was particularly true in the analysis of gender, discussed previously. The quantitative phase also put into stark relief the role of different relationship types and contexts on the effects of read receipts.

These findings merit of a discussion of “why”? Why is it that read receipts have such clear emotive, attitudinal and behavioural effects? We shall link read receipts to their role in media characteristics of MIM applications – specifically, feedback. Then, we shall link our findings to the concept of perpetual contact and, finally, consider the social cognitive drivers that may be behind these effects.

### *Feedback*

Read receipts seem to play a role in replicating the face-to-face social cue of feedback (Daft & Lengel 1984) in MIM applications. Letting the sender know that you have read a message plays a similar role to showing that you have listened to or heard a message by gesture or voice in face-to-face communication. By increasing the richness of this social cue in the application, the read receipt seems to play a role of increasing the synchronicity of the communication, making it closer to face-to-face communication in the expectation of a reply (Baym 2010).

Nevertheless, the production of negative attitudes and emotions brought about by read receipts seems to come out of the fact that this feedback is *automatic*. Read receipts – especially, in applications in which they cannot be turned off such as Facebook Messenger -- do not give receivers a choice of showing whether they have listened or not. This goes some way towards explaining why receivers can feel “forced to respond” and annoyed about the communication. They simply feel less in control of their MIM communications repertoire than if there were no read receipts. Each opened conversation represents a new social obligation.

*Quote 10*

Charlotte: Because when you talk to someone in instant messaging, the fact you can see they read the message and when they read the message and where they saw it if they allow it on their phone. That's just like a face-to-face because I can see when you like listening to my sentence, and I also know where you are. That's really similar to face-to-face.

*Social cognitive factors*

Unsurprisingly, it appears that the importance and security of social relationships are associated with people's reactions towards read receipts. It seems that when people care a lot about an uncertain relationship, the impact of read receipts is at its strongest. This is the case in a dating context in which respondents report being more aware of read receipts. On the other hand, when people feel certain about the relationship such as with family or with a girlfriend or boyfriend, they are less aware of read receipts. The same is true with less important relationships such as with strangers, where the awareness of read receipts is also less pronounced as senders simply care less about the potential of being ignored in relationships that matter less to them.

These results are consistent with the literature on the importance of social interaction and relationships. According to 'Uncertainty Reduction Theory', people are motivated to reduce uncertainty in relationship contexts (Kellermann & Reynolds 1990). In addition, people are strongly motivated to feel social belonging and attachment (Baumeister & Leary 1995), and social relationships even improve health (House et al. 1988). Thus, people's behaviour patterns surrounding read receipt can be expected to track the motivations to reduce uncertainty and to fulfil the need for social connection.

Kruger, Epley and Ng (2005) investigated the discrepancy between perceived and actual message clarity about email and found that people are remarkably overconfident in their ability to get their intended message across. The lack of nonverbal cues and the egocentric perspective of the sender make the sender overestimate the clarity of the intended message, leaving room for misunderstanding (Kruger, Epley & Ng, 927-933). Although their studies



focused on communication through email, the authors suggest that the results may readily apply to IM as well (Kruger, Epley & Ng, 934). In fact, it is suggested that synchronous media - such as IM - might even increase miscommunication since people will spend less time checking the clarity of their message before pressing the "send" button.

This might explain why people tend to feel ignored when they have sent a message and only get a read receipt in return. The egocentrism of the message recipient does not take into account that a read receipt is not merely interpreted as a "got it" stamp by the sender. The recipient might be very conscious of why he is not responding, but that insight is not accessible to the sender.

#### *Reachability and perpetual contact*

Together, the role of read receipts acting as automatic feedback mechanisms, playing into social cognitive drivers of motivations that maintain relationships, seems to link into theories on the cultural impact of the mobile device in an always-on digital world.

Several participants spoke about the "intrusiveness" of read receipt, which made them feel constantly "reachable." Some linked this to being part of a "constantly connected culture" or even a "surveillance society" in which one feels "constantly observed." This vein of thought links read receipts to the concept of "perpetual contact", which was coined by Katz and Aakus (2002) and further developed by various researchers in the field. The elements of this include "connected presence" (Licoppe 2004), which is a state of "reachability" whereby people both desire reachability from others and yet wish to avoid being reachable themselves. (Baron & Segerstad 2010) Meanwhile, in a society of perpetual contact, people are subject to the potential for "continual surveillance" (Rule 2007), which links to the sense that read receipts give away some information about users' behaviour outside of the receiver's control.

*Quote 11*

Peter: You know the whole trend about connectivity. Being online all the time. Being available. You know... *reachable*. This is probably a driver of that as well. Because you, you know you can see that other people have, you know, sent the messages and also in the reverse order. So, it probably adds up to - to that whole connectivity trend. And being online all the time.

*Limitations*

Perhaps, the largest limitation to our project was the sheer richness of the domain that we were targeting. The qualitative phase provided a massive amount of codes to organise and understand and required a ruthless selection process to decide what to test more in quantitative analyses. Perhaps, we were not ruthless enough. This led to the temptation of gathering too much information across too many variables in the questionnaire. The survey ended up including 30 question items in total. Thus, we ended up with too many question categories relative to our sample size. Although, relative to the constraints of a student project, our sample was quite large ( $n = 108$ ), it was small with respect to the kinds of analysis we intended to conduct. For example, bivariate analyses between emotions, attitudes behaviours and feelings in the context of read receipts were generally uninformative, which is why these analyses have not taken up much space in the findings section. A future project with a larger sample could address this shortcoming.

Another limitation due to our sampling methodology was that we collected a convenience sample rather than a representative one. The problem with this approach is that we cannot generalise our findings to the population (Bryman 2016). We do not know what population our findings apply to because the interview participants and questionnaire respondents were not randomly selected. As such, we cannot confidently draw conclusions beyond our sample (humanities students at the University of Copenhagen). Our sample was highly-educated compared to the general population and diverse in nationality, which are notable ways in which our sample differs from, for example, the national average. Still, convenience samples can be suitable for creating a stepping-stone for future research in situations in which resources

are limited (Bryman 2016). In that respect, our sampling approach fit the aims of our research, as we consciously chose a topic largely unexplored in the social sciences and of a size suitable for a student project.

## Conclusion

This study was motivated by a clear gap in existing networked media research around read receipts. The feature is a key aspect of people's experience of contemporary mobile instant messaging and, often, a subject of frustration for users, which indicated that it might be an interesting area of research. We hope that the present study has gone some way towards filling the gap by situating read receipts within a diverse array of effects across attitudes, emotions and behaviours.

Key findings are that read receipts exert a pressure to respond and increase app checking, avoidance behaviours and anxiety at lack of response. We observed patterns in how these effects are influenced by external factors. For example, participants are more adversely affected by read receipts in a dating context, and women seem somewhat more adversely affected than men (or, at least, men report to be less so.) Generally speaking, descriptive findings from the qualitative phase were validated by univariate analyses in the quantitative phase. Nevertheless, because of the sheer number of influencing factors we attempted to operationalise quantitatively, it became a challenge to analyse relationships between the variables. Ultimately, it is a problem that read receipts are a richly textured and highly nuanced domain, revealing a complex web of influences including personality, situation, content, context and gender differences.

We have briefly speculated as to how these findings could play into aspects of digital society such as perpetual contact and reachability, and we have interpreted the role of read receipts as an operationalisation of feedback, an aspect that sparks socio-cognitive concerns about relationship maintenance. Additional research could address a narrower range of factors - - for example, having identified the effects of read receipts, how exactly does message content affect expectations for response? Or to what extent does the pressure to respond vary across different personality traits? Ultimately, the challenge lies in curating and selecting the findings in a focused manner fitting

for the scale of the project. We believe this is a strong indicator of how much there is to gain from future research into this rich and highly relevant topic.

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