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The Effects of Linguistic Background and Visibility on Conversational Partners' Communicative Success and Attitudes in Online Conversations

by

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Abstract

Online communication and digital conferences have become increasingly relevant and replace face-to-face meetings in several sectors. This process is not only rooted in the ongoing pandemic but has already been described as a long-term development by various researchers. Therefore, we wanted to investigate which conditions in a digital setting have an impact on the overall communication's effectiveness. In this study, an experiment was conducted to gain a better insight into these effects. The experiment involved 52 participants that were further divided into 26 pairs. These pairs took part in a spot-the-difference game which had the goal to identify as many differences as possible. However, these pairs engaged in these games under varying conditions. Some pairs shared the same linguistic background whereas others did not and some pairs were able to see each other via webcam and other dyads did not have this option. However, not only their performance was observed but also their attitude towards each other. The latter was assessed by making use of questionnaires that analyzed the questioned person's prosocial behavior and likeability towards the interlocutor, their perceived task successfulness as well as their perceived communicative success. Although the study involved many different variables there were not many significant differences. The most relevant finding was that when interlocutors could see each other, their overall perceived communicative success was perceived as higher. The results of the current study suggest that visibility should be a standard in videoconferencing and that attitudes towards the conversational partner are one of the key factors of communicative success.

Keywords: Online communication, videoconferencing, linguistic background, visibility, likeability, perceived communicative success, perceived task success, prosocial behavior, likeability, spot-the-difference

Introduction

Living in the 21st century means living in a world of constant change. Every day we are being confronted with innovations that allow us to be more connected and more flexible which makes the world smaller. The reason for these developments is rooted in humanity's strong learning curve in the field of technological development. Today, the world is becoming more and more digitalized which results in even quicker progress in this field. For instance, in 2016 85% of all EU households had adequate internet access, whereas in 2007 only 55% of the EU households had access (Eurostat, 2018). Over the last decade, the number of EU citizens having the possibility to operate via the Internet doubled, which already illustrates at what an extreme pace the world is becoming more digitalized, and therefore, more globalized.

These developments affect our everyday lives to a large extent. Shopping is increasingly being done online, we are in constant contact with each other via WhatsApp and even the registrations necessary for the COVID-19 vaccinations take place on the internet. However, these developments are not only evident in our informal lives but also have an immense impact on the business world. As previous research conducted by Guo, Yang, Huang and Guo (2020) found out, digitalization is not only highly necessary under today's conditions but also enables organizations to handle the corona pandemic more efficiently. Thus, technology has become an integral part of the business environment. Other studies which focused more on the profession of management investigated what this kind of work mainly consists of. What they concluded is that managers spend up to 75% of their work time in either telecommunications or face-to-face meetings (Fulk & Collin-Jarvis, 2001), which emphasizes how crucial interpersonal relations are in an economic setting.

Now that many of these face-to-face meetings are not allowed anymore or a digital alternative is preferred due to the corona pandemic, managers have to find other ways of negotiating or exchanging with business partners. Although there is not an extensive amount of research regarding the effects of the pandemic on business meetings yet Monge and Fulk (1999) found out in the past that the shift is clearly from personal meetings to electronic counterparts. Moreover, there are several predictions of experts which state that video conferencing or digital meetings in general could replace face-to-face meetings in the future. In 1977, already, Petersen expected video conferencing to take place instead of business travels 50-60% of the time. Hence, the possibilities of electronic meetings would not only benefit organizations concerning financial expenses or time, but it would also be advantageous for the environment if more managers would use the internet for organizational

purposes. The latter might be a strong argument in the near future since the population is increasingly engaging in environmental protection activities.

However, what has not been discussed yet is the overall language in which this particular type of communication takes place. It would not only be extremely time-consuming but also highly complicated to convey ideas in several different languages. Thus, in the business world, members had to decide on modes of communication in order to be able to exchange with business partners from foreign countries. There are various modes of communication such as Regional Lingua Franca (RELF), Lingua Receptiva (LaRa) or English as a Lingua Franca (ELF). All of these create a common ground for communicative exchange (Backus et al., 2013). Here, the concept of English as a Lingua Franca (ELF) becomes important since this particular mode of communication connects people from all over the world and simultaneously allows them to engage in business with each other. In today's globalized world, ELF represents a "common everyday practice" among businesses and industries implement English more and more within their structures (Cogo, 2012).

Thus, it is clear that international business communication (1) increasingly takes place via digital communication channels, and (2) often takes place in ELF. During this study, it will be investigated to what extent online meetings in ELF via ZOOM differ in terms of *communicative success* based on the interlocutors' linguistic background as well as the interlocutors' ability to see each other while speaking. Before reporting the study, I will first discuss the theory and previous findings related to these factors.

Theoretical Background

The current study will investigate the *communicative success* of online meetings in ELF via ZOOM. ZOOM is an online platform that is being used for formal as well as informal conferences and is increasingly being used for distance teaching in times of the corona pandemic. *Communicative success* has been identified as a representation of how able two or more conversational partners are in terms of conveying a message to come to a mutual conclusion or to reach a common goal since the success of communication can be interpreted as the ability to understand the overall intention of the conversational partner (Pollock, 2020). Previous research has identified several concepts that can influence this ability (i.e., *communicative success*). In this study, the main focus lies on the variables '*sharing of native language*' and '*visibility*' of the two participants.

I first discuss sharing a native language. Bent and Bradlow (2003) conducted research that found out that speakers that are communicating in a language that is not their native

language (L2) are more successful in terms of information exchange when their native languages (L1) are similar or even the same. Non-native conversation partners who shared their native languages were better equipped to interpret the language of the interlocutor than interlocutors with varying L1s because of shared knowledge of the other's L1. Therefore, non-natives with a shared linguistic background are often better at understanding each other compared to conversation partners that differ in their L1 because they make use of a shared knowledge base. Further support for this claim can be found in a study conducted by Yow and Lim (2019). During their research, they found out that if bilinguals share the same two languages, they perform significantly better in problem-solving tasks. According to the researchers, this difference in performance, and therefore communicative success, might be rooted in the various communication processes that bilinguals with the same or different linguistic background make use of. Another factor that leads to a higher understanding between non-native speakers is that they use similar linguistic structures when speaking, which automatically makes it easier for them to decode each other's utterances (Bent & Bradlow, 2003; Costa, Pickering & Sorace, 2008). The process of using the same linguistic structures as your conversation partner is called *interactive alignment*. The concept of interactive alignment has mostly been observed in conversations between L1 speakers. However, there is also evidence for the tendency of interactive alignment in bilingual settings (Kootstra, Dijkstra & Van Hell, 2020). To relate the concept of interactive alignment to the business setting that was outlined previously, researchers also found that alignment has an effect on the buying behavior of individuals since one study identified an increase in sales when a sales clerk adjusted his communication to the language of his clients (Jacob, Guéguen, Martin, & Boulbry, 2011). Further factors, like speech rate, the use of cognates and the smoothness of the conversation suggest that communicative success is higher among two L2 speakers that share a similar or the same native language compared to L2 speakers that have highly different L1s (Chartrand & Bargh, 1999; Costa, Pickering & Sorace, 2008; Pickering & Garrod, 2004).

However, as already alluded to, not only linguistic aspects such as sharing a native language can have an influence on a conversation's effectiveness but also other conditions such as visibility (i.e., the ability to see the interlocutor) may play a role. As already pointed out by Beebe (1976), the condition whether interlocutors are able to see each other can have significant impacts on the very nature of the communication. For instance, eye contact between two conversational partners influences not only comprehension and credibility to a large extent but its absence also leads to a lower believability (Beebe, 1976). Previous

research conducted by Boyle, Anderson and Newlands (1994) investigated whether seeing your conversation partner has an effect on the overall communicative success or not. They found out that visibility has, indeed, a significant impact on the success of communication. It was concluded that visibility improves the process of information transfer and that the absence of visibility (i.e., not seeing the conversation partner) led to interruptions which affected the smoothness of the communication and eventually to a decrease in communicative success. Other research connected the variable visibility to the communication accommodation theory (CAT), which refers to the procedure of linguistically moving away or towards each other to establish increased or decreased social connectedness during a conversation. However, not only connectedness is established during communication accommodation but CAT is also used to negotiate category memberships by using specific communication strategies (Giles, Coupland & Coupland, 1991). The study conducted by Giles, Coupland and Coupland (1991) also concluded that factors like stereotypes as well as social and situational norms play an important role which forms the attitude of one interlocutor towards the other and therefore additionally affects the likeability between the two. The concept of CAT also occurs in email communication which is found to be more convergent in order to increase effectiveness (Thomson et al., 2001; Crook & Booth 1997). Another famous example of how visibility can influence communication is rooted in the Prisoner's Dilemma game, as demonstrated by Wichman (1970). In this game, there are in total four different communication scenarios which differ in visibility as well as audibility. The overall goal for the participants in this game is to come to a solution that is most beneficial for them at the expense of the other, which reflects the game's dilemma. When participants can see each other, their cooperation increases significantly compared to when they are only able to hear each other or are not in any kind of contact at all (Wichman, 1970). When the cooperation increases the participants have a higher chance of coming to a solution that is most beneficial for both interlocutors, which can be seen as a form of communicative success. Since the corona pandemic has changed the way we communicate and the channels we use, Cataldo et al. (2021) investigated what effect video conferencing has on the relationship between psychologists and their clients. Here, visibility represented an important factor as well. More specifically, it resulted in a two-sided effect since it (1) made it easier for clients to talk about their conditions (2) but also increased the difficulty of diagnosing for the psychologists because of an absence of body language, which inevitably led to more superficial deductions (Cataldo et al., 2021). Further research in the field of online communication and video conferencing revealed that when interlocutors are not talking to

each other in a face-to-face setting, the conversation partners experience less understanding and less trust in each other (Damen et al., 2020). However, Schweitzer, Walsh and Schweitzer (2017) concluded that when conversation partners are able to see each other divergence (differentiation) can occur, whereas when there is no visibility convergence (adaptation) seems to take place more frequently.

To summarize, conversation partners can increase the effectiveness of their dialogue by making use of interactive alignment, communication accommodation, visibility and having a similar linguistic background. Interestingly, this may subsequently also have certain subconscious effects on your attitude towards that individual. These effects are rooted in the evolutionary history of the human being since speech accommodation signalizes empathy as well as understanding, which results in experiencing higher social acceptance (Chartrand & Van Baaren, 2009). Therefore, interactive alignment can also be seen as some kind of inherent protection mechanism that is used to avoid conflict by evoking likeability in the conversation partner.

To gain more insights into these potential effects of communicative success, in the experiment, it will be investigated whether visibility and sharing the same language background results in certain changes in attitude towards the interlocutor. One of these attitudes towards the other participant is *likeability* and expresses if the person questioned likes his or her conversation partner or not. As already illustrated in the examples of previous research, likeability can influence two interlocutor's communicative success to a large extent (Chartrand & Van Baaren, 2009). As Chartrand and Bargh (1999) already pointed out, interactive alignment between two speakers positively influences a dialogue's smoothness. Consequently, this increases the likeability between the two because, as mentioned previously, reducing the distance between two interlocutors in terms of social distance (i.e., convergence) can lead to changes in attitudes towards the conversation partner (Giles, Coupland & Coupland, 1991).

The second effect of speech adjustment on attitudinal evaluations is *prosocial behavior*. Prosocial behavior refers to conversational partners helping each other during a dialogue. In the past, there has been evidence that an adjustment of speech between an L1 and an L2 speaker is being recognized by the conversational partner and will further lead to increased prosocial behavior as a consequence (Abrahams, Hartsuiker, De Fruyt & Bajo, 2019). However, when conversations of two L2 speakers have been analyzed it was concluded that structural alignment still occurs although it will not have prosocial behavior as

a consequence. Therefore, there are still some gaps in the literature that need to be answered regarding the linguistic background and prosocial behavior between interlocutors.

Based on the previous findings in this particular field it is easy for us to identify gaps in the literature. For instance, most of the studies mentioned before dealt with conversations that took place in a face-to-face setting but did not take into account if these effects also occur in a digital environment. Therefore, we will analyze whether the effects of visibility and native language on likeability, prosocial behavior and communicative success also occur via digital mediums, more specifically in ZOOM meetings. Thus, we came to the following research question:

RQ: What is the influence of visibility and sharing of native language on communicative success, likeability and prosocial behavior in Zoom conversations in English as a Lingua Franca?

H1: Interlocutors that share the same L1 report a higher perceived communicative success, perceived task successfulness and will be able to perform a shared dialogue task more successfully than participants with different L1s.

H2: Interlocutors that share the same L1 will have a more positive attitude towards each other in terms of likeability and prosocial behavior compared to participants with different L1s.

H3: Interlocutors that are able to see each other report a higher perceived communicative success, perceived task successfulness and will be able to perform a shared dialogue task more successfully differences than participants who are not able to see each other.

H4: Interlocutors that are able to see each other will have a more positive attitude towards each other in terms of likeability and prosocial behavior compared to participants who are not able to see each other.

In the current experiment, communicative success is referred to as a presentation of a conversation's effectiveness. To be able to make the effectiveness of a conversation a measurable variable we created a game that has a certain goal, namely a spot-the-differences dialogue task. Thus, communicative success can be measured based on the score participants achieve and this can, furthermore, be used to compare communicative success means to the

results of other participant groups. In this case, the 'score' is determined by the visual differences identified by the participants.

The current study is highly practically relevant since online communication has not been investigated to a large extent yet which leaves us with many unanswered questions. Therefore, it is highly important to find out more about the effects of visibility and interlocutors' linguistic backgrounds on communication in a digital setting since this type of communication is emerging and also received extensive attention during the corona pandemic. Thus, it is crucial to know which conditions influence this fairly new channel of information exchange since videoconferencing is used more frequently and largely takes place in formal contexts (i.e., online education, digital business meetings, etc.). By knowing which aspects affect online communication one could increase its effectiveness and overall successfulness which would lead to significant differences in performance.

Method

Design

In this study, it was analyzed which socio-linguistic effects can be observed when conversational partners work together in performing a task. More specifically, participants were invited to engage in a spot-a-difference game which was conducted in ELF. The study made use of a 2 x 2 between-subjects design. The experiment was designed as a game that required both participants to verbally communicate with each other to detect the most differences in both pictures. The first independent variable was visibility, which is the ability to see the conversation partner during the experiment. This variable was operationalized by either enabling or disabling the video function on Zoom. Therefore, the conditions for the visibility variable were either 'Yes' or 'No'. The second independent variable was the native language of the conversation couples. In this case, the variable was further divided into two separate subcategories since there were two options to allocate participants. The conditions were: Mixed (participants with differing L1s are interacting with each other) or shared (participants with the same L1 are interacting with each other).

After the participants completed the task, they were further asked to fill in a questionnaire that was aimed at investigating various variables, namely *likeability*, *prosocial behavior* and *perceived communicative success*.

Materials

During the experiment, which was always consisting of one experimenter and two participants, each participant was shown one picture. The two pictures were generally the same but deviated in ten details (see appendix). These images were retrieved from www.elements.envato.com and adapted by the researchers involved in this study. Thus, there were two different pictures that made it possible to engage in the experiment.

The dependent variables that the experiment focused on were *perceived communicative success*, *likeability* and *prosocial behavior*.

The dependent variable *communicative success* was measured by the number of differences participants were able to find during the experiment (based on Hendriks & Van Mulken, 2015). An utterance was determined as a difference when the participants mutually agreed on a difference, even though it was not actually present. The difference was noted down independently by both researchers to ensure sufficient intercoder reliability. Communicative success was also measured by utilizing the questionnaire questions that focused on the participants' perceived communicative success. In order to analyze this variable two questionnaires were used that analyzed perceived successfulness of the task and perceived communicative success (see appendix). The inter-item reliability of the questionnaire assessing the perceived successfulness of the task was acceptable ($\alpha = .79$). Furthermore, the inter-item reliability of the questionnaire assessing perceived communicative success was acceptable ($\alpha = .73$).

The *likeability* and *prosocial behavior* within the experiment groups could be assessed by making use of questionnaires. In this study, *likeability* was being measured by an adapted likeability scale (based on Reysen, 2005) and *prosocial behavior* was being assessed by using an adjusted version of the prosocial behavior scale (based on Capara et al., 2005). The inter-item reliability of the questions regarding *likeability* was good ($\alpha = .85$). Moreover, the inter-item reliability of the questions regarding *prosocial behavior* was good ($\alpha = .91$).

A pre-screening, which participants received before the experiment, included a questionnaire that was used to identify the participants' self-perceived language proficiency. This particular part of the questionnaire was based on the language history questionnaire (LHQ), which was created by Li et al. (2014, 2019). At the end of the questionnaire, participants encountered personal background questions. These questions were included to make the sample more comparable and were investigating the participants' age, nationality, native language and current educational level.

Participants

As already mentioned in the materials section, we invited participants from different nations to take part in our experiment. The pool of participants was represented by 52 individuals, which were either German or Dutch. The sample was split up into four different subgroups which differed in the conditions under which the experiment took place. Participants in group 1 had the same linguistic background and were able to see each other. Group 2's members differed in their L1 but were able to see each other. Individuals in group 3 differed in their linguistic background but were able to see each other and participants in group 4 had differing linguistic backgrounds and were not able to see each other. Tables 1 and 2 provide an overview of the participants' characteristics per group. Nevertheless, the background variables of the entire sample will be mentioned briefly in the following section for replicability purposes.

The sample used for this study included 34 females (65.4 %) and 18 males (34.6 %). A chi-square test showed no significant relation between gender and research group ($\chi^2 (3) = 2.97, p = .395$), which implies that genders were distributed equally over all four conditions. The participants also differed in their age ($M = 23.96, SD = 3.35, \text{range} = 20\text{-}30$). However, a one-way ANOVA showed no significant difference in terms of age between the four research groups ($F (3,48) = 7.23, p = .892$). Of these 52 participants, 17 reported to have achieved an A-level degree (32.7%), 23 obtained a bachelor's degree (44.2%), nine obtained a master's degree (17.3%) and one reported to take part in an apprenticeship (1.9%). One participant was still in secondary education (1.9%) and another participant chose the option 'other' (1.9%). A chi-square test between research group and education showed no significant difference ($\chi^2 (3) = 11.94, p = .683$). In the current study, 14 pairs that share the same linguistic background and 12 pairs that differed in their linguistic background were analyzed. The mixed group consisted of 12 German native speakers and 12 Dutch native speakers, which were divided in a way that one Dutch speaker always interacts with one German speaker. The group that shared the same linguistic background consisted of 12 German native speakers and 16 Dutch native speakers. 22 (41.5%) participants stated that they lived in an English-speaking country for a certain period of time. A chi-square test between research group and participants living in an English-speaking country for at least three months showed no significant relation ($\chi^2 (39) = 42.33, p = .329$). Moreover, the sample also differed in the number of years for which they have been using English ($M = 13.35, SD = 3.76$). A one-way ANOVA showed no significant differences between the research groups and the number of years they used English ($F (3,48) = 1.04, p = .385$). Furthermore, participants differed in their

ability to understand the English language ($M = 5.92$, $SD = .86$). A one-way ANOVA between understanding of English and the four research groups revealed no significant difference ($F(3, 48) = .29$, $p = .833$). The same difference between participants applied in terms of the ability to speak English ($M = 5.27$, $SD = 1.07$). As mentioned at the beginning of this section, the distribution of the previously mentioned background variables in relation to the four different experimental conditions can be found in table 1 and table 2.

Table 1. Means and standard deviations of age, English use, English understanding and English speaking across the four participant groups

	Group 1		Group 2		Group 3		Group 4	
	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>
Age	24.43 (3.52)	14	23.43 (3.35)	14	23.92 (3.48)	12	24.08 (3.37)	12
English Use (Years)	14.50 (3.59)	14	12.64 (4.85)	14	13.92 (3.15)	12	12.25 (2.96)	12
English Understanding	6.07 (0.73)	14	5.93 (1.14)	14	5.92 (0.79)	12	5.75 (0.75)	12
English Speaking	5.64 (1.22)	14	5.07 (1.00)	14	5.17 (1.19)	12	5.17 (0.84)	12

Table 2. Means and standard deviations of education and gender across the four participant groups

	Group 1		Group 2		Group 3		Group 4	
	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>
Education								
<i>A-Level</i>	(28.6)	4	(35.7)	5	(25)	3	(41.7)	5
<i>Bachelor</i>	(57.1)	8	(35.7)	5	(50)	6	(33.3)	4
<i>Master</i>	(7.1)	1	(21.4)	3	(25)	3	(16.7)	2
<i>In secondary education</i>	(7.1)	1	--	--	--	--	--	--
<i>Entrance Applied Sciences</i>	--	--	(7.1)	1	--	--	--	--
<i>Other</i>	--	--	--	--	--	--	(7.1)	1
Gender								
<i>Male</i>	(35.7)	5	(35.7)	5	(16.7)	2	(50)	6
<i>Female</i>	(64.3)	9	(64.3)	9	(83.3)	10	(50)	6

Furthermore, the previously mentioned groups were further divided into two categories, namely ‘visible’ and ‘non-visible’ to create a setting in which one half of a group plays the game with the ability to see each other and the other half not having this ability and, thus, relying solely on verbal communication. In the mixed condition, six pairs were able to see each other and the other six pairs were not able to see each other. In the condition where participants shared the same linguistic background, seven pairs were able to see each other during the experiment and seven pairs were not allowed to do so.

A chi-square test was conducted in order to ensure an equal distribution between the variables linguistic background and gender ($\chi^2 (1) = .03, p = .857$). A second chi-square test was conducted to guarantee an equal distribution between the variables linguistic background and education level ($\chi^2 (5) = 3.27, p = .658$). A one-way ANOVA revealed no significant difference between the independent variable linguistic background and age ($F (1, 50) = .006, p = .940$). A chi-square test between the independent variable visibility and education revealed no significant difference ($\chi^2 (5) = 4.72, p = .450$). Another chi-square test revealed no significant difference between visibility and gender ($\chi^2 (1) = 1.36, p = .244$).

To be able to create a sample that does not differ in its characteristics to a large extent, we implemented restrictions that narrow down the group of potential participants. The participants were only allowed to be between the age of 16 years and 30 years old to ensure

that a large age difference does not influence our results. Furthermore, it was required that participants have access to a working microphone and camera in order to provide us with audio and video data that was essential for our analysis. Due to this reason, we also required a stable internet connection to prevent technical issues from falsifying our data. In terms of gender, there were no restrictions. Nevertheless, participants had to state which gender they have in the questionnaire which they received immediately after the experiment took place.

Procedure:

In the first place, experimenters decided which pairs play the game together to ensure that either native Dutch speakers, native German speakers or a mixture of both were being analyzed. Due to the answers that participants gave in the pre-screening questionnaire, which they received some days prior to the actual experiment, researchers were able to distribute them equally over all conditions. Furthermore, before the experiment begins, experimenters have already decided whether participants were able to see each other or not. This can be changed in the Zoom call's settings and allowed us to create a manipulation. Immediately before the game started, participants were being informed about what the game they are supposed to play is about and whether they were against being videotaped or not. Participants were being welcomed and automatically muted when they entered the Zoom call. Then, one of the experimenters explained that they can speak in English once the experiment starts and that the picture that they will see differs in ten details. Moreover, the experimenter gave a brief example of what participants can expect by showing a similar picture which can be observed in figure 1 in the appendix. After that, the experimenter told the participants that these differences can be the location of objects, the number of objects color changes in objects or an additional object in one of the pictures. Next, participants were being informed about the overall process of the experiment. More specifically, participants were told that they will be placed in separate breakout rooms in order to look at their version of the picture for two minutes and that they are allowed to take notes. The different versions of the picture are represented in figure 2 and 3 in the appendix. Experimenters also informed them that they will automatically return to the main Zoom session and that they are given five minutes to discuss potential differences. Furthermore, the participants were told that experimenters are muted during those five minutes. In the end, the experimenters mentioned that participants will be asked to fill in a survey after the discussion and that the approximate duration of the experiment will be 15 minutes.

The rules of the game are: “You are only allowed to communicate verbally” and “You are only allowed to talk in English”. The overall goal of the game was to identify as many differences as possible between the two almost similar pictures and participants are given a time limit of five minutes. If the participants understood the rules and gave their consent about being videotaped and allowed us to use that data for research purposes, participants started with the experiment.

After the experiment was conducted, participants were asked to fill out a questionnaire. This questionnaire addressed the participant’s age, gender, nationality, mother tongue and educational level. Moreover, the questionnaire included sections that analyzed the participant’s *prosocial behavior*, *perceived communicative success*, *perceived task successfulness* as well as *likeability* towards the conversational partner.

Analysis

We will make use of several ANOVAs in order to compare our results and to detect potential differences between the various groups. More specifically, we will use ANOVAs to find out whether shared or non-shared language background and visibility shows any significant behavioral pattern in terms of *communicative success*, *likeability* and *prosocial behavior*. Moreover, Pearson’s correlation test will be conducted to find any potential correlations between the variables mentioned in the previous sentence.

Results

Likeability

The variable likeability was the mean score of all items measuring likeability. A two-way ANOVA regarding likeability showed no significant effect on language condition ($F(1, 48) = 0.63, p = .430$), visibility ($F(1, 48) = 0.04, p = .841$) and no significant interaction effect between linguistic background and visibility ($F(1, 48) = 0.01, p = .972$). Table 3 depicts these results.

Table 3. Means and standard deviations of likeability and linguistic background (1 = Completely Disagree, 5 = Completely Agree)

	Visible		Non-visible		Total	
	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>
Shared L1	3.86 (0.53)	14	3.83 (0.62)	14	3.85 (0.56)	28
Mixed L1	3.75 (0.42)	12	3.73 (0.31)	12	3.74 (0.36)	24
Total	3.81 (0.48)	26	3.78 (0.49)	26	3.80 (0.48)	52

Prosocial Behavior

Prosocial behavior was reflected in the mean score of all items measuring prosocial behavior. A two-way ANOVA regarding prosocial behavior showed no significant effect on language condition ($F(1,48) = 0.20, p = .654$), visibility ($F(1,48) = 0.55, p = .463$). Moreover, there was no significant interaction effect between linguistic background and visibility ($F(1,48) = 1.46, p = .233$). These results can be found in table 4.

Table 4. Means and standard deviations of prosocial behavior and linguistic background (1 = Completely Disagree, 5 = Completely Agree)

	Visible		Non-visible		Total	
	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>
Shared L1	3.73 (0.56)	14	3.79 (0.55)	14	3.76 (0.54)	28
Mixed L1	3.83 (0.37)	12	3.57 (0.39)	12	3.70 (0.39)	24
Total	3.78 (0.47)	26	3.69 (0.48)	26	3.74 (0.48)	52

Perceived task success

Perceived task success was equal to the mean score of all items measuring perceived successfulness of task.

A two-way ANOVA for perceived successfulness of task showed no significant effect on language condition ($F(1,48) = 0.46, p = .500$), visibility ($F(1,48) = 0.09, p = .766$).

Furthermore, there was no significant interaction effect between language condition and visibility ($F(1,48) = 0.06, p = .816$). Table 5 depicts these results.

Table 5. Means and standard deviations of perceived successfulness of task and linguistic background (1 = Completely Disagree, 5 = Completely Agree)

	Visible		Non-visible		Total	
	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>
Shared L1	3.81 (0.99)	14	3.80 (0.77)	14	3.81 (0.87)	28
Mixed L1	3.72 (0.68)	12	3.60 (0.61)	12	3.66 (0.64)	24
Total	3.77 (0.85)	26	3.71 (0.70)	26	3.74 (0.77)	52

Perceived communicative success

Perceived communicative success was reflected in the mean score of all items measuring perceived communicative success. A two-way ANOVA regarding perceived communicative success showed no significant effect on language condition ($F(1, 48) = 2.52, p = .119$). However, there was a significant main effect on visibility ($F(1, 48) = 4.44, p = .040$). When the interlocutors were able to see each other ($M = 4.46, SD = 0.51$) the successfulness of the communication was perceived as higher compared to interlocutors who did not see each other ($M = 4.20, SD = 0.39$). There was no significant interaction effect between language condition and visibility ($F(1, 48) = 0.10, p = .754$). A visualization of the means and standard deviations of perceived communicative success and linguistic background can be observed in table 6.

Table 6. Means and standard deviations of perceived communicative success and linguistic background (1 = Completely Disagree, 5 = Completely Agree)

	Visible		Non-visible		Total	
	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>
Shared L1	4.54 (0.53)	14	4.31 (0.42)	14	4.42 (0.49)	28
Mixed L1	4.38 (0.50)	12	4.07 (0.32)	12	4.22 (0.44)	24
Total	4.46 (0.51)	26	4.20 (0.39)	26	4.33 (0.47)	52

Correlations

There was no significant correlation between likeability and perceived successfulness of task ($r(52) = .245, p = .080$). Moreover, there was no significant correlation between likeability and perceived communicative success ($r(52) = .244, p = .081$). Furthermore, there was no significant correlation between likeability and differences found ($r(52) = .129, p = .661$). No significant correlation was found between differences found and prosocial behavior ($r(52) = .455, p = .102$). Lastly, there was no significant correlation between differences found and perceived communicative success ($r(52) = .457, p = .101$). A significant positive correlation was found between likeability and prosocial behavior towards the other participant ($r(52) = .586, p < .001$). Thus, the likeability towards a participant increased when they showed signs of prosocial behavior. A significant positive correlation was found between prosocial behavior and perceived successfulness of the task ($r(52) = .349, p = .011$). Therefore, when a participant showed prosocial behavior, it was reflected in an increase in the perceived successfulness of the task. There was a significant positive correlation between prosocial behavior and perceived communicative success ($r(52) = .577, p = .031$). Thus, an increase in prosocial behavior led to an increase in perceived communicative success. There was a significant positive correlation between perceived communicative success and perceived task successfulness ($r(52) = .532, p < .001$). Hence, an increase in perceived communicative success was generally accompanied by an increase in perceived task successfulness. Lastly, there was a positive correlation between differences found and perceived task successfulness

($r(52) = .447, p = .001$). Hence, participants evaluated their performance in the game significantly better when they found more differences. The correlations between the various variables are depicted in table 7.

Table 7. Correlations (r) between prosocial behavior, likeability, perceived communicative success, perceived task success and differences found ($N = 52$)

Variable	Prosocial behavior	Likeability	Perceived communicative success	Perceived task success	Differences found
Prosocial behavior		.59**	.58*	.35*	
Likeability	.59**				
Perceived communicative success	.58*			.53**	
Perceived task success	.35*		.53**		.45**
Differences found				.45**	

* $p < .050$, ** $p < .010$

Conclusion and Discussion

During our statistical analyses, we were only able to detect a significant effect of visibility on communicative success. The statistical test for the other variables, however, revealed no significant effects. Hence, the first hypothesis has to be rejected. There was no significant effect of sharing the same L1 on perceived task successfulness, perceived communicative success as well as the total number of differences found. Moreover, the second hypothesis has to be neglected since sharing the same L1 did not have an effect on the interlocutors' attitudes towards each other either. However, the third hypothesis can be confirmed to a certain extent. Although our study revealed no effect of visibility on perceived task successfulness and the total number of differences found it showed that there is a significant effect of visibility on the perceived communicative success. Therefore, when interlocutors were able to see each other, this had an impact on how optimistic they were in their self-evaluation regarding communicative success. Lastly, the fourth hypothesis has to be rejected since the visibility aspect had no significant effect on the interlocutors' attitude towards each other in terms of likeability and prosocial behavior.

As already mentioned previously, the linguistic background did not affect the other variables. Nevertheless, this does not align with the findings of previous research. For instance,

it was concluded that when conversational partners have the same linguistic background, they are more successful in their overall communication and information exchange (Bent & Bradlow, 2003; Chartrand & Bargh, 1999; Pickering & Garrod, 2004). Based on the current study, however, there was no significant difference between interlocutors that shared the same L1 and interlocutors that differed in their L1 in terms of communicative success (i.e. perceived communicative success, perceived task successfulness and number of differences found). Yow and Lim (2019) found further results that do not align with the findings of the present study. In their experiment, they concluded that if bilinguals are fluent in the same two languages, they are generally more successful in problem-solving tasks. Again, this is not further supported by our study since the participants' L1s did not have an impact on their communicative success. Moreover, Costa, Pickering and Sorace (2008) concluded that the similarity in terms of linguistic structures between interlocutors with the same L1 make communication easier and, therefore, should increase communicative success. The findings of our study stated the exact opposite because there was no significant effect of the speakers' L1 on differences spotted and communicative self-evaluation. A possible explanation for why the communicative success was not influenced by the participants' linguistic background is the sheer similarity between the two L1s. Both German and Dutch are Germanic languages. Therefore, they are highly similar in their syntactic structure, grammar as well as pronunciation (Müller, 2005). This could have led to identification between two participants with differing L1s, which was not intended and could have resulted in falsified data.

Although our results do not align with the results of previous research regarding linguistic background, some findings aligned with studies by other researchers in terms of visibility. This aspect of communication was investigated extensively and revealed numerous important findings. Some of these findings were that visibility leads to higher comprehension, credibility and an improved information transfer (Beebe, 1976; Boyle, Anderson & Newlands, 1994). Consequently, the ability to see one another during conversations would have increased communicative success as an outcome. Our study aligns with the conclusion by Beebe (1976) in that an absence of visibility has the effect of lower credibility as well as believability among the interlocutors. In our experiment, this became evident when participants that were able to see each other were more confident in their self-evaluation regarding communicative success in contrast to the conversation partners that were not able to see each other. A previous study showed that if interlocutors have the option to see each other, cooperation and increased communicative success will be the outcome (Wichman, 1970). In this case, our findings are two-sided. On the one hand, the statistical analyses revealed that perceived communicative

success is indeed affected by visibility but on the other hand the analyses suggest that cooperation, which can be described as the outcome of prosocial behavior, is not affected by the ability to see the conversation partner. Lastly, our statistical findings do not align with studies that investigated the effect of likeability on communicative success. As Chartrand and Van Baaren found out in 1999, likeability can have an impact on the success of a conversation. However, this is not reflected by our experiment since the inter-human perceptions did not have a significant influence on perceived communicative success, perceived task success and the total number of differences found.

A potential reason for the high number of misalignments between the current and previous studies is that there were simply too few participants to be representative of the broad public. In the current study, only 52 participants (i.e., 26 dyads) took part in the experiment which might be an explanation for this inconsistency in findings. A further limitation could potentially be rooted in the general approach to the experiment. During the actual experiment, researchers solely emphasized the importance of finding differences and performing well in the spot the difference game. However, this might have manipulated the behavior of the participants unintentionally since the linguistic background of the interlocutor was not underlined or put into the foreground at any time. Thus, the conversation partners could have answered the questionnaire based on their performance and collaboration without taking into account the interlocutor's L1 and linguistic background. The participants' behavior could have also been manipulated otherwise. The individuals who took part in the spot-the-difference game were aware of the fact that they were participating in an experiment. Therefore, the interlocutors could have adapted to the setting which makes the study's findings less applicable to the real world and a genuine context. Moreover, the statistical treatment of the data has revealed several correlations. For instance, correlations were found between likeability and prosocial behavior, prosocial behavior and perceived successfulness of task, perceived task success and differences found as well as between perceived communicative success and perceived task success. This high number of correlations and therefore the high interdependency within the data set could suggest that several items in the questionnaire subconsciously measured the same variable. In this case it would be appropriate to make use of factor analyses in order to identify one or several overarching variables that are representative of the numerous and more detailed ones. However, for relevant factor analyses the sample size is simply not big enough. Nevertheless, these correlations also signalize that there is a high interconnectedness between these variables. Although this is a clear limitation it furthermore aligns with the findings of previous research like the CAT. In their study, Giles, Coupland and Coupland (1991) already identified that the

attitudes between conversation partners can have a significant impact on the overall effectiveness of the communication, which illustrates the interconnectedness that was mentioned in the previous sentences. The last major limitation is the nature of some of the variables used in this study. Besides variables like linguistic background and differences found there were other variables that solely relied on the participants' self-evaluation. For instance, there were variables like perceived successfulness of task and prosocial behavior that were highly dependent on the assumptions and characteristics of the person questioned. Therefore, some variables cannot be compared in a standardized manner since the individuals' assumptions are not rooted in any kind of official framework.

Future research in this field should take the current study's findings into account and build on the previously mentioned insights to improve the experiment's overall processes. More specifically, future researchers should recruit more participants to take part in the experiment. Not only would this make the results more reliable but it would also give the researchers the ability to apply more statistical tests. By having a larger sample size, it would be possible to conduct factor analyses that would reveal whether certain variables in the current study are simply part of a bigger variable or indeed positively correlated. Furthermore, it would be highly interesting to see the same experiment being conducted with interlocutors from highly different cultures and linguistic backgrounds. Perhaps these specific differences would have a significant impact on the conversation partners' attitude towards each other and could be an explanation for why the attitudinal variables were not affected by the participants' linguistic background in the present study; it would at least provide a strong manipulation of the variable 'shared/non-shared language background'. It is also crucial to mention that future researchers should instrumentalize different variables than the ones used in this study. As already illustrated, variables that are highly dependent if not even absolutely based on the participants themselves are not comparable to a large extent which could falsify results and be a hypothetical explanation for why this study revealed so few significant differences and effects.

This study has taken a closer look at how different conditions can influence communication and its effectiveness. Although the study did not reveal a large number of statistically justified facts, it still contributed something to the theory. For instance, it was emphasized that aspects like visibility can have an impact on the interlocutors' perception of the conversation and that certain effects that were already identified by researchers in the past (e.g., the effect of linguistic background on attitude) are not necessarily applicable to every situation. One of the more relevant conclusions of this study was that visibility can have a strong impact on the perceived communicative success of interlocutors. Hence, it is highly suggested

to make use of the video option in videoconferences that take place in a productive setting (e.g., online education or digital business meetings). By using this function, a higher optimism and working morale could be achieved, which is highly important when collaborating in teams. Furthermore, the high number of correlations among the variables could suggest that communicative success and attitudes between conversational partners do not only have a high impact on each other but could even be more interdependent than expected. Thus, the connection between attitudes and communicative success should be further investigated in the future. To conclude, this particular study showed that communication is highly influenced by the conditions in which it takes place and that specifically online communication and its characteristics can change not only the way we speak but also think.

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Appendix

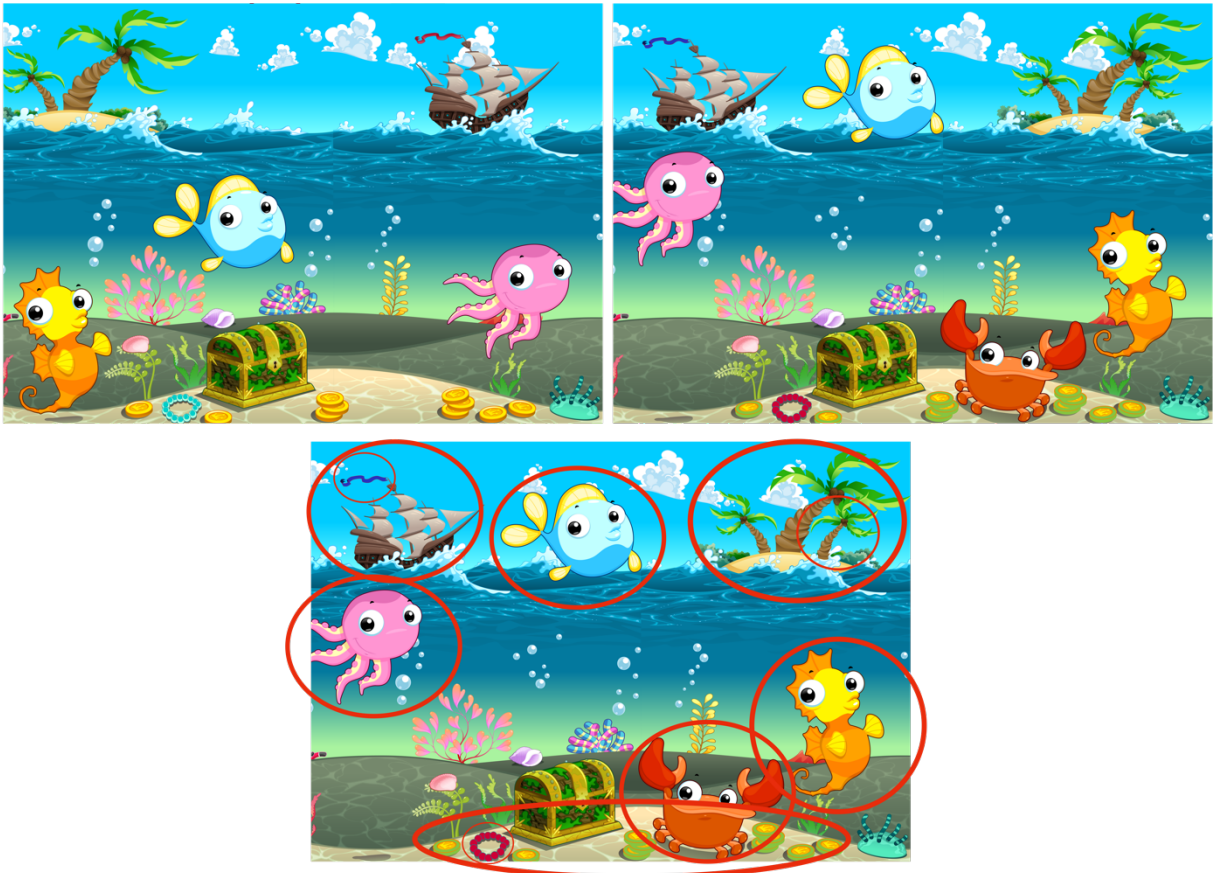


Figure 1. Example picture used to explain the spot-the-difference game



Figure 2. Version 1 of the pictures used in the game



Figure 3. Version 2 of the pictures used in the game

Likeability Scale

Measures likeability with likeability scale developed by Reysen (2005): very strongly disagree, strongly disagree, disagree, neutral, agree, strongly agree, very strongly agree)

1. This person is friendly
2. This person is likeable
3. This person is warm
4. This person is approachable
5. I would ask this person for advice
6. I would like this person as a coworker
7. I would like this person as a roommate
8. I would like to be friends with this person
9. This person is physically attractive
10. This person is similar to me
11. This person is knowledgeable

Prosocial behavior

The sixteen items of the Prosocialness for Adults (directed to other person) by Capara et al. (2005):

1. I think this person is pleased to help their friends/colleagues in their activities.
2. I think this person shares things with their friends.
3. I think this person tries to help others
4. I think this person is available for volunteer activities to help those who are in need
5. I think this person is empathetic with those in need
6. I think this person helps immediately those in need
7. I think this person does what they can to help others avoid getting into trouble
8. I think this person intensely feels what others feel
9. I think this person is willing to make their knowledge and abilities available to others
10. I think this person tries to consolidate those who are sad
11. I think this person easily lends money and other things
12. I think this person easily puts themselves in the shoes of those who are in discomfort
13. I think this person tries to be close to and take care of those in need.
14. I think this person easily shares with friends and any good opportunity that comes to them
15. I think this person spends time with those friends who feel lonely
16. I think this person immediately senses their friends' discomfort even when it is not directly communicated to them

Perceived successfulness of task

1. I am generally happy with our collaboration
2. We are at least as effective as when I am interacting in my own language
3. We are at least as efficient as when I am interacting in my own language
4. I think the results of our collaboration could be better
5. I think that we could have achieved more

Perceived communicative success

1. The conversation with this person went smoothly
2. Talking to this person was easy
3. I think this person understood what I was saying
4. I understood what this person was saying
5. There were no misunderstandings
6. I was able to help the other person when they were, for instance, stuck

Simplified LHQ (assessing own English proficiency)

1. Indicate the age at which you started using English and the total number of years you have spent using English in terms of listening and speaking
2. If you have lived or traveled in English-speaking countries for three months or more, then indicate the name of the country, your length of stay (in months), and the frequency of your use of the language, for each country
3. Rate your language learning skill. In other words, how good do you feel you are at learning new languages relative to your friends or other people you know
4. Rate your current ability in terms of listening and speaking in English
5. Estimate how many hours per day you spend using English in the following activities: Language, Watching TV, listening to podcasts or radio, reading, using social media and internet, writing

Simplified LHQ (assessing interlocutor's English proficiency)

1. Rate the current ability of this person in terms of speaking and listening in English
2. Rate the current ability of this person in terms of listening in English

Personal background question

1. What is your age?
2. What is your nationality?
3. What is your native language?
4. What is your current educational level?

Checklist EACH (version 1.6, november 2020)

You fill in the questions by clicking on the square next to the chosen answer

After clicking, a cross will appear in this square

1. Is a health care institution involved in the research?

Explanation: A health care institution is involved if one of the following (A/B/C) is the case:

- A. One or more employees of a health care institution is/are involved in the research as principle or in the carrying out or execution of the research.
- B. The research takes place within the walls of the health care institution and should, following the nature of the research, generally not be carried out outside the institution.
- C. Patients / clients of the health care institution participate in the research (in the form of treatment).
 - No → continue with questionnaire
 - Yes → Did a Dutch Medical Institutional Review Board (MIRB) decide that the Wet Medisch Onderzoek (Medical Research Involving Human Subjects Act) is not applicable?
 - Yes → continue with questionnaire
 - No → This application should be reviewed by a Medical Institutional Review Board, for example, the Dutch [CMO Regio Arnhem Nijmegen](#) → end of checklist

2. Do grant providers wish the protocol to be assessed by a recognised MIRB?

- No → continue with questionnaire
- Yes → This application should be reviewed by a Medical Institutional Review Board, for example, the Dutch [CMO Regio Arnhem Nijmegen](#) → end of checklist

3. Does the research include [medical-scientific research](#) that might carry risks for the participant?

- No → continue with questionnaire
- Yes → This application should be reviewed by a Medical Institutional Review Board, for example, the Dutch [CMO Regio Arnhem Nijmegen](#) → end of checklist

Standard research method

4. Does this research fall under one of the stated [standard research methods](#) of the Faculty of Arts or the Faculty of Philosophy, Theology and Religious Studies?

- Yes → Faculty of Arts; Research Method 2 → continue with questionnaire
- No → assessment necessary, end of checklist

Participants

5. Is the participant population a healthy one?

- Yes → continue with questionnaire
- No → assessment necessary, end of checklist → [go to assessment procedure](#)

6. Will the research be conducted amongst minors (<16 years of age) or amongst (legally) incapable persons?

- Yes → assessment necessary, end of checklist → [go to assessment procedure](#)
- No → continue with questionnaire

Method

7. Is a method used that makes it possible to produce a coincidental finding that the participant should be informed of?

- Yes → assessment necessary, end of checklist → [go to assessment procedure](#)
- No → continue with questionnaire

8. Will participants undergo treatment or are they asked to perform certain behaviours that can lead to discomfort?

- Yes → assessment necessary, end of checklist → [go to assessment procedure](#)
- No → continue with questionnaire

9. Are the estimated risks connected to the research minimal?

- No → assessment necessary, end of checklist → [go to assessment procedure](#)
- Yes → continue with questionnaire

10. Are the participants offered a different compensation than the usual one?

- Yes → assessment necessary, end of checklist → [go to assessment procedure](#)
- No → continue with questionnaire

11. Should [deception](#) take place, does the procedure meet the standard requirements?

- No → assessment necessary, end of checklist → [go to assessment procedure](#)
- Yes → continue with questionnaire

12. Are the standard regulations regarding [anonymity and privacy](#) met?

- No → assessment necessary, end of checklist → [go to assessment procedure](#)
- Yes → continue with questionnaire

Conducting the research

13. Will the research be carried out at an external location (such as a school, hospital)?

- No → continue with questionnaire
- Yes → Do you have/will you receive written permission from this institution?
 - No → assessment necessary, end of checklist → [go to assessment procedure](#)
 - Yes → continue with questionnaire

14. Is there a contact person to whom participants can turn to with questions regarding the research and are they informed of this?

- No → assessment necessary, end of checklist → [go to assessment procedure](#)
- Yes → continue with questionnaire

15. Is it clear for participants where they can file complaints with regard to participating in the research and how these complaints will be dealt with?

- No → assessment necessary, end of checklist → [go to assessment procedure](#)
- Yes → continue with questionnaire

16. Are the participants free to participate in the research, and to stop at any given point, whenever and for whatever reason they should wish to do so?

- No → assessment necessary, end of checklist → [go to assessment procedure](#)
- Yes → continue with questionnaire

17. Before participating, are participants informed by means of an information document about the aim, nature and risks and objections of the study? (zie [explanation on informed consent](#) and [sample documents](#)).

- No → assessment necessary, end of checklist → [go to assessment procedure](#)
- Yes → continue with questionnaire

18. Do participants and/or their representatives sign a consent form? (zie [explanation on informed consent](#) and [sample documents](#)).

- No → assessment necessary, end of checklist → [go to assessment procedure](#)
- Yes → checklist finished

If you want to record the results of this checklist, please save the completed file.

If you need approval from the EACH due to the requirement of a publisher or research grant provider, you will have to follow the formal assessment procedure of the EACH.

Figure 5: Ethics Checklist

Appendix A. Statement of own work

Sign this *Statement of own work* form and add it as the last appendix in the final version of the Bachelor's thesis that is submitted as to the first supervisor.

Student name: Konstantin Kohlhage
Student number: S1027366

PLAGIARISM is the presentation by a student of an assignment or piece of work which has in fact been copied in whole or in part from another student's work, or from any other source (e.g. published books or periodicals or material from Internet sites), without due acknowledgement in the text.

DECLARATION:

- a. I hereby declare that I am familiar with the faculty manual (<https://www.ru.nl/facultyofarts/stip/rules-guidelines/rules/fraud-plagiarism/>) and with Article 16 "Fraud and plagiarism" in the Education and Examination Regulations for the Bachelor's programme of Communication and Information Studies.
- b. I also declare that I have only submitted text written in my own words
- c. I certify that this thesis is my own work and that I have acknowledged all material and sources used in its preparation, whether they be books, articles, reports, lecture notes, and any other kind of document, electronic or personal communication.

Signature:

Place and date: 6/6/2021