

## "Hello! I am sitting right in front of you..."

The influence of phubbing behaviour on perceived affiliation during face-to-face conversations in social settings



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## Abstract

Mobile phones are often used during social face-to-face interactions. This type of phone use in co-present situations is referred to with the term 'phubbing'. Because the phone user's gaze is directed to the mobile phone while phubbing, mutual gaze possibly becomes reduced. This can have a negative influence on affiliation, since mutual gaze indicates more closeness between people. Therefore, the first aim of the present study is to examine the influence of mobile phone use (i.e., phubbing behaviour) on affiliation in a social face-to-face interaction, with a particular focus on the role of gaze. Additionally, it is also important to bring different contexts and factors into account, since gaze and its effects may vary in different situations. Therefore, the second aim of this study is to investigate these aspects. First, since people switch constantly from speaking and listening position during a conversation, the use of a mobile phone during listening is compared to a situation during speaking in terms of its effect on perceived affiliation. Secondly, the use of a mobile phone is compared to a situation in which gaze is directed towards another type of information medium (a newspaper) since there are other types of media besides a mobile phone that may have a negative influence on social face-to-face interactions. To that end, a between-subject experiment was conducted in which respondents ( $N = 125$ ) were asked to evaluate a movie fragment presenting two actors during a social face-to-face interaction. The respondents were asked to indicate the degree of affiliation they perceived with regard to one of the actors. The findings from the present study indicate that the absence of mutual gaze during face-to-face interactions has a negative influence on perceived affiliation. Additionally, the results also showed that (1) the use of a mobile phone during listening resulted in lower affiliation scores than using one while speaking and that (2) the phone user was evaluated more negatively than the newspaper reader.

**Key words:** mobile phone use, mobile communication, face-to-face conversations, nonverbal behaviour, gaze, affiliation, phubbing, using, eyes

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## 1. Introduction

Modern technologies like the Internet, social networking, and mobile phones have facilitated the communication between people. In particular, according to Srivastava (2005), the mobile phone has decentralized our networks of communication. This means that nowadays communication is not only possible from one fixed point to another fixed point, but a multitude of different points can communicate with a multitude of moving targets. Hence, communication is possible from every point with every person who has a mobile communication device. This provides us the opportunity to be continuously connected to each other (Geser, 2006; Powers, 2010).

There are undeniable advantages associated with having constant contact with others (Chayko, 2008). By the use of a mobile phone people have the opportunity to contact close acquaintances and other people with whom they have something in common. This can be extremely rewarding and help to feel more emotionally connected to others (Chayko, 2008). Moreover, constant contact with others can be useful since people are able to get valuable information and social support when they need it (Chayko, 2008). Furthermore, it can be very comforting for people knowing that others are around and in their lives (Chayko, 2008).

However, the attachment of people to their mobile phones can have negative social consequences. Concerns have risen among theorists about the impact of mobile phones on conversations in offline social settings. First, messages and push notifications lead to interruptions in the conversation flow (Turkle, 2011). This results in a feeling we need to be available at all times and that if we stay offline for too long, we miss out on things. Therefore, it might become difficult for people to turn off their mobile phone (Turkle, 2011). Secondly, mobile phones can create feelings of discomfort and anxiety since large amounts of information are always within reach (Oulasvirta, Rattenbury, Ma & Raita, 2012). In order to stay up-to-date, users may refresh pages frequently to see if they are not missing out on things. The above mentioned distractions are likely to influence our social face-to-face interactions in a negative way because they prevent the user from maintaining contact with the immediate face-to-face conversation partner (Ling, 2008). Mobile phone use in the presence of others, even during social face-to-face interactions, is a phenomenon that is called “phubbing” (The Guardian, 2013). Phubbing refers to snubbing someone in a social setting by looking at your phone instead of paying attention to your immediate environment (*The Guardian*, 2013).

An underlying mechanism that may explain the supposed negative impact of phubbing behaviour on social conversations is the nonverbal behaviour that is displayed when a mobile

phone is used. During a face-to-face interaction contact between speaker and listener is established and maintained primarily with the help of nonverbal cues. There is a wealth of research on nonverbal behaviour that shows that immediacy cues are behaviours conversational distances, lean, body orientation, gaze and touch that indicate greater closeness and/or liking (e.g., J.F. Andersen, P.A. Andersen & Jensen, 1979; Mehrabian, 1981). These immediacy cues are likely to be absent when people display phubbing behaviour and may therefore lead to perceived distance and disinterest.

One of the most important nonverbal signal in face-to-face settings is the direction of a speaker's gaze. When two people are gazing at each other at the same time (mutual gaze) "eye contact" occurs (McIntosh, 2013). Jackson and Hogg (2010) state that eye contact is generally perceived as more immediate because it conveys understanding, closeness and attentiveness during a conversation. On the other hand, a lack of eye contact is usually perceived as rude or inattentive, and conveys distance and disinterest between people during a conversation (Rothwell, 2010). Necessarily, eye contact will be interrupted when a person directs his/her gaze towards a mobile phone instead of the conversation partner.

During conversations people make relational judgments with respect to affiliation (Laery, 1957; White, 1980). This judgment can be influenced when phubbing behaviour occurs. Since eye contact indicates more closeness between people, the use of a mobile phone can have a negative influence on affiliation. Specifically, the non-phubbing person will perceive gaze directed to a mobile phone instead of him/her as more negative because there is less eye contact between the two people during a conversation.

The social issues caused by mobile phones are well known by the majority of modern society. However, little research has been done to investigate the impact of mobile phone use during social face-to-face interactions. It is expected that phubbing has a negative influence on affiliation. A person will probably be evaluated more negatively in terms of affiliation when he or she is using a mobile phone during a social face-to-face conversation.

No research has been done on the nonverbal behaviour that is shown while phubbing, and specifically on the displayed eye behaviour. Therefore, the first aim of the present study is to investigate the negative influence of phubbing on affiliation, when the gaze of the 'phubber' is focused on a mobile phone instead of the conversation partner. This will be investigated in an experiment by measuring the perceived affiliation of a phubber who carries out a conversation in a movie fragment. The following research question is established: *how does phubbing behaviour influence perceptions of affiliation in a face-to-face conversation?*

In addition, since gaze and its effects may vary in different situations it is also important to bring different contexts and factors into account. Therefore, the second aim of this study is to investigate these aspects. First, during conversations people switch constantly from speaking and listening position. There might be a difference in the effect of phubbing on affiliation when phubbing occurs while listening or while speaking since both positions have different functions during conversations. Secondly, besides a mobile phone there are other types of media that may have a negative influence on social face-to-face interactions. Different types of media offer different types of features to its user and can, therefore, have different negative influences during social conversations. In the experiment that is set up for this study, two kinds of situations will be created in which gaze is manipulated to examine if there is a difference in perceived affiliation when at the same time phubber speaks or listens and if there is a difference when phubbing with different types of media.

## **2. Theoretical Framework**

This section provides a review of the literature underlying this study. Different theories are presented that contribute to the explanation of the possible effect of "phubbing" on affiliation during social interactions. First, the phubbing phenomenon is introduced. Then, literature with regard to eye behaviour is presented. This is followed by an overview of literature concerning affiliation. Finally, the possible contexts (situations) in which phubbing behaviour may occur are given. Alongside the theoretical framework, the hypotheses of this research are presented.

### **2.1 Phubbing**

In the end of 2012, the Netherlands counted almost twenty million mobile phone connections (CBS, 2013; GfK 2012). According to the GfK market research (2013), the number of smartphone owners in the Netherlands has increased from seven million in 2012 to eight and a half million in 2013. According to their research, for the first time in history there are more smartphones owners (76%) than desktop owners (65%). Furthermore, GfK (2013) indicates that around 1,7 million people in the Netherlands — a fifth of the population — communicate via WhatsApp and Facebook, rather than make a phone call. As a result of these increased connections, people can be available to everyone and contact others at all times (Geser, 2006; Powers, 2010; Veen & Jacobs, 2005).

Obviously, mobile phone devices have become an important aspect of people's lives. Besides the fact that mobile phones have increased in number, they also moved from being a merely 'technological' object, to a key 'social' object (Srivastava, 2005). People use mobile phones more to communicate with each other socially. The social objects link us in a relationship, but also affect people's lives and relationships. According to Geser (2006) and Powers (2010) they changed people's behaviour in many ways since: (1) phone users socialize and perform tasks in new ways, and (2) share and gather information in different ways now. This has an influence on the way people interact face-to-face. According to Katz and Aakhus (2002) people include more often their mobile phone as a participant rather than a face-to-face dyad, which means that people rather interact with others via their mobile phones than interact with others face-to-face.

A mobile phone creates distractions and disturbances, which can have a negative influence on the face-to-face interaction. The use of a mobile phone in the presence of others is called "phubbing", and is a common phenomenon in today's society. A social paradox is going on: on the one hand we always want to socialize and want to be in contact with others. On the other hand, however, when we are spending time with someone face-to-face, we are



mentally absent since we are also in contact with other people via mobile communication technology. It has led to a fusion of the physical- and virtual place in which conversations take place (Plant, 2001).

Previous literature has to a limited extent already discussed the negative influences of mobile phone mobile communication technologies on conversation and relationship quality (e.g., Kools, 2011; Wei & Leung, 1999; Wester, Werkhoven & Tas, 2010; Turkle, 2011; Katz & Aakhus, 2002). Although few of these articles present actual research findings, a number of conclusions can be drawn from them. Firstly, people get annoyed when their conversation partner is gazing at his or her mobile phone during the conversation (Kools, 2011; Wei & Leung, 1999; Campbell & Park, 2008). Likewise, Wester et al. (2010) report that 73% of the participants felt most annoyed when a phone was used during a conversation; the most important reason was the uninterested attitude displayed by the person who used a phone. Secondly, Turkle (2011) argued that mobile communication technology can have a decidedly negative influence on interpersonal relationships, as mobile phones can direct people's attention away from offline face-to-face interactions. Consequently, Turkle (2011) states that the conversation partner can conceive of phubbing behaviour as rude and the behaviour may cause a feeling of rejection among the conversation partner. Lastly, the use of a mobile phone in the presence of others during social face-to-face interactions is believed to create a certain social absence where space is limited for other social contacts. Katz and Aakhus (2002) state that we have been erased by an "absent presence", which means that mobile phone users are physically present in the social face-to-face interaction, but their mental orientation is on someone else via their mobile phone (Katz & Aakhus, 2002). Hence, the mobile phone user is socially and mentally in another place instead of 'in' the immediate face-to-face conversation.

Although these negative effects are widespread and probably recognizable by the majority of modern society, very little research has been done on the impact of mobile phone use during face-to-face interactions. To date, only one remarkable study (Przybylski & Weinstein, 2012) addressed the influence of mobile communication technologies during social face-to-face interactions. This study examined the extent to which the mere presence of mobile communication devices affect the relationship quality in dyadic settings. The manipulation during the experiments was the presence or the absence of a mobile phone. The authors concluded that the presence of mobile phones in offline social interactions could have a negative effect on closeness, connection and conversation quality. The presence of a phone during a conversation decreased the extent to which participants felt that their partners

understood them and showed empathy (Przybylski & Weinstein, 2012). However, in this study, none of the conversation partners were actually *using* a phone.

The above articles suggest that phubbing behaviour creates distance between the phone user and the conversation partner. It is reasonable to assume that phubbing can have a negative impact on closeness because people have the need to come into close relationships with others (Zimbardo & Formica, 1963). In other words, people feel the need to become “affiliated” with others. As previously mentioned, people constantly make relational judgments with respect to affiliation (Laery, 1957; White, 1980). However, when a person displays phubbing behaviour it is possible that he or she will be evaluated more negatively on affiliation. Therefore, affiliation will be discussed in the next paragraph.

## **2.2 Affiliation**

Human beings are motivated by unsatisfied needs, also during social face-to-face interactions. McClelland (1965) developed a theory of human motivation, called the “three need theory”. This is a motivational model that identified the three basic needs that people have: (1) a need for achievement, (2) a need for power and (3) a need for affiliation. He stated that all people have these three motivating drivers regardless of sex, age, race or culture (McClelland, 1965). The need for affiliation is of particular interest to the current study. The need for affiliation refers to a fundamental human need for warm, open and sociable interpersonal relationships. Specifically, the needs that people have to experience a sense of involvement and belonging (McClelland, 1965). This is in accordance with Deci and Ryan (1991) who consider affiliation, or, in their words, ‘relatedness’ as one of three primary psychological needs. Deci and Ryan (1991) state that: “relatedness encompasses a person’s striving to relate and care for others, to feel that those others are relating authentically to one’s self, and to feel a satisfying and coherent involvement with the social world more generally” (p.242). It can be concluded from previous studies that people have a strong need for affiliation.

There are several definitions of affiliation in previous literature. For example, Agnes and Guralnik (1999) define affiliation as: “the act of connecting or associating with a person or organization”. In another manner, Manusov (2004) defines affiliation as: "the appreciation or esteem one person has for another" (p.326). In some studies affiliation is considered and measured as a sub-dimension of extraversion (Paunonen & Jackson, 1996; Yarkoni, 2010), while others see affiliation as an independent construct. (Dillard, Solomon & Samp, 1996; Wiggins, 1979). An independent construct is directly measured by means of affiliation adjectives scales. The current study will assume that affiliation refers to the feeling of

appreciation or esteem that emerges when people become closely connected to or associated with their conversation partner in a social interaction.

During social interactions people convey many verbal and nonverbal cues to each other. Cues that indicate more closeness and/or liking during a social conversation are primarily of nonverbal nature. The nonverbal behaviour (i.e. cues) that people display during a conversation has an influence on the formation of impressions of personality, emotional states and interpersonal attitudes of another person. Eye contact appears to be the most important nonverbal cue in human relationships (Reis & Sprecher, 2009) and serves a variety of purposes. For example, eye contact communicates interest and/or involvement, and establishes a connection with others during a conversation (Rothwell, 2010). When a person has his/her eyes focused on a mobile phone the eye contact between two people is interrupted. This can lead to formation of negative impressions and can have a negative influence on affiliation. More specific, people will feel less close to their conversation partner. Therefore, eye behaviour plays an important role during phubbing behaviour and is thus an important determinant of affiliation.

When eye contact is interrupted while using a mobile phone during a conversation, it means that the eye contact is directly influenced by phubbing behaviour. Since eye behaviour affects affiliation and phubbing affects eye behaviour it can be assumed, therefore, that phubbing has a negative influence on affiliation. Having a conversation is a joint activity, but the individual activities a person performs on a mobile phone interrupts this conversation (Kools, 2011). During phubbing behaviour the nonverbal cue “gaze” will change because the eyes are focused on a mobile phone instead of on the conversation partner. The use of a mobile phone during the conversation may ensure that the conversation partner will gather less feedback on the reaction of the phubbing person. Phubbing behaviour may affect the feeling of appreciation or esteem that the other person gets from their conversational partner since it may indicate less closeness and disinterest. Consequently, the phone user will be evaluated more negatively on affiliation because there is less gaze to the other person during the conversation.

### **2.3 Eye behaviour**

According to Sullivan (2009) there are several components within the study of nonverbal communication, namely: kinesics, chronemics, haptics, proxemics, vocalis and oculesics. Relevant to this study is the 'oculesics', which is a form of nonverbal communication and refers to gaze and eye contact (Sullivan, 2009; Reis & Sprecher, 2009). Both oculesic aspects

are interrelated and it is, therefore, logical to assume that phubbing has an influence on eye behaviour and thus an influence on affiliation. The aspect 'eye gaze' implies where eyes looking at. According to Reis and Sprecher (2009) gaze sends relational messages of attentiveness or disinterest and shows a degree of conversational involvement during a conversation. The aspect 'eye contact' occurs when two people are looking at each other at the same time (Sullivan, 2009) and is sometimes called 'mutual gaze' (Reis & Sprecher, 2009).

According to Kendon (1967) there are four functions of gazing. The first is regulatory function, meaning that responses of conversation partners may be demanded or suppressed by looking. The second is monitoring function, which entails that people may look at their conversation partner to indicate the conclusions of thought units and to check their partner's attentiveness and reactions. The third one is cognitive, which means that people tend to look away when they are having difficulty processing information or deciding what to say. The last one is expressive, which means the degree and nature of involvement or emotional arousal may be revealed through looking. Knapp and Hall (2010) extended these four functions by adding a new one: communicating the nature of the interpersonal relationships.

The use of a mobile phone during a face-to-face interaction may affect all these above functions of gaze. Mobile phone use in co-present situations will likely require the individual to turn his/her gaze to the phone rather than to the conversation partner. As a result, mutual gaze is probably reduced or partly missing. While phubbing, only unilateral eye contact from the conversation partner is present during the interaction. Argyle and Dean (1965) claim that without eye contact people feel that they are not fully in conversation. A lack of gaze leads to less involvement in the discussion and in the co-present conversation partner during the interaction (Witmer & Singer, 1998). Given that gaze signals attentiveness and interest, a conversation partner may interpret the phubber's gaze to the phone as a sign of disinterest and inattentiveness.

Argyle and Dean (1965) claim that eye contact means that a person is seeking feedback. It signals that the communication channel is open during face-to-face interactions. Additionally, people perceive direct eye contact as more immediate because it conveys understanding, closeness and attentiveness (Jackson & Hogg, 2010). Hence, eye contact creates a sense of closeness (i.e. affiliation) between the conversation partners. However, when eye contact is interrupted it conveys less understanding, less closeness and less attentiveness and can have a negative influence on affiliation.

When a person displays phubbing behaviour during a social conversation, his or her eyes are focused at a mobile phone instead of on the conversation partner. As a result, there is no eye contact between the two people who are in conversation, which has a negative influence on affiliation. The person who uses a mobile phone during the conversation will be evaluated more negative on affiliation. No prior research has been carried out regarding the effects of gaze and eye contact during face-to-face conversations while utilizing a mobile phone. Therefore, the following hypothesis is formulated and tested in the current study:

**H1:** *A conversation partner who frequently directs his/her gaze to a mobile phone (i.e. a 'phubber') during a dyadic conversation is perceived as less affiliative than a conversation partner who exclusively directs his/her gaze on the conversation partner".*

#### **2.4 Phubbing context: Phubbing while listening or speaking**

People switch constantly from speaking and listening positions when they are in a conversation. According to Rogers (1995) attentive listening during a conversation means giving the conversational partner total and undivided attention. It tells the partner that the listener is interested and concerned (Rogers, 1995). The interest during a conversation can be conveyed to the speaker by using nonverbal cues such as maintaining eye contact. Hence, eye behaviour during a conversation is a cue of attentive listening. Speakers, on the other hand, indicate respect and honesty for the listener by keeping his/her eyes focused on the listener during conversations. When the eyes of the listeners are not focused on the speaker or eyes that are looking elsewhere may indicate a listener's boredom or indifference, which can have a negative influence on affiliation. In contrast, having eyes focused on the speaker during a conversation may exhibit the interest and sincerity of a speaker, thus a positive influence on affiliation.

Mutual gaze refers to a situation in which both the speaker and listener are looking at each other, in other words eye contact (Knapp & Hall, 2010; Reis & Sprecher, 2009). According to Knapp and Hall (2010) it is the speaker's gaze that determines the moments of mutual looking since speakers gaze less than listeners. During these moments of mutual gaze, it is highly likely that the listener will respond with a 'listener response,' which means attention (Bavelas, Coates & Johnson, 2002). Facial expressions such as smiles, sounds such as 'mm-hmm' and nodding the head reflect these listener's responses. Therefore, the listener's behaviour during the interaction is an important determinant of the timing of these responses.

However, when the listener displays phubbing behaviour during a conversation there are no responses to the speaker, which can have a negative impact on affiliation. Knapp and Hall (2010) claim that when the speaker seeks feedback concerning the reaction of the conversational partner, he/she gaze at this other person. A listener's gaze suggests not only attention, but also whether or not the listener is interested in what is being said (Knapp & Hall, 2010). Hence, the disinterest or interpreted disinterest behaviour (i.e. phubbing behaviour) of the listener, through gaze, will lead to a more negative impact on affiliation. Therefore, the following hypothesis is formulated:

**H2:** *A listening conversation partner who frequently directs his/her gaze to a mobile phone (i.e. a 'phubber') is perceived as less affiliative than a speaking conversation partner who directs his/her gaze to a mobile phone during a dyadic conversation.*

## **2.5 The role of medium**

Nowadays, mobile phones have become one of the most common communication devices (Newman & Smith, 2006). They have become a portal that provides anytime and anyplace access to the user's social network (Wellman, 2000) and that provides continuous feelings of connection to the wider social world (Plant, 2001). Mobile phones can be compared to laptops since they can be used in any social setting. According to O'Keefe and Sulanowski (1995) a mobile phone is often used as a tool for sociability.

That people use their mobile phones during social face-to-face interactions and get distracted by them is a common phenomenon in today's society. The phone user gets mentally absent since he/she is also in contact with others through his/her mobile phone (i.e. phubbing). However, not only a mobile phone, but also other types of media may cause distractions during social conversations. For example, previously people may read printed media such as books, magazines and newspapers during a conversation.

The possibilities that mobile phones provide makes a major difference compared with the few possibilities that print media offer. When people read a newspaper during a social face-to-face interaction, the stories that are written about the happenings in the world only distract them. When people use a mobile phone during social face-to-face interactions, people also engage in interactions with others outside their immediate offline social environment. This can be conceived as rude and might lead to feelings of exclusion by the conversation partner since apparently the phubbing person finds the presence of his/her absent friend via the mobile phone more interesting. Williams, Cheung and Choi (2000) suggest that when people

are excluded, they may experience lower feelings of belonging, self-esteem and a less positive mood. A situation in which a person chooses to converse with other people virtually on the mobile phone may trigger such feelings of social rejection or ostracism in the offline conversation partner. This person may feel irritated (Wei & Leung, 1999) and experience that he/she is 'put on pause' while the phubber interacts with the phone (Turkle, 2011).

Are these feelings, such as closeness, negatively influenced when the gaze is specifically focused to 'a mobile phone' or does it not matter to what information medium gaze is focused? In other words, does it matter to what medium gaze is focused during a face-to-face social interaction? This study will focus on the effects of different media use during social interactions. Therefore, the following hypothesis is formulated:

**H3:** *A conversation partner who frequently directs his/her gaze to a mobile phone (i.e. a 'phubber') during a dyadic conversation is perceived as less affiliative than a conversation partner who frequently directs his/her gaze to a newspaper.*

In sum, the use of a mobile phone during a conversation may have an impact on the eye behaviour. In particular the eye contact between people that is interrupted by phubbing behaviour. When a person displays phubbing behaviour, gaze is directed to a mobile phone instead of on the conversation partner. The interruption of the eye contact can have a negative influence on affiliation and the phubbing person will probably be evaluated more negatively in terms of affiliation. The present study will investigate if phubbing behaviour during a social face-to-face conversation in fact has a negative influence on affiliation. Therefore, the next chapter gives a theoretical analysis of the methods that are applied to this study.

### **3. Methodology**

The goal of the experiment is to measure whether "phubbing" and its effects on the gaze affect affiliation. This section will start with the discussion of the design and structure of the investigation, followed by the presentation of the methods used to determine the existence of the effects on affiliation. Furthermore, the data and data analyses will be outlined. Finally, it will be specified how the independent variables are constructed and how these variables are measured.

#### **3.1 Research Design**

The research method used to empirically test the hypotheses outlined above is an experiment. An online experiment was considered the most appropriate method for this research. The research comprised two 3 x 1 between-subjects designs: (1) control, newspaper and mobile phone condition, and in the second analysis: (2) control, speaking, and listening conditions. For both conditions the control condition was identical. The dependent variable in both analyses was the perceived affiliation of the respondent towards the actor who either did or did not phub (or read a newspaper). The independent variables in analysis 1 were the type of medium, which was used during the conversation (no medium = control condition, newspaper condition and mobile phone condition), and in analysis 2 the conversation role of the phubber (no phubbing = control condition, speaking condition and listening condition).

For the experiments, participants were asked to evaluate a movie in which two actors were having a social face-to-face conversation. Five movies were made: one for each of the five different conditions. All participants evaluated one movie. The five condition groups that were used were: (1) a newspaper condition, in which participants evaluated a phubbing actor that read a newspaper while having a conversation, (2) a mobile phone condition, in which participants evaluated a phubbing actor that used a mobile phone while having a conversation, (3) a speaking condition, in which participants evaluated a phubbing actor that used a mobile phone during speaking, (4) a listening condition, in which participants evaluated a phubbing actor that used a mobile phone during listening, and (5) finally, a control condition, where no mobile phone was used. The control condition allowed for the assessment of a baseline response with which responses of the participants in the other four experimental conditions could be compared. The participants were asked to indicate the degree of affiliation they perceived among the same actor.



### 3.2 Participants

According to CBS statistics (2013), 90 percent of people between 18 to 25 years old own a smartphone, while 65 percent of the group older than 25 years are smartphone owners. The target group for this research were people aged between 18 and 35 since this group epitomises the primary target audience that owns a smartphone (CBS, 2013). The participants were recruited via the Social Media platform Facebook, both via the personal network of the researcher, as via special Facebook group pages where voluntary research participants can be sought and found. The online survey was activated on June 6<sup>th</sup> 2014 and officially closed on June 10<sup>th</sup> 2014. In this period, 125 respondents ( $N = 125$ ) completed the survey, of which 64 men with a mean age of 24.6 ( $SD = 2.2$ ) and 61 women with a mean age of 23.8 ( $SD = 2.6$ ). The participants were evenly distributed across the conditions ( $N = 25$  per condition).

### 3.3 Procedure

The participants arrived on the Thesistools.com website via a weblink. In the introduction to the online study, the participants received a cover story: they were informed that they would be participating in a study investigating the effects of the physical environment on conversations. This cover story was intended to prevent participants from guessing the true purpose of the study. They were also asked to answer questions about the supposed influence of the environment, among other (real) questions relating to perceived affiliation. The anonymity of the respondents was guaranteed and it was communicated to the respondents that the information provided would only be used for this research. Finally, the respondents were informed that completing the questionnaire would take about ten minutes. See for example appendix A.

After reading the introduction page, participants were requested to fill in their age and gender. After that, they started by watching the short movie fragment pertaining to their condition. The movie was shown four times because the respondents had to evaluate the actor in the movie fragment on 21 different items. After each time about six items were presented to the respondent. This way the participant did not forget what the movie clip was about. Finally, participants were asked a number of questions about their own phone use, e.g.: *"How many times does it happen that you use your mobile phone while you are in a conversation"*. Afterwards, statements were requested to be rated, e.g.: *"Using your phone during a conversation is a sign of disrespect to your partner"*. For every question in the survey a validation option was inserted, which forced the participants to answer all questions on each page before they could continue to the next page. The benefit of this method was that the data

of the respondents who had completed the questionnaire had no missing values. At the end of the questionnaire, the participants were asked about the aim of the study. This way we could see how many participants knew what the investigation was about and whether it has affected the results. See appendix A for the questionnaire.

### **3.4 Measures**

Our dependent variable, affiliation, was measured with two constructs: one construct that directly measures affiliation by means of affiliation adjectives, and one construct that measures affiliation as a sub-dimension of extraversion. The first construct was taken from the IAS-R adjectives scale from Wiggins (1979). Wiggins (1979) developed a comprehensive taxonomy of trait-descriptive terms in the English language. For the present study 16 affiliation adjectives were used. Respondents were asked to indicate to what extent they felt that the adjective adequately described the actor in the movie fragment. Some adjectives represented low affiliation scores and other adjectives represented high affiliation scores. The negative items were reversed during the analysis. Each adjective was measured on a 6-point Likert scale ranging from (1) extremely inaccurate to (6) extremely accurate. The scale had a good reliability,  $\alpha = .91$ . See appendix B for all adjectives.

Additionally, researchers Paunonen and Jackson (1996) suggest that affiliation is a sub-dimension of extraversion. Therefore, a second scale was added to this experiment. A person with a high score on affiliation enjoys being with friends and people in general, accepts people readily, makes efforts to win friendships and maintain associations with people. The scale from Paunonen and Jackson (1996), consists of five items, measured on the same 6-point Likert scale. One item was reversed "Person A Seems to derive less enjoyment from interacting with people than others do". See appendix C for the items. The reliability was also good,  $\alpha = .84$ .

### **3.5. Stimulus materials**

#### **3.5.1. During the filming**

The stimuli was made with a small "Nikon" video camera. While shooting the five videos, several factors were taken into account. Factors that could have an impact on the reliability, validity and generalizability of the current study. First, we have chosen for two different camera angles: (1) filmed from the front and (2) filmed over the shoulder (see for example appendix D). With the first camera angle "from the front", the environment and both actors were filmed clearly to show a social face-to-face conversation between two people from a

distance. With the second camera angle “over the shoulder”, the phubbing actor and the type of medium (mobile phone and newspaper) that was used during the conversation were filmed clearly. Secondly, it was important that the type of medium came clearly in to view since the participants had to evaluate the phubbing person. Thirdly, the participants were sitting on a sofa in a living room with one meter distance between each other, so the actors could have a pleasant and relaxed conversation during acting. This allowed the participants to experience these pleasant and relaxed environment and feelings in the movies as well. Finally, the mobile phone “I- phone 4” was used during the manipulation, which is a familiar mobile (smart) phone, which is used by many people these days.

### **5.3.2. The movies**

For each of the five conditions a movie was prepared with a duration of 23 seconds. Each movie showed an identical social face-to-face interaction between two female actors. One video was a control video in which no medium was used during the conversation, meaning that the actors had a social conversation and there were no distractions. The other four movies were the ‘manipulated’ movies. In the speaking video one actor used a mobile phone while speaking during the conversation, with the result that she gazed less to her conversation partner during speaking. In the listening video one actor used a mobile phone while listening to her conversation partner. This resulted in a situation that she gazed less to her conversation partner during listening. In the newspaper video one actor was reading a newspaper during the conversation, which resulted in less eye contact between the person who was reading the newspaper and the conversation partner. In the mobile phone video one actor gazed at her mobile phone during the conversation, which resulted in less gaze to the conversation partner. The conversations in all movies were identical and particular attention was paid to the actors behaving as similarly as possible across the different conditions. To avoid any influence of wording or intonation, all videos were shown without sound. See appendix D for examples of the movie fragments. The movies were edited using ‘Final Cut pro’.

## 4. Results

In order to test the three hypotheses, one-way ANOVA's were conducted, with affiliation as the dependent variable. First, the results for affiliation measured with Wiggins' (1979) adjectives will be discussed. After that, results for affiliation measured as a sub-dimension of extraversion (REF) will be discussed (Paunonen & Jackson, 1996). We will first compare the control condition with the newspaper and mobile phone conditions, and then the control condition with the speaking and listening condition.

### 4.1 Affiliation 1: Wiggins (1979)

#### 4.1.1 Control – Newspaper – Mobile Phone

The one-way ANOVA was used to test the impact of our manipulation on our second affiliation construct, namely as a sub-dimension of extraversion. Results in the Levene's test showed that the homogeneity of variance is significant,  $p = .001$ . Since the assumption of homogeneity of variance was not met for these data, the obtained Welch's adjusted  $F$  (40.94) ratio was used, which was significant at the .05 alpha level reported as Welch's  $F$  ( $F(2, 44.86) = 40.94, p < .001, \eta^2 = .43$ ). Thus, at least two of the three conditions differ significantly on their affiliation scores.

The Tukey post-hoc of the three conditions indicated that the mean score of the control condition ( $M = 4.38, SD = .63$ ) differed significantly from the mobile phone condition ( $M = 3.05, SD = .44; p < .001$ ). This means that the respondents in the control condition gave higher affiliation ratings to the female actor than in the mobile phone condition. The mean score of the newspaper condition ( $M = 4.02, SD = .85$ ) was significantly different than the mobile phone condition ( $M = 3.05, SD = .44; p < .001$ ). Thus, the respondents in the mobile phone condition gave lower affiliation ratings to the female actor than in the newspaper condition. The comparison between the control and newspaper conditions did not differ significantly ( $p = .133$ ). Table 1 and figure 1 provide the means and standard deviations.

The linear trend analysis showed that the means increased significantly across the three conditions,  $F(2, 72) = 50.15, p < .001$ . Therefore, it can be said that when a more interactive medium was used (i.e. mobile phone), the perceived affiliation decreased proportionately. Taken together, the results suggest that the use of a mobile phone during interactions does have an effect on affiliation. Specifically, people perceive the use of a mobile phone during an interaction as more negative.

Table 1.

Means and standard deviations per group per condition for affiliation 1 (Wiggins, 1979)

Condition	N	Mean	SD
Control	25	4.38	.63
Newspaper	25	4.02	.85
Mobile phone	25	3.05	.44

Note: Higher numbers indicate a positive perceived affiliation

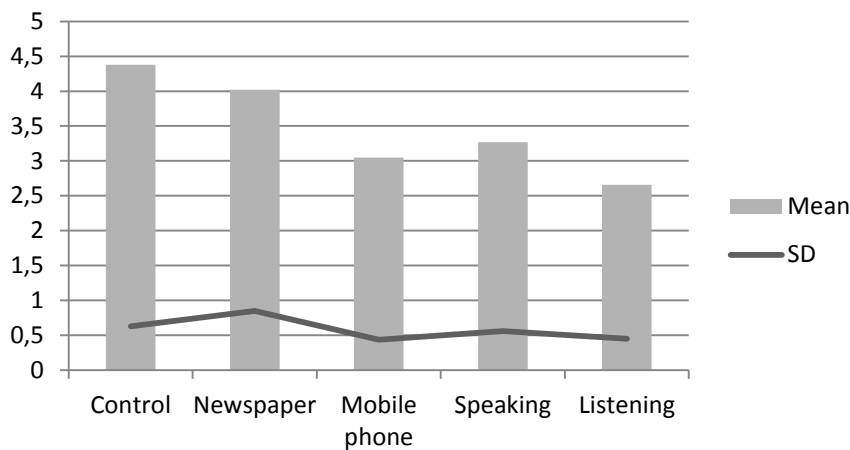


Figure 1. Means and standard deviations per group per condition for affiliation 1 (Wiggins, 1979)

#### 4.1.2 Control – Speaking - Listening

The second one-way ANOVA was used to test differences in the perceived affiliation scores among the control condition, newspaper condition and mobile phone condition. The Levene's test of homogeneity was good ( $p = .258$ ), meaning that the assumptions were met. The assessed perceived affiliation scores differed significantly across the three conditions,  $F(2, 72) = 62.84, p < .001, \eta^2 = .64$ .

The Tukey post-hoc indicated that the mean score of the control condition ( $M = 4.38, SD = .63$ ) significantly differed from the speaking condition ( $M = 3.27, SD = .56; p < .001$ ) and the listening condition ( $M = 2.66, SD = .45; p < .001$ ). This means that in the control condition respondents gave higher affiliation ratings to the female actor than in the speaking and listening condition. The mean score of the speaking condition ( $M = 3.27, SD = .58$ ) significantly differed from the listening condition ( $M = 2.66, SD = .46; p = .001$ ). This means that in the listening condition respondents gave the lowest affiliation ratings to the female actor. Table 2 and figure 1 provide the means and standard deviations.

The linear trend analysis showed that the means increased significantly across the three conditions,  $F(2, 72) = 123.92, p < .001$ . Therefore, it can be said that when a mobile phone was used during the interactions, the perceived affiliation decreased proportionately. In sum, the results suggest that the use of a mobile phone during listening and speaking does have an effect on affiliation. Specifically, people perceive the use of a mobile phone during listening as the most negative.

Table 2.

*Means and standard deviations per group per condition for affiliation 1 (Wiggins, 1979)*

<i>Condition</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>
Control	25	4.38	.63
Speaking	25	3.27	.56
Listening	25	2.66	.45

*Note:* Higher numbers indicate a positive perceived affiliation

## **4.2 Affiliation 2: Paunonen & Jackson (1996)**

### **4.2.1 Control – Newspaper – Mobile Phone**

A third ANOVA was conducted to test differences in the perceived affiliation scores among the control, newspaper and mobile phone condition. With the Levene's test we first checked whether the assumption of homogeneity of variances was violated. The test revealed that the assumption was not violated ( $p = .29$ ). The assessed perceived affiliation scores differed significantly across the three conditions,  $F(2, 72) = 31.13, p < .001, \eta^2 = .464$ . Follow-up tests were conducted to evaluate pair wise differences. The Tukey post-hoc test of the three conditions indicated that the mean score of the control condition ( $M = 4.06, SD = .68$ ) was significantly different from the mobile phone condition ( $M = 2.53, SD = .73; p < .001$ ). This means that in the control condition respondents gave higher affiliation ratings to the female actor than in the mobile phone condition. The mean score in the newspaper condition ( $M = 3.89, SD = .84$ ) was also significantly different from the mobile phone condition ( $M = 2.53, SD = .73; p < .001$ ), meaning that the female was evaluated more negatively in the mobile phone condition than in the newspaper condition. The comparison between the control and newspaper conditions did not differ significantly ( $p = .710$ ). Summarized, these results support hypotheses 1 and 2, and thus imply that the use of a mobile phone during a conversation has an effect on affiliation. Specifically, these outcomes suggest that people

have a more negative attitude toward the use of a mobile phone (i.e. phubbing behaviour) during a conversation than towards the use of a newspaper. Table 3 and figure 2 provide the means and standard deviations.

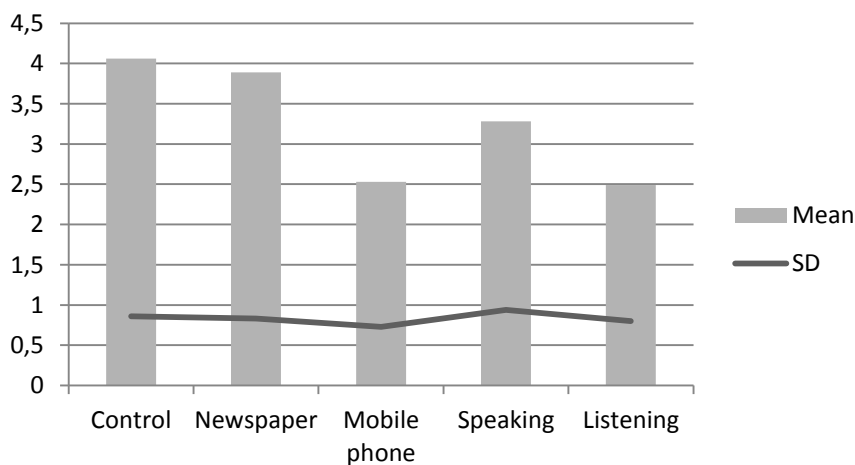
Because the overall effect of affiliation was significant, we performed a linear trend analysis. This tested whether the means increased across conditions in a linear way. The test showed that the means increased significantly across the three conditions,  $F(2, 72) = 51.76, p < .001$ . Therefore, it can be said that when a more interactive medium was used, the perceived affiliation decreased proportionately. Taken together, the results suggest that the use of a mobile phone during interactions does have an effect on affiliation. Specifically, people perceive the use of a mobile phone during an interaction as more negative.

Table 3.

*Means and standard deviations per group per condition for affiliation 2 (Paunonen & Jackson, 1996)*

<i>Condition</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>
Control	25	4.06	.86
Newspaper	25	3.89	.83
Mobile phone	25	2.53	.73

*Note:* Higher numbers indicate a positive perceived affiliation



*Figure 2.* Means and standard deviations per group per condition for affiliation 2 (Paunonen & Jackson, 1996)

#### 4.2.2. Control – Speaking - Listening

A fourth one-way ANOVA was conducted to test differences in the perceived affiliation scores among the control, speaking and listening condition. Results show that the test for homogeneity of variance was not significant,  $p = .086$ , which means that the assumptions were not violated. The assessed perceived affiliation scores differed significantly across the three conditions,  $F(2, 72) = 23.14, p < .001, \eta^2 = .46$ .

The Tukey post hoc test indicated that the mean score of the control condition ( $M = 4.06, SD = .68$ ) differed significantly from the speaking condition ( $M = 3.28, SD = .94; p = .003$ ) and from the listening condition ( $M = 2.49, SD = .80; p < .001$ ). Thus, the control condition respondents gave higher affiliation ratings to the female actor than in the mobile phone condition. The test also indicated that the speaking condition ( $M = 3.28, SD = .94$ ) differed significantly from the listening condition ( $M = 2.49, SD = .80; p = .003$ ). Therefore, the respondents in the listening condition gave lower affiliation ratings to the female actor than in the speaking condition. Table 4 and figure 2 provide the means and standard deviations.

The linear trend analysis showed that the means increased significantly across the three conditions,  $F(2, 72) = 42.56, p < .001$ . Therefore, when a mobile phone was used while listening and speaking, the perceived affiliation decreased proportionately. Taken together, these results suggest that the use of a mobile phone during interactions does have an effect on affiliation. Specifically, due to the lowest mean value on affiliation, people perceive the use of a mobile phone during listening as more negative.

Table 4.

*Means and standard deviations per group per condition for affiliation 2 (Paunonen & Jackson, 1996)*

<i>Condition</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>
Control	25	4.06	.86
Speaking	25	3.28	.94
Listening	25	2.49	.80

*Note:* Higher numbers indicate a positive perceived affiliation



## **5. Discussion**

In this section, the results of this study are discussed. Furthermore, the implications of this study are discussed. Thereafter, the study's limitations and suggestions for further research are presented.

### **5.1 Discussion of the results**

The aim of this paper was to investigate the influence of gaze during phubbing behaviour in a social face-to-face conversation. The results from the current study reveal several important insights. First, the results suggest that directing gaze to a mobile phone during a conversation has a negative impact on affiliation. We found support for first and third hypotheses: gazing to a mobile phone (i.e. a 'phubber') was perceived as less affiliative than to the conversation partner (H1), and gaze to a mobile phone was perceived as less affiliative than to a newspaper (H3). These results support the (preliminary) research findings and the claims of previous theorists (Jackson & Hogg, 2010; Wei and Leung, 1999; Przybylski & Weinstein; 2012). Jackson and Hogg (2010) suggest that if direct eye contact is not established during an interaction, it may convey distance and disinterest to the conversation partner. Furthermore, the negative evaluation on affiliation can also be explained by the theory from Wei and Leung (1999), who claim that people feel annoyed when the conversation partner has his/her eyes focused at a mobile phone and thus mutual gaze is missing.

Additionally, the result is also line with Przybylski and Weinstein (2012), who suggest that the mere presence of a mobile phone has a negative influence on closeness, connection and relationship quality. The extent to which people feel that their partner understands them and shows empathy decreases, which can lead to a lower evaluation on affiliation. However, their study differs from the current study. During their experiment, instead of using the mobile phone it was placed on a table next to the participants without any explanation by the experimenters. This could have an influence on the formation of deeply meaningful conversations. With the result that the conversations were less intimate, which questions the validity of their results.

Secondly, results indicated that the control group received higher affiliation ratings than the conditions where a mobile phone was used during speaking and listening. This result also corresponds to the first hypothesis, which predicted that gazing to a mobile phone was perceived as less affiliative than to the conversation partner (H1). In addition, the results showed a lower affiliation score for the condition where a mobile phone was used during listening than in the condition where a mobile phone was used during speaking. This

corresponds to the expectations of the last hypothesis (H2), which predicted that having one's eye directed to a mobile phone while listening would be perceived as less affiliative than while speaking. This result is in line with Knapp and Hall (2010) who state that the listener's behaviour is an important determinant of the timing of the responses given to the speaker during a conversation. A listener's gaze suggests not only attention, but also whether or not the listener is interested in what is being said (Knapp & Hall, 2010). When the speaker seeks feedback concerning the reaction of the conversational partner, they gaze at this other person. When there are no responses from the listener (in terms of his/her mutual gaze), this may have an impact on affiliation. Table 5 summarizes the three above-mentioned relationships.

Table 5.

*List of Hypotheses with Respective Significance*

Hypothesis	Accepted/rejected
<b>H1:</b> A conversation partner who frequently directs his/her gaze to a mobile phone during a dyadic conversation is perceived as less affiliative than a conversation partner who exclusively directs his/her gaze on the conversation partner.	<b>Accepted</b>
<b>H2:</b> A conversation partner who frequently directs his/her gaze to a mobile phone during a dyadic conversation is perceived as less affiliative than a conversation partner who exclusively directs his/her gaze to a newspaper.	<b>Accepted</b>
<b>H3:</b> A conversation partner who frequently directs his/her gaze to a mobile phone while listening during a dyadic conversation is perceived as less affiliative than a conversation partner who exclusively directs his/her gaze to a mobile phone while speaking.	<b>Accepted</b>

## **5.2 Limitations and Future Research**

Although this study has given more insight into the effects of mobile communication technology on people's social face-to-face interactions on affiliation, it has some limitations that provide opportunities for future research. First, the sample that was taken for the experiment consisted of people who were, more or less coincidentally available for this study. Therefore, the majority of the participants were rather young. As a consequence, the results cannot simply be generalized to the Dutch population.

In addition, this study is the first to investigate the negative influence behaviour on affiliation when the gaze of the 'phubber' is focused on a mobile phone. When conversations are interrupted by a mobile phone it is important to look at affiliation, because the affiliative feelings of the conversation partner can be negatively affected by phubbing behaviour. During the experiment, the gaze of the 'phubber' was manipulated. For future research it would be interesting to investigate other emotions and nonverbal and/or verbal behaviours as well.

Moreover, this study only investigated perceived affiliation as evaluated by a third-party observer. Videos were made with a counterfeit social setting where two girls had a social conversation, and participants were asked to evaluate one of the actors in the video. The participants, however, did not actually experience phubbing firsthand. This limits the ecological validity of the study. When face-to-face interactions are disrupted by mobile phones, it is also important to look at the emotional assessments from the conversation partner who experiences the phubbing behaviour of a conversation partner. Therefore, future research should examine these affiliation evaluations in real life settings (i.e. ethnographic or lab research) instead of observers who rate movie clips.

Furthermore, 34 participants (27,2%) indicated that the aim of the study had something to do with the influence of a mobile phone on a social interaction. This means that almost one-third of the participants knew about the aim of the study and that the cover story and filler questions have not quite achieved their goal. Therefore, the group of participants group might not be truly unbiased and may have responded socially desirable.

## **5.3 Implications**

Overall, the data from this study correspond with the scarce existing literature, although the influence of phubbing behaviour during social interactions is still relatively unknown territory. The outcomes of this research have several implications for further research and theory. First, the findings of the current study imply that phubbing behaviour can have a negative impact on relational processes and outcomes such as perceived affiliation. The

findings suggest that phubbing negatively impacts the feeling of appreciation or esteem that people get from their conversation partner. These results cohere with previous concerns about the impact of mobile communication in general (e.g. Turkle, 2011; Oulasvirta, Rattenbury, Ma & Raita, 2012), which means that these concerns are warranted. It is, therefore, legitimate to worry about the negative effects of the use of mobile phones, especially during social face-to-face interactions.

Furthermore, the current research contributes to the field of study in mobile communication. Although empirical research has been done on the effects of mobile communications on society, surprisingly little research exists the impact of mobile phone use during social face-to-face interactions. Only one study (Przybylski & Weinstein, 2012) has investigated the influences of the presence of mobile communication technology during face-to-face conversations. However, during their experiment the environment was not entirely natural. A mobile phone was placed on a table next to the participants and the experimenters gave no explanation what that phone was doing there. Therefore, questions could rise with the participants and it is possible the participants behaved differently. The current study created a more natural environment by using movie clips that were recorded in a real setting; the actors of the movie were sitting on a sofa in a living room. Additionally, an actor used the phone during the face-to-face conversations in the movie clips. She actually held the mobile phone in her hand so that the mobile phone was part of the conversation. Therefore, it is more probable that the current study showed more ecologically valid results

In addition, when considering the effect sizes found in the current study, the negative influences of phubbing behaviour during social face-to-face interactions appear strong. The results of the current research can be used to inform people about the negative influences of phubbing on their social lives. When people are aware of the bad influences, they can make changes and adjustments in their behaviour during social interactions. For example, people may try to pay more attention to their conversation partner during conversations and not let their mobile phone cause any distractions. This can prevent the other person from getting irritated during the conversation, with the result that he or she perceives the other person as more affiliative.

## **8. Conclusion**

The current research presents interesting empirical findings that inform people about the negative influences of the use of a mobile phone during face-to-face interactions on affiliation. First, when people frequently direct their gaze to a mobile phone (i.e. a phubber) during a dyadic conversation they are perceived as less affiliative than people who direct their gaze to the conversation partner. Secondly, gaze and its effects do vary in different situations, because: (1) gaze directed to a mobile phone during a dyadic conversation is perceived as less affiliative than gaze exclusively directed to a newspaper, and (2) gaze directed to a mobile phone while listening is perceived as less affiliative than gaze directed to a mobile phone while speaking. In conclusion, when people use their mobile phone during a social conversation it has a negative influence on affiliation. This finding has important implications for society.

## References

- Agnes, M., & Guralnik, D. B. (1999). *Webster's new world college dictionary*. New York, NY: Macmillan.
- Argyle, M., & Dean, J. (1965). Eye-contact, distance and affiliation. *Sociometry*, 289-304.
- Andersen, J. F., Andersen, P. A., & Jensen, A. D. (1979). The measurement of nonverbal immediacy. *Journal of Applied Communication Research*, 7(2), 153-180.
- Bavelas, J. B., Coates, L., & Johnson, T. (2002). Listener responses as a collaborative process: The role of gaze. *Journal of Communication*, 52(3), 566-580.
- Byrne, D. (1961). Anxiety and the experimental arousal of affiliation need. *The Journal of Abnormal and Social Psychology*, 63(3), 660.
- Campbell, S.W., & Park, Y.J. (2008). Social implications of mobile telephony: The rise of personal communication society. *Sociology Compass*, 2(2), 371-387.
- Centraal Bureau voor de Statistiek. (2013). Smartphone metingen: Gebruik van logdata om consumentengedrag in kaart te brengen. Retrieved from <http://www.cbs.nl/NR/rdonlyres/0F9757E9-AFC5-4DAF-AC2F-7FE10B317638/0/24042012Smartphonemeasurementsdv.pdf>
- Centraal Bureau voor de Statistiek. (2012). Verdere groei mobiel internetgebruik. Retrieved from <http://www.cbs.nl/NR/rdonlyres/45D7ACAF-A2D543C4A893436B5C5A9AAF/0/pb12n060.pdf>
- Chayko, M. (2008). *Portable communities: The social dynamics of line and mobile connectedness*. New York, NY: State University of New York.
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

- Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. *Nebraska Symposium on Motivation*. Vol. 38. Lincoln, NE: University of Nebraska Press, pp. 237-288.
- McIntosh, C. (2013). *Cambridge Advanced Learner's Dictionary*. Cambridge, UK: Cambridge University Press.
- Dillard, J. P., Solomon, D. H., & Samp, J. A. (1996). Framing social reality the relevance of relational judgments. *Communication Research*, 23(6), 703-723.
- Geser, H. (2006). Towards a sociological theory of the mobile phone. Retrieved from <http://books.google.com/>
- GfK. (2012). *Aantal smartphones hoger dan aantal computers*. Retrieved from <http://www.gfk.com/nl/news-and-events/press-room/press-releases/paginas/aantal-smartphones-hoger-dan-aantal-computers.aspx>
- Guardian, The. (2013). *Phubbing: the war against anti-social phone use*. Retrieved from <http://www.theguardian.com/technology/shortcuts/2013/aug/05/phubbing-anti-social-phone-campaign>
- Jackson, R. I., & Hogg, M. A. (Eds). (2010). *Encyclopedia of identity*. Thousand Oaks, CA: Sage publications Inc.
- Katz, E., & Aakhus, M. (2002). *Perpetual contact: Mobile communication, private talk, public performance*. Cambridge, UK: Cambridge University Press.
- Kendon, A. (1967). Some functions of gaze direction in social interaction. *Acta Psychologica*, 26, 22-63.
- Kools, M. (2011). Het effect van de smartphone op mens en samenleving. (Master's thesis, Rijksuniversiteit Groningen, The Netherlands). Retrieved from [www.marijekools.nl/cv\\_marijekools.pdf](http://www.marijekools.nl/cv_marijekools.pdf)

- Knapp, M., & Hall, J. (2010). *Nonverbal communication in human interaction*. Boston, MA: Cengage Wadsworth.
- Leary, T. (1958). Interpersonal diagnosis of personality. *American Journal of Physical Medicine & Rehabilitation*, 37(6), 331.
- Ling, R. (2008). *Mobile telephones and the disturbance of the public sphere*. Retrieved from [http://richardling.com/papers/2004\\_disturbance\\_of\\_social\\_sphere.pdf](http://richardling.com/papers/2004_disturbance_of_social_sphere.pdf)
- Lowry, D., & Moskos, M. (2005). *Hanging on the mobile phone: Experiencing work and spatial flexibility*. Cambridge, UK: Flinders University.
- Manusov, V. L. (Ed.). (2004). *The sourcebook of nonverbal measures: Going beyond words*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- McClelland, D. C. (1965). Toward a theory of motive acquisition. *American Psychologist*, 20(5), 321.
- Mehrabian, A. (1972). Nonverbal communication. *Nebraska Symposium on Motivation*. Vol. 19. Lincoln, NE: University of Nebraska Press, pp. 107-161.
- Mehrabian, A. (1981). *Silent messages: Implicit communication of emotions and attitude*. (2nd ed.). Belmont, CA: Wadsworth.
- Newman, W., & Smith, E. L. (2006). Disruption of meetings by laptop use: Is there a 10-second solution? *CHI*, 1146-1150.
- O'Keefe, G. J., & Sulanowski, B. K. (1995). More than just talk: Uses, gratifications, and the telephone. *Journalism & Mass Communication Quarterly*, 72(4), 922-933.
- Oulasvirta, A., Rattenbury, T., Ma, L., & Raita, E. (2012). Habits make smartphone use more pervasive. *Personal and Ubiquitous Computing*, 16(1), 105-114.



- Paunonen, S. V., & Jackson, D. N. (1996). The Jackson Personality Inventory and the five factor model of personality. *Journal of Research in Personality*, 30(1), 42-59.
- Plant, S. (2001). The effects of mobile telephones on social and individual life. *Motorola Report*, 1-45
- Powers, W. (2010). *Hamlet's blackberry*. New York, NY: HarperCollins Publishers.
- Przybylski, A. K., & Weinstein, N. (2012). Can you connect with me now? How the presence of mobile communication technology influences face-to-face conversation quality. *Journal of Social and Personal Relationships*, 30(3), 237-246.
- Reis, H. T., & Sprecher, S. (Eds) (2009). *Encyclopedia of human relationships*. Thousand Oaks, CA: Sage publications Inc.
- Rogers, C. (1995). *A way of being*. Houghton Mifflin Harcourt. New York, NY: Houghton Mifflin Company.
- Rothwell, J. D. (2010). *In the company of others: An introduction to communication*. Oxford, UK: Oxford University Press.
- Srivastava, L. (2005). Mobile phones and the evolution of social behaviour. *Behaviour & Information Technology*, 24(2), 111-129.
- Sullivan, L. E. (Ed.). (2009). *The Sage glossary of the social and behavioural sciences*. Thousand Oaks, CA: Sage publications Inc.
- Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. New York, NY: Basic Books.
- Veen, W. & Jacobs, F. (2005). *Leren van jongeren: Een literatuuronderzoek naar nieuwe geletterdheid*. Stichting Surf.

- Wei, R., & Leung, L. (1999). Blurring public and private behaviours in public space: Policy challenges in the use and improper use of the cell phone. *Telematics and Informatics*, *16*, 11-26.
- Wellman, B. (2000). *The Internet in everyday life*. Retrieved from <http://books.google.com/>
- Wester, S., Werkhoven, R., & Tas, W. (2010). *Mobiele manieren barometer: Etiquette internet op mobiele telefoon*. Retrieved from <http://www.mobielemanieren.nl/>
- White, H. (1980). A heteroscedasticity-consistent covariance matrix and a direct test for heteroscedasticity. *Econometrica*, *48*(4), 817–838.
- Williams, K. D., Cheung, C. K., & Choi, W. (2000). Cyberostracism: Effects of being ignored over the Internet. *Journal of Personality and Social Psychology*, *79*(5), 748.
- Wiggins, J. S. (1979). A psychological taxonomy of trait-descriptive terms: The interpersonal domain. *Journal of Personality and Social Psychology*, *37*(3), 395.
- Witmer, B. G., & Singer, M. J. (1998). Measuring presence in virtual environments: A presence questionnaire. *Presence*, *7*(3), 225-240.
- Yarkoni, T. (2010). Personality in 100,000 words: A large-scale analysis of personality and word use among bloggers. *Journal of Research in Personality*, *44*(3), 363-373.
- Zimbardo, P., & Formica, R. (1963). Emotional comparison and self-esteem as determinants of affiliation. *Journal of Personality*, *31*(2), 141-162.

# Appendices

## Appendix A - Example Questionnaire

ThesisTools

*Maak en verspreid gratis je online enquête op [www.thesistools.com](http://www.thesistools.com)*

Beste deelnemer,

Bedankt dat je mee wilt doen aan dit korte onderzoek. Het doel van dit onderzoek is om te kijken wat de invloed is van omgevingsfactoren op mensen hun evaluaties. De enquête bestaat uit vier korte filmpjes die aan jou getoond worden. Deze zullen alle vier maximaal 20 seconden duren. Let op: het geluid is bewust van de filmpjes gehaald, het is dus de bedoeling dat je niks hoort tijdens het filmpje. Na elk filmpje worden er een aantal vragen gesteld aan jou. Bij elke vraag wordt aangegeven wat je moet doen. In totaal zal deze enquête tien minuten duren. De onderzoeksresultaten zullen anoniem en confidentieel behandeld worden.

Nogmaals bedankt en veel succes met het invullen van de enquête!

Met vriendelijke groet,

Myrthe Boelen

Start

ThesisTools

1. **Leeftijd\*\***

2. **geslacht\*\***

- Man  
 Vrouw

volgende pagina

ThesisTools



ThesisTools

De omgeving tijdens het gesprek was:

4.

**Onprettig\***

- Helemaal mee eens
- mee eens
- Beetje mee eens
- Mee oneens
- Helemaal mee oneens

5.

**Kleurrijk\***

- Helemaal mee eens
- mee eens
- Beetje mee eens
- Mee oneens
- Helemaal mee oneens

6.

**In welke mate vind je dat de volgende adjectieven van toepassing zijn op het meisje in de witte trui (persoon A) dat je zonet zag in dit filmpje?**

	Geheel niet van toepassing			Geheel van toepassing		
Zachtzinnig (iemand die zacht met anderen is)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zachtaardig (warm of aardig voor anderen)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sympathiek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onvriendelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Volgende pagina

Bekijk dit filmpje aandachtig



De omgeving van het gesprek was:

8.

**Herkenbaar\***

- Helemaal mee eens
- mee eens
- Beetje mee eens
- Mee oneens
- Helemaal mee oneens

9.

**Donker\***

- Helemaal mee eens
- mee eens
- Beetje mee eens
- Mee oneens
- Helemaal mee oneens

10.

**In welke mate vind je dat de volgende adjectieven van toepassing zijn op het meisje in de witte trui (persoon A) dat je zonet zag in dit filmpje?**

	Geheel niet van toepassing			Geheel van toepassing		
Weekhartig (voelt gemakkelijk liefde, medelijden of verdriet voor anderen)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Harteloos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onsympathiek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Barmhartig (gul, graag anderen helpen)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meedogenloos (nastreven van eigen belangen, ongeacht de effect op anderen)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Bekijk dit filmpje aandachtig



De omgeving van dit gesprek was:

16.

**Prettig\***

- Helemaal mee eens
- mee eens
- Beetje mee eens
- Mee oneens
- Helemaal mee oneens

17.

**Onherkenbaar\***

- Helemaal mee eens
- mee eens
- Beetje mee eens
- Mee oneens
- Helemaal mee oneens

18.

**Persoon A in het filmpje (het meisje in de witte trui) lijkt iemand die:**

	Helemaal mee eens			Helemaal mee oneens		
Minder plezier haalt uit interactie met mensen dan anderen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Op feestjes met veel verschillende mensen praat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Er meestal van houdt haar vrije tijd door te brengen met mensen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Houdt van praten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vreugde uitstraalt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Volgende pagina

19. **Schrijf hieronder wat volgens jou het doel was van de studie.\***

[Volgende pagina](#)

**Je bent nu aangekomen op het laatste stukje van deze enquête, hieronder worden nog een aantal algemene vragen aan jou gesteld.**

20. **Hoe vaak gebruik jij je mobiele telefoon (om bijvoorbeeld te bellen, whatsappen, sociale media of informatie op te zoeken, ...)?\***

- 1 keer per dag of minder
- Enkele keren per dag
- Ongeveer 1 keer per uur
- Enkele keren per uur
- Ongeveer elke 10 minuten of meer

21. **Hoe vaak gebeurt het dat jij je mobiele telefoon gebruikt terwijl je in gesprek bent met andere personen?\***

- (Bijna) nooit
- Uiterst zelden
- Af en toe
- Regelmatig
- Zeer regelmatig
- (Bijna) altijd

22. **Hieronder volgen enkele stellingen. Geef aan in welke mate jij het ermee eens of oneens bent**

	Helemaal mee oneens			Helemaal mee eens	
Je telefoon gebruiken tijdens een gesprek is een teken van gebrek aan respect voor je gesprekspartner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vind het niet erg als anderen hun telefoon gebruiken tijdens een gesprek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik voel me zelf schuldig als ik met mijn telefoon bezig ben tijdens een gesprek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vind het vervelend als andere mensen hun telefoon gebruiken terwijl ik met ze praat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vind het onbeleefd als andere mensen hun telefoon gebruiken terwijl ik met ze praat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tegenwoordig is het normaal als je je telefoon gebruikt terwijl je in gesprek bent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Einde](#)



Hartelijk dank voor het invullen van deze vragenlijst. De data van dit onderzoek wordt vertrouwelijk behandeld en alleen gedeeld met de betrokkenen van het onderzoek. Nogmaals, de onderzoeksresultaten zullen anoniem en confidencieel behandeld worden. Heb je nog vragen? Mail dan naar

Nogmaals bedankt!

## Appendix B - Filler questions

Scale from 1 (*strongly agree*) to 5 (*strongly disagree*).

---

EN: The environment during the conversation    NL: De omgeving van dit gesprek was:

was:

1. Unpleasant	1. Onprettig
2. Colorfull	2. Kleurrijk
3. Recognizable	3. Herkenbaar
4. Dark	4. Donker
5. Familiar	5. Vertrouwd
6. Attractively	6. Sfeervol
7. Pleasant	7. Prettig
8. Unrecognizable	8. Onherkenbaar

---

## Appendix C - Affiliation 1 items (Paunonen & Jackson, 1996)

Scale from 1 (*extremely inaccurate*) to 6 (*extremely accurate*).

---

Person A is someone who:

English	Dutch
1. Seems to derive less enjoyment from interacting with people than others do (R)	1. Minder plezier haalt uit interactie met mensen dan anderen (R)
2. Talks to a lot of different people at parties	2. feestje met veel verschillende mensen praat
3. Usually likes to spend free time with people	3. Er meestal van houdt haar vrije tijd door te brengen met mensen
4. Loves to chat	4. Houdt van praten
5. Radiates joy	5. Vreugde uitstraalt

---

*Note.* R is reversed item.

## Appendix D - Affiliation 2 adjectives (Wiggins, 1979)

Subjective scale from 1 (*extremely inaccurate*) to 6 (*extremely accurate*).

### High affiliation scores: (LM) warm-agreeable (warm-vriendelijk)

Number	Adjective (NL subs)	Meaning
1	Soft-hearted (Zachtzinnig)	Obliging, tends to do favours for others
2	Accommodating (Meegaand)	Warm or kind to others
3	Gentle hearted (Zachtaardig)	Easily feels love, pity or sorrow for others
4	Tenderhearted (Weekartig)	Generous, like to help others
5	Charitable (Barmhartig)	Warm and loving with others
6	Tender (Teder)	Feel interested or sensitive to the feelings and problems of others
7	Sympathetic (Sympathiek)	Thoughtful and caring for others
8	Kind (Vriendelijk)	Tends to be easy-going or gentle with others

### Low affiliation scores (DE) cold-hearted (kil-vijandig)

1	Ruthless (Meedogenloos) R	pursues one's own interests regardless of the effect on others.
2	Iron-hearted (Harteloos) R	Tends to be stern or harsh with others
3	Hardhearted (Hartvochtig) R	Unconcerned and unfeeling toward others
4	Uncharitable (Onbarmhartig) R	Dislike helping others; tends to judge others harshly
5	Coldhearted (Ongevoelig) R	Have little warmth or feelings for others; unfeeling; harsh
6	Cruel (Wreed) R	Able to cause pain and suffering to others; unfeeling
7	Unsympathetic (Onsympathiek) R	Not interested or concerned about others' feelings or problems
8	Warmthless (Onvriendelijk) R	Has no feeling of pleasure or affection for others

*Note.* R are reversed items.

Appendix D - Examples movie fragments

1. Control condition



2. Newspaper condition



3. Mobile phone condition



4. Speaking condition



5. Listening condition







