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Making the first contact during crisis negotiations with avatars: help or hindrance?

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Abstract

Crisis negotiators from the police increasingly (try to) establish the first contact with a person of interest via digital ways. Due to the fact that a crisis negotiator can not be immediately present at the crisis' location, it would be more beneficial to make the first contact with the person of interest by the negotiator from a distance. In the current study, I explore the use of avatars when making the first contact with the person of interest in a crisis negotiation. In my experiment I have used three types of avatars differing in the level of anthropomorphism (i.e., human-like appearance). An online experiment has been set up in which participants have been questioned by a pre-programmed negotiator after they have stolen money from a study association. Students (N = 182) have been randomly assigned to one condition based on a 3 (visual form realism: high anthropomorphic avatar vs. low anthropomorphic avatar vs. control) x 2 (type of crisis: expressive vs. instrumental) between-subjects design. It is expected that the avatar's level of anthropomorphism is affecting three important factors in making the first contact: rapport, trust and disclosure of information (willingness and actual information provision). Additionally, an interaction by the type of crisis experienced by the person of interest on rapport and trust is expected, and also a mediation by the avatar's perceived realism on the disclosure of information. The manipulations of the type of crisis and the avatar's level of anthropomorphism were ineffective and, therefore, the type of crisis has been excluded from the analysis as an independent variable. However, the avatar's levels of anthropomorphism have still been used as an independent variable to make a difference in the three groups due to an unconscious influence of the visuals (name vs. silhouette vs. face). This study showed that the three different visuals did not made a meaningful difference in the established levels of rapport and trust. Neither did the visuals made a meaningful difference regarding the perceived realism of the avatar, and it did not lead to the participants being more willing to disclose information. However, it seems that the visuals did had an affect on the information that is provided by the person of interest. Finally, implications of these results are discussed.

Keywords: avatar, computer-mediated communication, crisis negotiation, anthropomorphism

Crisisonderhandelaren vanuit de politie proberen veelal digitaal contact te maken met de verdachte. Vanwege het feit dat een crisisonderhandelaar niet onmiddellijk aanwezig kan zijn op de locatie waar de crisis plaatsvindt, zou het gunstiger zijn als het eerste contact met de verdachte op afstand wordt gemaakt door de crisisonderhandelaar. In dit onderzoek exploreer ik het gebruik van avatars wanneer er voor het eerst contact wordt gemaakt met de verdachte in een crisisonderhandeling. In mijn experiment heb ik drie soorten avatars gebruikt die verschilden in het niveau van antropomorfisme (m.a.w., een menselijk uiterlijk). Er is een online experiment opgezet waarbij deelnemers zijn ondervraagt door een voorgeprogrammeerde crisisonderhandelaar nadat zij geld hebben gestolen van een studievereniging. Studenten (N = 182) zijn willekeurig ingedeeld in één conditie gebaseerd op een 3 (visuele vormgeving: hoog antropomorfische avatar vs. laag antropomorfische avatar vs. controle) x 2 (type crisis: expressief vs. instrumenteel) *between-subjects design*. Er wordt verwacht dat het antropomorfische niveau van de avatar invloed heeft op drie belangrijke variabelen tijdens het maken van het eerste contact: rapport, vertrouwen en het vrijgeven van informatie (de bereidheid en de kwantiteit). Daarnaast wordt er een interactie verwacht van het type crisis dat ervaren is door de verdachte op rapport en vertrouwen, en een mediatie van de ervaren realisme van de avatar op het vrijgeven van informatie. De manipulatie van de twee crisis types en het antropomorfische niveau van de avatar waren ineffectief, en daarom zijn de crisis types uitgesloten van de analyse. Echter, de antropomorfische niveaus van de avatars zijn wel gebruikt als onafhankelijke variabele om verschil te maken in drie groepen vanwege een onbewuste invloed van de visualisaties (naam vs. silhouette vs. gezicht). Dit onderzoek heeft gevonden dat de drie verschillende visualisaties geen betekenisvol verschil hebben gemaakt in het bewerkstelligen van rapport en het vertrouwen. Dit was ook het geval betreffende het ervaren realistische aspect van de avatar, en ook leidde de verschillende visualisaties niet tot een betekenisvol verschil in de bereidheid om informatie te delen. Echter, het lijkt er op dat de verschillende visualisaties een effect hebben gehad op de kwantiteit van gedeelde informatie door de verdachte. Tot slot zijn de implicaties van deze resultaten bediscussieerd.

Sleutelwoorden: avatar, computer-gemedieerde communicatie, crisisonderhandeling, antropomorfisme.

Content

Introduction

A crisis negotiator from the police has the purpose to help people who experience a crisis situation – e.g., a suicidal person on top of the roof – and this can be done through a crisis negotiation (Giebels & Noelanders, 2004; Oostinga, Rispens, Taylor & Ufkes, 2018). The interaction in a crisis negotiation can be perceived as intensive, tensely, and dynamic for both the crisis negotiator and the person of interest (Giebels, Ufkes & van Erp, 2014; Oostinga et al., 2018). Specifically, the first moment of contact with the person of interest is important and can be crucial for the development and outcome of the negotiation (Giebels & Noelanders, 2004; Mullins, 2003; Wells, Taylor & Giebels, 2013). In order to establish this first contact, the negotiator travels – in most cases – towards the place where the crisis situation occurs. However, due to the duration of travelling, the first contact with the person of interest is often made by the first responding police officer(s) (Giebels & Noelanders, 2004; Mullins, 2003; Wells et al., 2013). Considering the trained negotiating skills of the negotiator, it would be most idealistic to let the crisis negotiator establish the first contact with the person of interest (Noesner & Dolan, 1992). The introduction of technology, specifically computer-mediated communication (CMC), could offer a solution for this (e.g., Almond & Budden, 2012; Connolly, Jessup & Valacich, 1990; Tidwell & Walther, 2002). This form of communication has been increasingly used through video-based, 3D-virtual and -online environments (e.g., Ang, Bobrowicz, Siriaraya, Trickey, & Winspear, 2013; Bailenson, Yee, Merget & Schroeder, 2006; Domínquez & Roberts, 2014). Moreover, CMC – and particularly one type of CMC: avatars – is implemented in negotiations in various fields with a diversity of results (Almond & Budden, 2012; Calefato, Damian, & Lanubile, 2011).

In the current study, I will study whether technology can function as a help or a hindrance when making the first contact with the person of interest by the crisis negotiator from a distance. Specifically, I will explore one type of CMC: avatars. This study will focus on what type of avatar to use (differing in the extent to which they look like humans) in two different types of crisis negotiations (expressive vs. instrumental), and I will explore what its effect is on the variables that are of high importance in the first contact between the person of interest and the crisis negotiator: rapport (i.e., positive relationship), trust, disclosure of information (willingness and actual information provision), and perceived realism. In the next section I will elaborate on two crisis' types and the importance of the first contact with the person of interest. After that, I will discuss the use of avatars in online environments together with their human-like appearance. Furthermore, I will elaborate on the four important factors related to the first contact as mentioned before.

Crisis situations

Events that lead individuals into a crisis situation can be perceived as life changing, since these events are mostly of significant value for the individual's future (Giebels et al., 2014; Oostinga et al., 2018). But when is such an event seen as a crisis? A crisis is defined as "a specific, unexpected, non-routine event or series of events that creates high levels of uncertainty, and a significant or perceived

threat to high priority goals" (Seeger, Sellnow & Ulmer, 2003, p. 7). In other words, whenever there is something of high value at stake for at least one of the parties involved, the uncertainty regarding the development and outcome of the crisis is increased (Giebels et al., 2014; Oostinga et al., 2018). Therefore, these situations can be experienced as very intense and troublesome (Giebels et al., 2014; Oostinga et al., 2018), and can escalate very quickly (Giebels et al., 2014). According to Hancerli (2008), a negotiator is the key player to peacefully resolve a (hostage) crisis situation, and therefore, dealing with the person of interest and the crisis is the negotiator's main focus. In order to be able to positively influence the development of the crisis, it is important to determine the crisis situation's nature since it comes along with different approaches by the negotiator (Giebels et al., 2014). Based on Giebels & Noelanders (2004), a crisis' nature can lean more towards an expressive crisis or an instrumental crisis. Underneath you will find a description of these two types of crisis, and an overview of the differences will be given at the end.

Expressive vs. instrumental. In crises with its nature leaning more towards an expressive crisis, the negotiator is having a more intense and emotional interaction with the person of interest, e.g., a suicidal person (Giebels & Noelanders, 2004). These crises are also called 'soft' incidents (Kamphuis, Giebels & Noelanders, 2006). In most cases, the most prominent cause is obtaining attention and expressing their repressed emotions (Kamphuis et al., 2006; Noesner & Webster, 1997). The person of interest in expressive crises may feel stressed (Noesner & Webster, 1997; Noesner, 1999; Oostinga et al., 2018), can be high in their emotion – e.g., frustration and anger (Giebels & Noelanders, 2004; Kamphuis et al., 2006; Noesner & Webster, 1997; Noesner, 1999; Oostinga et al., 2018) – and may have distorted perceptions (Giebels et al., 2014). The person of interest's behaviour is influenced by these perceived emotions, stressors and perceptions, and therefore, they can behave impulsively (Giebels & Noelanders, 2004; Oostinga et al., 2018). Furthermore, their behaviour can be purposeless in which they can act without having clear goals or expressing unrealistic goals during the negotiation (Noesner & Webster, 1997). Moreover, there is often a connection between the person of interest and victim(s) (Giebels & Noelanders, 2004). Individuals that can be found within expressive crises are mostly wronged by certain events, e.g., jilted lovers or individuals with mental illnesses, and therefore they need crisis assistance (Giebels & Noelanders, 2004).

Next to an expressive crisis, the crisis' nature can lean more towards an instrumental crisis. Instrumental crises are also called 'hard' incidents (Kamphuis et al., 2006). In these crises, instrumental matters are used to fulfil goals of the person of interest, such as in kidnappings or hostages (Royce, 2012). Contrary to expressive crises, in most instrumental crises, the person of interest's behaviour has the purpose to fulfil his or her needs and is, thus, more leaning towards a goal-oriented (Noesner & Webster, 1997; Noesner, 1999), rational and calculating attitude (Giebels & Noelanders, 2004). The person of interest can establish victims in order to fulfil his or her needs, and are often used as a medium of exchange (Kamphuis et al., 2006). For example in hostage situations is at least one person held captive and will be used to fulfil the demands of the person of interest (e.g., for money or freedom) instead of

actually wanting to harm the hostage(s). The contact between the person of interest and the negotiator is often limited and superficial, and can be perceived as more of a business transaction contrary to providing crisis assistance in expressive crises (Giebels & Noelanders, 2004). Table 1 provides an overview of the differences between expressive crises and instrumental crises.

Table 1

Differences between expressive crises and instrumental crises

	Expressive crises	**Instrumental crises**
Feature:		
# Person of interest	Individual	Group or individual
Person of interest's state	Emotional, impulsive	Rational, calculating
Relationship with victim	Personal	Instrumental
Demands made?	Often not	Always
Interaction with negotiator	Much and intensive	Limited and superficial
Type of conversation	Crisis assistance	Business transaction

Note. Reprinted from "Crisis negotiations: A multiparty perspective", by Giebels, E., & Noelanders, S., 2004, Universal press, p. 9

Crisis negotiation. Besides the distinction between the two types of crisis, a crisis negotiation can also be divided in several phases. In the current study, the focus will be on the first phase and this phase contains making the first contact with the person of interest (Giebels & Noelanders, 2004). The first phase is meant to let the negotiator and the person of interest meet with each other, and to start a dialogue with the person of interest (Giebels & Noelanders, 2004; Madrigal, Bowman & McClain, 2009). However, there are challenges in this phase when the negotiator cannot be immediately present on the location of the crisis. Trained negotiators are trying to prevent that first responding officers are pursuing actions towards the person of interest, e.g., following up on the person of interest's demands. Next to that, a switch in police officers may cause biases in factors that are important during the first contact with the person of interest (Noesner & Dolan, 1992). An example of such bias is an increase in the person of interest's anxiety level which may has its influence on trusting future key players like a crisis negotiator. Therefore, it would be more beneficial to let the crisis negotiator make the first contact and this can be established through the means of CMC.

Computer-mediated communication

The use of CMC vs. face-to-face interaction in social interactions have been largely studied in the past decades with a diversity of outcomes (e.g., Almond & Budden, 2012; Connolly et al., 1990; Tidwell & Walther, 2002). For example, the use of text-mediated communication in negotiations is preferred to be used in order to establish more structure and documentation (Calefato et al., 2011). However, it can also be perceived as innately impersonal due to the inability of establishing a tone-of-voice and emotion in the communication (Almond & Budden, 2012). Additionally – and as mentioned

earlier – the use of video-based, 3D-virtual and -online environments are becoming increasingly common as CMC within social interactions (e.g., Ang et al., 2013; Bailenson et al., 2006; Domínquez & Roberts, 2014), and specifically the use of avatars. The use of avatars in social interactions have been studied in several fields, such as in online consumer shopping behaviour (Holzwarth, Janiszweski & Neumann, 2006), and in medical and mental health settings, e.g., treating phobias and disorders (Alcañiz et al., 2000; Botella et al., 1998; Carlin, Hofmann & Weghorst, 1997; Rothbaum & Hodges, 1999; Slater, Pertaub & Steed, 1999). In online interactions, CMC-users felt more anonymous (Joinson, 2001). Weisband and Kiesler (1996) explain this by CMC allowing users a "sense of invulnerability to criticism, an illusion of privacy, and the impression that responses 'disappear' into the computer" (p. 3). Additionally, results showed more disclosure of personal information using CMC (Joinson, 2001), and this was even more increasing when the information is stigmatizing, illegal or unethical (Weisband & Kiesler, 1996).

But what exactly is an avatar? An avatar is a computer-generated image by users which can represent themselves in social interactions in virtual and/or online environments (Ang et al., 2013). When using avatars, it is important to take into account the visual form of the avatar and the avatar's behaviour (Bailenson et al., 2006; Nowak & Rauh, 2006; Wu, 2014). Furthermore, the online context in which the avatar is created influences the actual design of the avatar: either designing an online identity that resembles them in real life or it is completely divergent from real life (Wu, 2014). This is also known as the avatar's realism.

Avatar realism. Studies showed that when using avatars in online environments, it is influencing the social interactions, social judgements, and perceptions of people. Moreover, these studies showed that any image is better than no image in online social interactions (Nowak & Biocca, 2003; Yee, Bailenson & Rickertson, 2007). The level of realism in online social interactions can be important in order to influence users perceiving the avatar as anthropomorph, i.e. seeing the avatar as (more) human due to specific visible characteristics (e.g., Koda, 1996; Nowak, 2004; Nowak & Biocca, 2003). Koda (1996) found that the characteristics contributing to the level of the avatar's anthropomorphism provides useful information that contributes to the understanding of how an avatar is likely to behave and think when used in online social interactions. Specifically, having a face during CMC is considered as more likeable, engaging, and comfortable. The meta-analysis by Yee et al. (2007) showed that online social interactions with higher anthropomorph avatars – compared to lower anthropomorph avatars – were perceived as more positive. This is supported by Roth et al. (2016) who stated social interactions in negotiations being impeded through the use of low anthropomorphic avatars. However, Nowak (2004), and Nowak and Biocca (2003) contradict the fact that high anthropomorphic avatars positively influence online social interactions. They showed that lower anthropomorphic avatars – versus no image and higher levels of anthropomorphism – positively influences social judgements in online interactions: lower anthropomorphic avatars were perceived as more likeable and credible.

So far, using CMC – and specifically avatars – has shown advantages in several fields, and it seems to be interesting to explore the avatar's level of anthropomorphism in online social interactions, but then in the context of making the first contact with the person of interest in a crisis negotiation. However, which factors are important when making the first contact in crisis negotiations, and how can the avatar's level of anthropomorphism contribute to these factors?

The first contact and its social factors

Impressions of other people and its associated judgements are rapidly made by people on a daily basis. Ambady and Rosenthal (1992) introduced the ability of making accurate judgements of others by observers, called "thin slices". These thin slices are made of any available non-verbal or verbal communication channel within less than 5 minutes – e.g., the face, body, and speech – (Ambada, Bernieri, & Richeson, 2000), and they can be characterized as fast, intuitive, and unconscious processes (Willis & Todorov, 2006). In other words, people make unexpectedly, accurate judgements based on minimal information and minimal cognitive load (Ambady & Rosenthal, 1992). These "thin slices" also occur during the first contact between people. Within the first contact, thin slices can be used to form social judgements of others (Jaques, McDuff, Kim, & Picard, 2016), e.g., to eventually establish trust or rapport between two individuals, or (the willingness) to provide information. So, the earlier mentioned anthropomorphic aspect of avatars can be relevant in order to form impressions based on non-verbal thin slices when making the first contact with an online crisis negotiator.

During the first contact with the person of interest, the negotiator wants to establish levels of rapport and trust in order to positively influence the development and outcome of a crisis negotiation (Bhattacharya, Devinney & Pillutla, 1998; Madrigal et al., 2009; Sheppard & Sherman, 1998; Vecchi, van Hasselt & Romano, 2005). Additionally, the negotiator wants the person of interest to (be willing to) disclose information that will help the negotiator to guide the person of interest through the crisis. However, when making online contact with a negotiator without the provision of any non-verbal thin slices, it might impede the establishment of the three important factors: rapport, trust and the disclosure of information. So, the questions rises whether the avatar's level of anthropomorphism might influence this, and together with the perceived realism of the avatar (i.e., whether the avatar is human- or computer-operated). Also, can it be different for the earlier mentioned crisis' types: crises leaning more towards an expressive or an instrumental nature?

Rapport. To influence the development and outcome of a negotiation by two sides – the negotiator and the person of interest – rapport needs to be established between both parties. Establishing rapport based on the conceptualization by Tickle-Degnen & Rosenthal (1999) can be done through three components: (a) mutual attentiveness, which creates the focused and cohesive interaction, (b) positivity of affect, which shows the influence of positivity being present in interaction to feel mutually friendly and careful to one another, and (c) coordination between each other, i.e., being in balance and being harmonious. In an ideal crisis negotiation, the person of interest and the crisis negotiator are both

experiencing a high level of rapport regarding one another which will result in a cohesive, coordinated interaction with mutual interest in and focus on each other, together with feelings of friendliness and warmth. In online social interactions, not only humans are able to use social skills to create these bonds with others, but virtual representations – e.g., avatars – are also able to accomplish this. Gratch, Wang, Gerten, Fast and Duffy (2007) showed support for the hypothesis that virtual representations could be more engaging than humans. Creating rapport between humans through their visual representations can be done by incorporating verbal and non-verbal social skills into virtual human systems, e.g., active listening gestures or verbally expressing empathy (Bickmore, Gruber & Picard, 2005; Gratch et al., 2007).

Regarding the earlier mentioned two crisis' types and their belonging characteristics, creating rapport through the use of avatars might need a different approach for each type of crisis. As mentioned before, any image is better than no image in online social interactions (Nowak & Biocca, 2003; Yee et al., 2007), and therefore, providing visual access to the person of interest during a crisis negotiation is important to establish a positive relationship (Nadler, 2004). In addition, Collins and Miller (1994) indicate an increase of more experienced positivity in interactions when a crisis negotiator is disclosing personal information to the person of interest, such as their appearance. Moreover, the presence of an anthropomorph (i.e., human-like) avatar or agent combined with verbal feedback can serve as sources to establish rapport (Araujo, 2018; Nowak & Biocca, 2003). Taking into account the person of interest's mental state in an expressive crisis being more emotional and impulsive together with the negotiation approach of a crisis assistance, I expect that there is more need by the person of interest for an anthropomorph avatar to establish rapport with the negotiator. So, due to the more humanly aspect within the crisis assistance by the negotiator in expressive crises, I hypothesize:

> *H_1:* Compared to no avatar and a low anthropomorphic avatar, a high anthropomorphic avatar will be associated with a higher perceived level of rapport in an expressive crisis situation

Taking into account the person of interest's mental state in an instrumental crisis being more rational and calculated together with the negotiation approach of a business transaction, I expect that a lower level of anthropomorphism is sufficient in order to establish rapport between the person of interest and the crisis negotiator. So, due to the more pragmatic aspect within the business transaction by the negotiator in instrumental crises, I hypothesize:

> *H_2:* Compared to no avatar and a high anthropomorphic avatar, a low anthropomorphic avatar will be associated with a higher perceived level of rapport in an instrumental crisis situation

Trust. A second factor that is important regarding the development and outcome of a negotiation is establishing trust between the person of interest and the negotiator (Bhattacharya et al., 1998; Sheppard & Sherman, 1998). Lewicki and Wiethoff (2000) described trust as "an individual's belief in, and willingness to act on the basis of the words, actions, and decisions of another" (p. 87). They mention several factors that influence an individual's ability to trust: (a) the belief system that develops through one's life experiences, (b) the established rules and norms in different contexts, and (c) experience of

trust within (past) relationships. In other words, the perceived trustworthiness of individuals is based on our social judgement of the other person's first impressions (Kramer, 1994; Robert, Dennis & Hung, 2009). The level of perceived trustworthiness is determined, independently, by three factors: ability, benevolence, and integrity (Mayer, Davis & Schoorman, 1995). The trustor's ability – the skills, competencies, and characteristics which makes someone influential – determines the trustor's trustworthiness. This is also the case for benevolence which is believing that the trustor wants to do good towards the trustee, and can be seen as the perception of a positive orientation of the trustee towards the trustor. Lastly, integrity – the trustor's perception that the trustee maintains to a set of principles that the trustor finds acceptable – also increases the level of trustworthiness. In any context, trust is improved when the trustee believes that the trustor will fulfil the expectations and assist the process to achieve goals (Bhattacharya et al., 1998; Sheppard & Sherman, 1998). Placing trustworthiness into the context of a crisis negotiation, theoretically seen, the person of interest will perceive the negotiator as trustworthy when the negotiator seems to be able to deal with the situation, wants to do good towards the person of interest and seems a person with integrity to, eventually, achieve goals in the crisis negotiation. Adding a visual representation – like an avatar – in online interactions influences the perceived credibility of the avatar-user (Baylor & Ryu, 2003). This is caused by the presence of personal characteristics – such as gender or ethnicity – which helps the person communicating with the avatar to obtain a sense of trust (Tseng & Fogg, 1999). Additionally, de Visser et al. (2016) have found that relatively simple anthropomorphism manipulations – like encouraging feedback – can affect trust formation, violation, and repair in automated agents. As mentioned before, taking into account the more humanly aspect within the crisis assistance by the negotiator in expressive crises, I hypothesize:

> *H_3:* Compared to no avatar and a low anthropomorphic avatar, a high anthropomorphic avatar will be associated with a higher perceived level of trust in an expressive crisis situation

Considering the more pragmatic aspect within the business transaction by the negotiator in instrumental crises, I hypothesize:

> *H_4:* Compared to no avatar and a low anthropomorphic avatar, a high anthropomorphic avatar will be associated with a higher perceived level of trust in an instrumental crisis situation

Disclosure of information and the perceived realism. In general, CMC allows users to be anonym. Moreover, computer-assistances, like avatars, lack an evaluative capability (Joinson, 2001; Kang & Gratch, 2010). Both can be beneficial when it comes to disclosing information in online social interactions when topic sensitivity is playing a role (Pickard, Roster & Chen, 2016). Comparing computer-mediated interaction to face-to-face ones, Bailenson et al. (2006) found greater self-disclosure by their participants during online social interactions. Also, participants disclosed more personal information during text-based interface compared to face-based interface. Additionally, Kang & Gratch (2010) found that participants who are predisposed to be socially anxious disclosed more personal information, and also a higher amount of total words and meaningful words when they were interacting with a virtual human. In the context of the visual form of the avatar (i.e., being anthropomorph or not),

several studies have found that chatbots and human-controlled avatars can both successfully serve as interviewers in collecting information (Bailenson et al., 2006; De Angeli, Johnson, & Coventry, 2001; Hasler, Tuchman & Friedman, 2013). Next to the visual form realism, the avatar's realism – i.e., perceiving the avatar as more human-operated opposed to computer-operated – can influence the level of disclosing information in social interactions. In online social interactions, high levels of uncertainty are perceived when deciding whether the avatar actually represents actions and thoughts of the human controlling the avatar (Schroeder, as cited in Peachey & Childs, 2011). This uncertainty comes from the fact that the person communicating with the avatar does not have sufficient time to make inferences in online social interactions. The way people perceive the avatar's realism influences the disclosure of information by a person. This is supported by Lucas, Gratch, King, and Morency (2014) who showed that social judgement influences the extent to which people disclose information when communicating through avatars: perceiving the avatar as human-operated with the belief of being judged leads to disclosing less information than perceiving the avatar as computer-operated. Without the belief of social judgement, perceived human-operated avatars that showed rapport would elicit more information by the person who communicates with the avatar (Bickmore et al., 2005; Gratch et al., 2007; Gratch, Kang & Wang, 2013). When the online conversation is perceived as 'robotic', the level of anthropomorphism of an avatar can make a difference in perceiving the avatar as human- or computer-operated (Baylor & Rosenberg-Kima, 2006; Mimoun, Poncin, & Garnier, 2012; Nguyen & Masthoff, 2009). Using anthropomorph avatars in online social interactions can improve the perceived quality of communication in terms of obtaining a stronger feeling of actually communicating with a person (Garau et al., 2003; Taylor, 2011). Consequently, I hypothesize:

> *H_5:* Compared to no avatar and a low anthropomorphic avatar, a high anthropomorphic avatar will be associated with perceiving the avatar as human-operated causing the person of interest to be more willing to disclose information
>
> *H_6:* Compared to no avatar and a low anthropomorphic avatar, a high anthropomorphic avatar will be associated with perceiving the avatar as human-operated causing more information provision by the person of interest

To give visual clarity regarding the hypotheses, I have provided a theoretical model as can be seen in Figure 1.

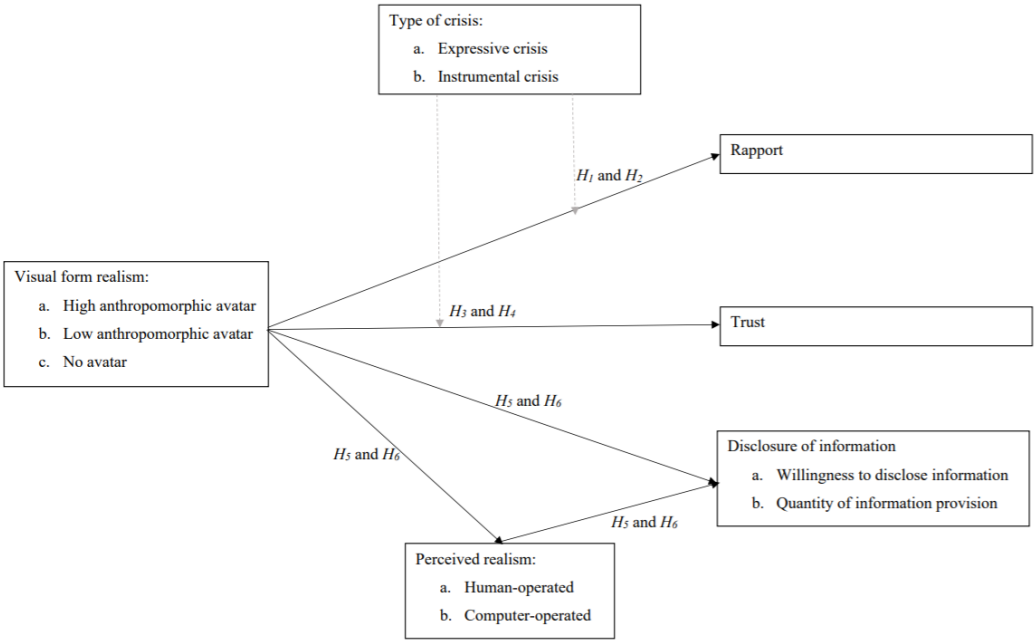


Figure 1. *Representation theoretical model of the independent and dependent variables*

Method

Design

In order to test the hypotheses, an experiment is conducted in which participants were divided into six experimental conditions. Participants were randomly assigned to a 3 (visual form realism: high anthropomorphic avatar vs. low anthropomorphic avatar vs. control) x 2 (type of crisis: expressive vs. instrumental) between-subjects design. During the experiment, the participants were instructed to participate in two different tasks. Within the first task, the participants had to read a scenario that explained the crisis situation in which the participants had to emphasize with a student that is lacking money in order to buy study books. After that, the second task, the participants had a pre-programmed conversation with crisis negotiator René in which they had to answer questions regarding the crisis situation they were experiencing. Finally, participants had to fill out a survey that measured the four dependent variables: rapport, trust, disclosure of information (willingness and actual information provision), and perceived realism.

Participants

A total of 182 college and University students who were able to understand and speak Dutch participated in this study. These students were randomly divided in six different conditions with a rule-of-thumb of minimal 25 participants per condition in order to be classified as a sufficient group size. During the first exploration of the retrieved data (N = 157), I found out that in three specific conditions

an increased participant drop out had occurred which led to very uneven group sizes. So, I targeted additional recruitment in these three groups. Of the total 182 respondents, 40 were male and 142 were female with an average age of 22.85 years (*SD* = 5.01). Most participants had the Dutch nationality (85%), 7 percent were German and 7.6 percent had other nationalities (Belgium, *N* = 11, Bulgaria, *N* = 1, Romania, *N* = 1, and South-Korea, *N* = 1). The majority of participants were studying a program which fitted in the category of 'Behaviour and society' (52.7%). A quarter of the participants were following a Master's program (26.4%).

Measures

Independent variables

Type of crisis. This research has focussed on the division of the two types of crisis: expressive and instrumental. A scenario for both crisis types has been developed in which the imaginary crisis situation the participant had to emphasize with is described. The two scenarios used in this study were based on an existing scenario used in studies by Beune, Giebels, Adair, Fennis, and van der Zee's (2011) and Oostinga, Giebels and Taylor (2018a) in which a student lacked money. The scenario was slightly adjusted in order to differ in one of the characteristics belonging to the two crisis' types (Giebels & Noelanders, 2004): the person of interest's mental state (emotional and impulsive (expressive) vs. rational and calculating (instrumental). In the instrumental crisis scenario, the participants had to imagine that they lacked money in order to buy their needed study books and that they have planned a robbery to steal money in order to buy study books. In the expressive crisis scenario, the participants also had to imagine that they lacked money, but they impulsively steal a box with money that they encountered in order to buy study books. At the end of both scenarios, the student locked him- or herself up in a room. Eventually, the crisis negotiator tried to reach contact with them through the use of a computer. The scenario for the expressive crisis can be found in Appendix A, and the instrumental crisis scenario in Appendix B.

Manipulation check. The participants' post-interview experienced level of either an instrumental or expressive crisis was measured by seven statements related to the characteristics belonging to the two crisis types described by Giebels and Noelanders (2004) which can be found in Appendix C. An example of a statement is "Imagining myself into the situation of the student evokes feelings of impulsivity". A 7-point Likert scale ranging from 1 (not at all) to 7 (very much) is used. Inter-item analysis through an independent samples *t*-test showed that one item significantly differed between the two groups (instrumental vs. expressive scenario), namely 'sadness' ($t(180) = 2.47$, $p = .015$). Participants who empathized with the expressive scenario had higher scores on this item ($M = 5.12$, $SD = 1.30$) compared to participants who empathized with the instrumental scenario ($M = 4.61$, $SD = 1.51$). However, the seven items belonging to this measure were correlated with each other and, therefore, the decision has been made to form a scale of these items in which the scores of this measure were averaged. The

formation of this scale led to a high internal reliability (α = .724). A higher score on this measure means that the participant experienced the scenario more as an expressive crisis than an instrumental crisis.

Analysis showed that the emotions experienced by all participants after reading the scenario were to some extent more related to an expressive crisis situation. As expected, the group of participants who read the expressive scenario had experienced the scenario as more expressive than instrumental (*M* = 5.38, *SD* = .90, *N* = 83). However, unexpectedly, so did the group who read the instrumental scenario (*M* = 5.24, *SD* = .82, *N* = 99). An independent samples *t*-test was conducted to compare the two groups (instrumental vs. expressive scenario), and these two groups did not significantly differ from each other when it came to the experienced emotions belonging to the two types of crisis situations ($t(180) = 1.07$, $p = .285$). Thus, the manipulation has not succeeded. This means that I have not furtherly analysed this variable as an independent variable but as a control variable due to the two versions of tasks that participants have participated in. Therefore, henceforth I will speak of task A (expressive scenario) and task B (instrumental scenario).

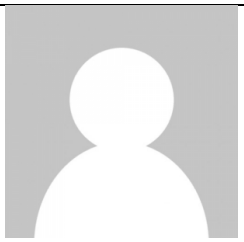
Additionally, I have asked four questions to my participants in order to check to what extent my participants have tried their best to empathize with the student's situation, and whether they believed that a similar crisis situation would occur in real life and to them personally. An example of such a question is "I do not think that this scenario could happen in real life". A 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) is used.

Visual form realism: anthropomorphism. Next to the two types of crisis, a differentiation has been made in the visual form realism of avatars. Within the experiment either an avatar with a high level of anthropomorphism, a low level of anthropomorphism or the display of the name of the negotiator (control condition) is used.

Stimulus material. The avatars that are used in this experiment differ in the level of anthropomorphism. This differentiation is based on findings of earlier studies who have studied levels of anthropomorphism of avatars in online interactions (Kang & Watt, 2013; Kim & Sundar, 2012; Nowak & Rauh, 2008; Nowak, Fox & Ranjit, 2015). The avatars are represented in Table 2.

Table 2.

Representation of used avatars in anthropomorphism experimental condition

Control (condition 1)	**Avatar with a low level of anthropomorphism (condition 2)**	**Avatar with a high level of anthropomorphism (condition 3)**
René[1]		

Manipulation check. The participants' post-interview attitude on the anthropomorphism of the avatar is measured using Power and Kiesler's (2006) 3-item mindful anthropomorphism scale which asked participants about their perception regarding the avatar when it comes to whether they perceive the avatar looking like a human or machine, natural or unnatural, and lifelike or artificial. The three items are measured using a 7-point Likert scale ranging from 1 (not at all) to 7 (very much). An example of such item is "René looks very natural". All three items can be found in Appendix C. The manipulation anthropomorphism score is created by averaging the scores of the items and has resulted in a high internal reliability (α = .924). A higher anthropomorphism score means that the participant experienced the avatar as anthropomorph, i.e., to be more human.

Analysis showed that almost every participant has recollected the exposed avatar correctly in the control condition (N = 58, 93.5%), and in the high anthropomorphic condition (N =55, 94.8%). Whereas only 72.5 percent of the participants in the low anthropomorphic condition have recollected the exposed avatar correctly (N = 45). In terms of the experienced level of anthropomorphism, all three conditions have experienced the avatar (or control image) as barely anthropomorph. As expected, the control condition (M = 3.88, SD = 1.46, N = 62) and low anthropomorphic condition (M = 3.87, SD = 1.60, N = 62), but, unexpectedly, the high anthropomorphic condition as well (M = 3.73, SD = 1.45, N = 58). A one-way ANOVA was conducted to compare the experienced level of anthropomorphism between the three conditions (control vs. low anthropomorphic avatar vs. high anthropomorphic avatar), and these three groups did not significantly differ from each other (F(2, 179) = .18, p = .839). Thus, the manipulation has not succeeded. Regarding further analysis, the participants who have incorrectly recollected the avatars are still included and a differentiation in groups based on the avatar is still made. This has been done because excluding these participants can lead to a bias in estimations and significant results (Aronow, Baron & Pinson, 2019; Kotzian, Stoeber, Hoos & Weißenberger, 2020). Henceforth I will talk about three different visuals (name (condition 1) vs. silhouette (condition 2) vs. face (condition 3)) instead of avatar's differing in levels of anthropomorphism (control vs. low vs. high). Also, I will

[1] 'René' is a name used in the Netherlands for both males and females

analyse the conditions with the exclusion of participants[2] who have not recollected the avatar correctly and compare that to the results of the conditions with the inclusion these participants.

Next to the question what type of visual they have seen, I have also asked whether they wanted to be exposed to a different avatar, and if yes, to what type of avatar. Appendix D provides an overview of the possible options that participants could choose from: two visuals related to the logo of the Dutch police, two visuals similar to the silhouette used in condition 2, and two visuals similar to the face used in condition 3 differing in gender.

Dependent variables

Rapport. The participants' post-interview established rapport with the crisis negotiator is measured using Vallano and Schreiber Compo's (2011) interaction questionnaire in which a 7-point Likert scale ranging from 1 (not at all) to 7 (very much) is used. Participants were asked in nine items to rate the extent to which they viewed the interviewer as being characterized by several adjectives, such as "smooth" and "involved". The rapport score is created by averaging the scores of the items ($\alpha = .805$). A higher rapport score means that the participant experienced a higher level of rapport with the crisis negotiator.

Trust. The participants' post-interview trust for the crisis negotiator is measured using the Mayer and Davis's (1999) trustworthiness scale in which the items are slightly reworded to lay more focus on trust with the crisis negotiator. Ability is measured with six items, e.g., "the crisis negotiator has a lot of knowledge of the work that needs to be done". Benevolence is measured with five items, e.g., "the crisis negotiator will do everything he can to help me". Integrity is measured with six items, e.g., "I never have to wonder if the crisis negotiator is keeping his word". Participants responded to the trustworthiness items using Likert scales anchored from 1 (strongly disagree) and 5 (strongly agree). The trust score is created by averaging the scores of the items ($\alpha = .895$). Higher scores indicated higher levels of the established trust between the participant and the negotiator.

Disclosure of information. The participants' post-interview willingness to provide information is measured using Beune et al. (2011) 3-item "willingness to provide information" scale. Participants were asked to report the extent to which they perceived the items to be true using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). An example is "I would tell everything to René". The willingness to disclose information score is created by averaging the scores on the items ($\alpha = .873$). A higher score on this scale means that the participant was more willing to provide information to the crisis negotiator. Additionally, the willingness to provide information in an online environment is also measured by using Ledbetter's (2009) seven-item Measuring Online Communication Attitude (MOCA) self-disclosure scale. Participants were asked to report the extent to which they perceived the items to be true using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The online self-

[2] It must be noted that this sample is not random anymore, since the participants forming this sample are sharing a certain property: they have incorrectly recalled the avatar they have been exposed to. This might affect the results (Kotzian et al., 2020).

disclosure score is created by averaging the scores of the items (α = .893). A higher score on this scale means that the participant was more willing to provide information in an online environment.

The actual information provision of the participants is measured during the conversation the participants had with the negotiator. René has asked seven questions to the participants, e.g., "what exactly are you planning to do?". The actual information provision score is formed by counting the words that were used in the participants' answer and the counts per answers were summed up which resulted in a total score per participant. A higher score on this measure means that the participant provided more information.

Perceived realism. The participants' post-interview attitude on the perceived realism is asked to rate how much they felt they were interacting with a computer or not, i.e. whether they perceived the avatar being human- or computer-operated. This is measured using five items adapted from Lee, Jung, Kim, and Kim (2006), e.g., "how much did you feel as if you were interacting with a computer?". Items are measured using a 7-point Likert scale ranging from 1 (not at all) to 7 (very much). The perceived realism score is created by averaging the scores of the items (α = .848). Higher scores indicated higher levels of the perceived realism of the avatar, i.e. the feeling that they have interacted with a human.

Additionally, to check whether my participants have carefully read the asked questions belonging to the dependent variables, I have asked one question to determine this using a 10-point Likert scale ranging from 1 (not carefully at all) to 10 (very carefully). Appendix E provides an overview of the items belonging to the dependent variables and the survey check item.

Procedure

Participants were recruited in the end of January, February, and the beginning of March 2021 through social media (Facebook, Instagram, and Linkedin) via the social network of the researcher and her supervisors, the SONA-system provided by the University of Twente (in which Bachelor psychology students can earn credits when participating in studies), and through websites made for recruiting survey respondents (SurveyCircle and SurveySwap). During this recruitment, the researcher shared a link with materials to possible participants. These materials included an information letter in which the researcher invited them to participate in an online study in order to research how they handle the situation of being a student lacking money in order to buy study books, and how they react on attempts by the negotiator in establishing contact with them while being in a crisis situation. The letter also mentioned the time duration, the contacts of the researcher and her supervisors, the approval of the Ethics Committee of Behavioural, Management and Social Sciences at the University of Twente, and an informed consent which needs to be signed before the experiments starts. The link with materials also included the scenario, the online (and pre-programmed) conversation with René, and the questionnaire. Participants were instructed to follow the instructions on their device. During the experiment, the participants' first task was to read the scenario including either an expressive crisis situation or an instrumental crisis situation. Both scenarios used the crisis of lacking money as a student and the two scenarios differed in

the person of interest's state of mind as mentioned earlier. Next, they participated in an online conversation with René, a pre-programmed police negotiator, who tried to establish contact with the participants. During this part of the experiment, the participants were either talking with René displayed by a picture of his name (condition 1) or a silhouette (condition 2), or by a face (condition 3). René asked seven questions to obtain more information about the situation the participant was in, e.g. "What exactly are you planning to do?". After the conversation, the participants were asked to answer questions about the conversation. The first part of the questionnaire contained questions regarding the police negotiator, René, in terms of the established levels of rapport and trust, the disclosure of information, and the perceived realism of the avatar. The second part of the questionnaire contained questions regarding the avatar-mediated communication and served as a manipulation check for the visual form realism of the avatar. Hereafter, demographic characteristic of the participant itself were asked. Lastly, questions were asked to check the participant's behaviour in my survey regarding empathizing with the situation described in the scenario, answering the questions and the avatar they have either seen or not. After participants completed the questionnaire and clicked on the 'send' button, they were thanked for their participation in the study. If the participants were Psychology students from the University of Twente, they automatically obtained SONA-credits. Participants recruited through SurveyCircle and SurveySwap obtained credits belonging to their accounts on the recruiting websites. All participants were asked whether they wanted to participate in a lottery of 4 VVV-vouchers to the value of €50 by providing their e-mail address. Finally, all participants were offered, if desired, an overview of the results after these were obtained and fully processed.

Results

Task check

Almost every participant has carefully read the questions while participating in this study (N = 164, 90.1%), and has also spend energy in empathizing with the student's situation that was described in the scenario (N = 155, 85.2%). Almost 75 percent of the participants were able to empathize with the student's situation in the scenario (N = 136). On the other hand, 70 percent of the respondents were not able to imagine that they would experience a similar situation as the student experienced in the scenario (N = 129). However, a large majority did think that the scenario presented to them could happen in real life (N = 117, 64.3%).

Scale reliability

Table 3 shows the means, standard deviations, Cronbach's alpha's and inter-correlations among the studied dependent variables. As expected in the hypotheses, a significant moderate and positive correlation between perceived realism and the willingness to provide information was found which suggests that when the participants perceived the visual as more human-operated the participants was more willing to provide information and vice versa. Also, a significant positive but lower correlation

was found between perceived realism and the actual provided information: this suggests more provision of information by participants when the visual was perceived as more human-operated and vice versa. Findings that have been found that were not based on the hypotheses were that all measures significantly and positively correlated with each other, except for rapport and trust with the actual provided information. A significant high positive correlation between rapport and trust was found which suggests that higher levels of rapport were established when higher levels of trust also were established and vice versa. Additionally, a significant moderate positive correlation between rapport and perceived realism was found which suggests that participants perceived the visual as more human-operated when higher levels of rapport were established and vice versa. This was also the case with trust and perceived realism. Table 3.

Means, standard deviations, Cronbach's alpha and inter-correlations of the studied variables

Variables	*M*	*SD*	α	1	2	3	4	5
1. Rapport	4.38	.87	.805	-				
2. Trust	3.02	.59	.895	.720*	-			
3. Perceived realism	3.93	1.18	.848	.633*	.598*	-		
4. Disclosure of information: willingness	2.77	.96	.873	.549*	.614*	.542*	-	
5. Disclosure of information: actual information provision	61.63	38.74	-	.109	.117	.191*	.343*	-

Note: *N* = 182

*Correlation is significant at the level of 0.01 level (2-tailed)

Hypothesis testing

Rapport and trust. Table 4 represents the means and standard deviations belonging to the participants' established levels of rapport and trust as a result of the three different visuals that they have been exposed to. Also shown are the means and standard deviations of rapport and trust of the participants when they were divided into two groups based on the tasks (A vs. B) they have executed. The prediction was that a face – compared to the name and the silhouette – will be associated with a higher perceived level of rapport (H_1/H_2) and a higher perceived level of trust (H_3/H_4)[3]. A one-way MANCOVA was conducted to test whether there were differences in the mean levels of rapport and trust of participants exposed to either one of the three visuals (name vs. silhouette vs. face) when controlled by the two tasks (task A vs. task B). Results showed that the established levels of rapport were not adjusted by the control variable, i.e. the different tasks they have executed ($F(1, 178) = .14$, $p = .705$), and that there were no significant differences in the established levels of rapport between the groups that have been exposed to different visuals ($F(2, 178) = .65$, $p = .522$). The established levels of trust were also not adjusted by the control variable ($F(1, 178) = .204$, $p = .652$), and there were also no

[3] These hypotheses are adjusted due to the ineffectiveness of the manipulations. The initial hypotheses were: the predictions for rapport were a high anthropomorphic avatar will be associated with a higher perceived level of rapport in an expressive crisis situation (H_1) and a low anthropomorphic avatar with a higher perceived level of rapport in an instrumental crisis situation (H_2). The predictions for trust were that a high anthropomorphic avatar will be associated with a higher perceived level of trust in an expressive crisis situation (H_3) and a low anthropomorphic avatar with a higher perceived level of trust in an instrumental crisis situation (H_4).

differences found in the established levels of trust between the groups that have been exposed to different visuals ($F(2, 178) = .42$, $p = .659$).

Table 4.

Means and standard deviations of rapport and trust per condition

	Type of crisis								
	Total			Task A			Task B		
	Rapport								
Visuals	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Name (condition 1)	4.37	.86	62	4.52	.83	26	4.27	.87	36
Silhouette (condition 2)	4.31	.94	62	4.43	.88	32	4.17	.99	30
Face (condition 3)	4.39	.87	58	4.27	.69	25	4.65	.89	33
	Total			Task A			Task B		
	Trust								
Visuals	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Name (condition 1)	2.96	.54	62	3.07	.53	26	2.88	.55	36
Silhouette (condition 2)	3.05	.60	62	3.07	.64	32	3.02	.57	30
Face (condition 3)	3.05	.62	58	2.98	.58	25	3.10	.65	33

Disclosure of information: willingness and perceived realism. Table 5 represents the means and standard deviations belonging to the participants' willingness to disclose information and the perceived realism (i.e., to what extent they felt interacting with a computer or human) as a result of the different visuals that they were exposed to. A one-way MANOVA was conducted to test whether there were differences in the mean levels of the willingness to disclose information and the perceived realism by participants exposed to either one of the three visuals (name vs. silhouette vs. face), and whether the perceived realism mediated a relationship between the different visuals and the willingness to disclose information by the participants. The prediction was that a face – compared to the name and the silhouette – will be associated with perceiving the avatar as human-operated causing the person of interest being more willing to disclose information (H_5). Results showed that there were no significant differences in the willingness to disclose information between the groups that have been exposed to different visuals ($F(2, 179) = 1.11$, $p = .330$), and neither for the perceived realism ($F(2, 179) = .19$, $p = .830$).

Regardless of the fact that the total effect of the different visuals to the willingness to provide information and the perceived realism is not significant, it is chosen to still explore the proposed mediation of the perceived realism mentioned in H_5. A mediator analysis using model 4 of the Hayes PROCESS Macro was conducted using 5000 bootstrapping samples to derive confidence intervals. The mediation analysis is done through using disclosure of information: willingness as the Y variable, visuals as the X variable, and perceived realism as the M variable. The X variable is recoded in order to have condition 3 as a reference category within the mediation analysis. When comparing the face to the silhouette, the results showed an insignificant indirect effect (IE = -.06, SE = .09, CI[95%] = -.24, .13) and this was also the case when the face was compared to the name (IE = -.04, SE = 1.0, CI[95%] = -.23, .16). Thus, no mediation effect by the avatar's perceived realism has occurred.

Table 5.

Means and standard deviations of perceived realism and disclosure of information: willingness per condition

	Perceived realism			Disclosure of information: willingness		
Visuals	*M*	*SD*	*N*	*M*	*SD*	*N*
Name (condition 1)	3.92	1.18	62	2.82	.78	62
Silhouette (condition 2)	3.88	1.12	62	2.90	.69	62
Face (condition 3)	4.01	1.25	58	2.67	.82	58

Disclosure of information: actual information provision and perceived realism. Table 6 represents the means, mean ranks, standard deviations and the ranges belonging to the participants' actual information provision as a result of the different visuals they were exposed to. Contributing to the descriptive insight of this measure, the answers of the participant with the least amount of total words that was provided counted 12 words and the answers of the participant with the highest amount of total words counted 260 words. The means, standard deviations and ranges regarding the given answers by the participants per question asked by negotiator René is provided in Appendix F. While checking the MANOVA assumptions, six univariate outliers were explored in a boxplot and this was caused by natural occurrence. Therefore, this measure did not meet the MANOVA assumptions, and the Kruskal-Wallis test was conducted to test whether there were differences in the mean ranks of the information provided by the participants and the exposure to one of the three different visuals (name vs. silhouette vs. face). The prediction was that a face – compared to the name and the silhouette – will be associated with perceiving the avatar as human-operated causing a higher quantity of information provision by the person of interest (H_6). Results showed that there were significant differences in the provided information by participants between the groups that have been exposed to different visuals ($H(2) = 9.71$, $p = .008$). Follow-up analysis showed a significant difference between the name and the silhouette ($U = 1498$, $Z = -2.12$, $p = .034$) with more information provided when the silhouette was present ($M = 69.34$) compared to the name ($M = 55.66$). Additionally, there were also significant differences between the silhouette and the face ($U = 1231.5$, $Z = -2{,}98$, $p = .003$) in which there was more information provided when the silhouette was present ($M = 69.64$) than when the face was ($M = 50.73$).

To test the mediation proposed by H_6, a mediator analysis using model 4 of the Hayes PROCESS Macro was conducted using 5000 bootstrapping samples to derive confidence intervals. The mediation analysis is done through using disclosure of information: actual information provision as the Y variable, visuals? as the X variable, and perceived realism as the M variable. The X variable is recoded in order to have condition 3 as a reference category in the mediation analysis. When comparing the face to the silhouette, the results showed an insignificant indirect effect (IE = -.85, SE = 1.54, CI[95%] = -4.10, 2.04) and this is also the case when the face was compared to the name (IE = -.58, SE = 1.49, CI[95%] = -3.58, 2.52). Thus, no mediation effect by the avatar's perceived realism has occurred.

Table 6.

Means and standard deviations of disclosure of information: actual information provision per condition

	Disclosure of information: actual information provision				
Visuals	*M*	*Mean Rank*	*SD*	*Range*	*N*
Name (condition 1)	58.63	88.03	37.60	246	62
Silhouette (condition 2)	72.47	107.48	41.69	204	62
Face (condition 3)	53.24	78.13	34.41	176	58

Additional explorative testing

Since the manipulation of the avatar's level of anthropomorphism was ineffective, there is still interest in whether the perceived level of anthropomorphism is correlated with the dependent variables in order to possibly explore these variables in future studies. Also, there is interest in whether the online environment might have influenced the willingness to disclose information since the crisis negotiation took place in an online environment. The data represented in Table 7 is partly the same as in Table 3, but Table 7 includes additional information about the measure that served as a manipulation check for the avatar's level of anthropomorphism[4] – visual form realism: anthropomorphism –, and a variable measuring the willingness to provide information in an online environment. The visual form realism: anthropomorphism had significant positive correlations among all dependent variables which is suggesting that there are associations between the level of anthropomorphism of the avatar and the level of rapport, trust, perceived realism, the willingness to disclose and the actual provided information by participants. In other words, this suggests that when the avatar was more anthropomorph it leads to higher levels of established rapport and trust, the participant perceiving the avatar as more human-operated, the participant being more willing to provide information and actually providing more information to the crisis negotiator (and vice versa). Next to this, a significant positive but lower correlation was found between the willingness to provide information and the willingness to provide information in an online environment. This suggests that when the participant was more willing to provide information then the participant was also more willing to provide information in an online environment and vice versa.

[4] This is not an error. We do talk about the avatar's level of anthropomorphism (instead of visuals) because in this analysis we are talking about the participants' scores reflecting how anthropomorph they perceived the avatar they have been exposed to without connecting this to the conditions they were in (and thus without connecting it to whether the manipulation was effective or not). This additional analysis has been done to explore whether this variable is associated to the dependent variables.

Table 7.

Means, standard deviations, Cronbach's alpha and inter-correlations of the studied variables together with the manipulation variables

Variables	*M*	*SD*	α	1	2	3	4	5	6
1. Rapport	4.38	.87	.805	-					
2. Trust	3.02	.59	.895	.720*	-				
3. Perceived realism	3.93	1.18	.848	.633*	.598*	-			
4. Disclosure of information: willingness	2.77	.96	.873	.549*	.614*	.542*	-		
5. Disclosure of information: online	2.81	.93	.893	.044	.072	.121	.210*	-	
6. Disclosure of information: actual information provision	61.63	38.74	-	.109	.117	.191*	.343*	.086	-
7. Visual form realism: anthropomorphism	3.83	1.50	.924	.566*	.508*	.694*	.521*	.087	.165*

Note: $N = 182$

* Correlation is significant at the level of 0.01 level (2-tailed)

Disclosure of information: self-disclosure online. In the survey I have included seven items that measured the willingness to disclose information in an online environment in order to test whether the online environment might have made a difference in the willingness to provide information to the crisis negotiator. To test whether there were differences in the mean levels of the willingness to disclose information in an online environment by participants being exposed to either one of the three visuals (name vs. silhouette vs. face), a one-way ANOVA was conducted. Results showed that there were no significant differences in the disclosure of information in an online setting between the groups that have been exposed to different visuals ($F(2, 179) = .85$, $p = .431$). This means that participants were not more willing to provide information in a online environment: participants who have been exposed to the face were the least willing to provide information in an online environment ($M = 2.69$, $SD = 1.05$, $N = 58$) followed by participants exposed to the name ($M = 2.83$, $SD = .91$, $N = 62$) and participants who have been exposed to the silhouette ($M = 2.91$, $SD = .83$, $N = 62$).

Preferring a different avatar. As mentioned in the method section, the participants had the choice to indicate whether they wanted to see a different visual than the visual they had seen during the study. Somewhat less than the majority of all participants wanted to be exposed to a different visual (46.7%, $N = 85$): half of the participants who have been exposed to the name ($N = 31$), almost three quarters of participants of who have seen the silhouette ($N = 44$), and a smaller number of participants who have seen the face ($N = 10$). After this question, there were six possible options presented as can be seen in Appendix C. In both conditions in which the name and the silhouette have been used (condition 1+2), they preferred to be exposed to the male version of the face that was used in condition 3 (option 3). Further analysis showed that mostly women chose to preferably be exposed to the male version ($N = 25$, 71.4%), and these women were almost equally present in condition 1 ($N = 13$) and condition 2 ($N = 12$). Next to this, there was also an additional option named 'Other, namely' given in this question. In this option they could describe what type of visual they would have wanted to see. A

frequently given answer was that they wanted to see an image of a real face (95.2%, *N* = 20). This answer was mostly given by participants who have been exposed to the silhouette (45%, *N* = 9), followed by participants exposed to the name (35%, *N* = 7), and lastly, by participants who have been exposed to the face (20%, *N* = 4). Moreover, almost three quarters of the participants who answered this question and who wanted to see an image of a real face were women (72.7%, *N* = 16).

Recollection of the avatar. As mentioned before, only three quarters of the participants who have seen the silhouette has recollected the exposed visual correctly (*N* = 45). Of all participants in this condition (*N* = 62), 14 participants thought they had seen the name and 78.6% of them would rather have been exposed to a different visual: preferably the female or male version of the face used in condition 3, or an image of a real face. Regarding the participants who have been exposed to the silhouette, the means and standard deviations of the participant who have recalled the exposed silhouette correctly are compared to the participants who have recalled the silhouette incorrectly, and is shown in Table 8. Independent samples *t*-tests were conducted to compare the two groups (correctly recalled vs. incorrectly recalled) regarding the dependent variables. The two groups did not significantly differ from each other when came to the established levels of rapport ($t(60) = .04$, $p = .969$), and neither for the established levels of trust ($t(41) = -7.1$, $p = .481$). Nor did the two groups differ regarding the avatar's perceived realism ($t(60) = .08$, $p = .937$), and neither regarding the avatar's level of anthropomorphism ($t(39) = -.46$, $p = .645$). Lastly, the groups did not differ regarding the willingness to provide information ($t(60) = .01$, $p = .989$), neither in an online environment ($t(60) = -.31$, $p = .757$), and nor for the actual provided information ($t(60) = -.67$, $p = .503$).

Table 8.

Means and standard deviations regarding the measures of participants in condition 2 divided on their recollection

	Participants who recalled correctly (*N* = 45)			**Participants who recalled incorrectly (*N* = 17)**		
Variables	*M*	*SD*	*N*	*M*	*SD*	*N*
1. Rapport	4.31	1.00	45	4.30	.77	17
2. Trust	3.01	.65	45	3.12	.46	17
3. Perceived realism	3.88	1.18	45	3.86	.98	17
4. Disclosure of information: willingness	2.87	1.01	45	2.86	1.01	17
5. Disclosure of information: online	2.89	.83	45	2.96	.86	17
6. Disclosure of information: actual information provision	70.27	40.14	45	78.29	46.31	17
7. Visual form realism: anthropomorphism	3.81	1.71	45	4.00	1.26	17

Since I expected an unconscious influence of the visual (regardless of the correct recollection) I have kept all participants in the main analysis. However, I have also analysed the measures with the exclusion of the participants who have not recollected the visual correctly and compared the results to

the main analysis. Results showed no differences in the dependent variables. An extensive report has been given in Appendix G.

Discussion

This study has been a first attempt to explore the effects of technology through the use of avatars in making the first contact between the person of interest and the crisis negotiator during crisis negotiations. This study showed that – when making the first contact in an online crisis negotiation setting – the three different visuals that have been used did not made a meaningful difference in the establishment of rapport and trust. Neither did the visuals made a meaningful difference regarding the perceived realism of the avatar, and nor did it lead to differences in participants being more willing to disclose information. However, it seemed that the three visuals did made a meaningful difference in the provided information: participants provided more information when they were exposed to the silhouette.

Firstly, the three different visuals have not affected the established levels of rapport and trust regarding the person of interest when making the first contact in an online crisis negotiation. Findings of Aurajo (2018) and Nowak and Biocca (2003) – who mentioned that anthropomorphism can serve as a source to establish rapport – and De Visser et al. (2016) – who showed differences in trust resilience between agents (computer-agent vs. human-agent vs. avatar) being largely erased when incorporating human-like trust behaviour – served as substantiations of the formulated hypotheses. Since the avatar's level of anthropomorphism has not been effectively manipulated, I can not compare my findings to their findings, and therefore, I can also not conclude whether the avatar's level of anthropomorphism can affect the establishment of rapport and trust. However, it can be stated that the avatar's level of anthropomorphism is associated with rapport and trust. Additional analysis showed that the levels of rapport and trust were higher when the avatar had a higher level of anthropomorphism. This suggests, that if the anthropomorphic manipulation would have been as intended, the participants probably would have had established higher levels of rapport and trust after talking with the crisis negotiator visualized by a high anthropomorphic avatar. In order to obtain a greater contrast between the visuals, future studies could incorporate the image of a real face, since some participants have mentioned in their feedback forms – which was provided to them after participating in this study – that they would have rather been exposed to an image of a real face.

Secondly, the three different visuals did not affect the participants perceiving the avatar as human-operated, i.e., the feeling of actually communicating with a person. Also, the different visuals did not affect the person of interest's willingness to disclose information, and neither was this mediated by the avatar's perceived realism. These findings are contrary to what has been found by several studies: anthropomorph avatars can be used in online social interactions to obtain a stronger feeling of actually communicating with a person (Garau et al., 2003; Taylor, 2011) which can influence the disclosure of information by a person (Baylor & Rosenberg-Kima, 2006; Bickmore et al., 2005; Gratch et al., 2007; Gratch et al., 2013; Lucas et al., 2014; Mimoun et al., 2012; Nguyen & Masthoff, 2009). Due to the

ineffective manipulation, I can not conclude whether the avatar's level of anthropomorphism has been making a difference in the avatar's perceived realism and the willingness to disclose information, and whether the perceived realism could serve as a mediator. However, it can be stated that the avatar's level of anthropomorphism is associated with the willingness to disclose information and the perceived realism. Additional analysis showed that an avatar with a higher level of anthropomorphism leads to perceiving the avatar's realism as more human-operated and also to participants being more willing to disclose information. Moreover, when the avatar's realism is perceived as more human-operated it is associated with participants being more willing to disclose information. If the anthropomorphic manipulation would have been as intended, it suggests that (a) the participants probably would have perceived the avatar as more human-operated after being exposed to a high anthropomorphic avatar, (b) the high anthropomorphic avatar would affect participants into being more willing to provide information, and (c) perhaps the perceived realism would mediate the association between the avatar's level of anthropomorphism and the participants' willingness to disclose information. These hypothetical thoughts are in line with Aharoni and Fridlund's (2007) study on social reactions in human vs. computer interactions. Participants who had the manipulated belief of being interviewed by a human made greater efforts to speak to the interviewer compared to participants believing being interviewed by a computer-generated interviewer. One recommendation regarding the manipulation of the avatar's level of anthropomorphism is based on the mindless anthropomorphism aspect of an avatar (Kim & Sundar, 2012). This means that there is not only a human-like avatar present like in this study – the mindful anthropomorphism aspect (Power & Kiesler, 2006) –, but this avatar also provides more verbal human-like cues through informal human-to-human communication which is the mindless anthropomorphism aspect. In other words, this means that an avatar with a high mindless anthropomorphism aspect is associated with labels such as 'likeable' and 'sociable'. In line with this, some of the participants mentioned in their feedback forms that crisis negotiator René lacked empathy during the online conversation, and that the questions he or she asked did not always match the answer the participants gave to the previous question. Therefore, the incorporation of mindless anthropomorphism into a mindful anthropomorph avatar in future studies might play a role in the avatar's perceived realism of participants.

Thirdly and contrary to the willingness to disclose information, the three different visuals did affect the information that was provided by the person of interest: when the participant talked with the crisis negotiator visualized by the silhouette, it resulted in participants providing more information. It is interesting to see that the three different visuals did have an effect on the provided information by the participants, but not on the willingness to provide the information. It could be that the participants were generally less willing to disclose information to René regardless of what type of visual they have seen. However, it is more common that behavioural intentions of people – such as the willingness to disclose information – are not accurate predictors of the actual behaviour. For example, Norberg, Horne and Horne (2007) have found that the level of actual disclosure of information significantly exceeded

individuals' willingness to disclose information. Besides this, this study has shown that the pre-programmed negotiator can serve as a sufficient information gathering interviewer which is in line with Bailenson et al. (2006), De Angeli et al. (2001) and Hasler et al. (2013). This could be explained by the fact that the person of interest can be anonym during an online conversation and, therefore, disclose more information to René (Joinson, 2001; Kang & Gratch, 2010). However, this study has found that when using the silhouette it resulted in obtaining more information from the person of interest compared to using the name and the face. The fact that negotiator René lacked an evaluative capability together with the silhouette used in condition 2 could have contributed to the quantity of provided information by the participants. Lacking an evaluative capability in online CMC can be beneficial to disclose information, especially if the topic is sensitive which was the case in the scenario (Pickard et al. 2016).

Limitations

There are four points that need to be prioritized in studies that are following up these initial explorations of using avatars in making the first contact within crisis negotiations. To begin with, I want to stress that the manipulations regarding the avatar's level of anthropomorphism and the two types of crisis were not effective in the experiment. Before addressing my thought processes regarding this limitation in the section underneath, it is necessary to mention that the ineffective manipulations could have strongly affected the outcomes of the dependent variables in this study: rapport, trust, perceived realism, disclosure of information: willingness, and disclosure of information: actual information provision. Therefore, future research should make sure that the manipulation of the avatar's level of anthropomorphism and the type of crisis are effective. I will provide recommendations to improve the effectiveness of these manipulations. After this, I will discuss the choice of participants and the pre-programmed negotiator René.

First of all, all participants – regardless of the anthropomorphic condition they were in – have experienced to some extent emotions that belonged to a more expressive crisis according to the characteristics belonging to the two crisis' types by Giebels and Noelanders (2004). This resulted in the conclusion that the manipulation was not as intended, and therefore, I chose to exclude the differentiation of the type of crises in the analysis. This resulted in using this measure as a control variable in analyses (also called Task A and Task B). Substantiating the manipulation within the scenario, I have chosen to differentiate on one characteristic that belongs to the two crisis' types based on Giebels and Noelanders (2004), namely the person of interest's mental state. Using words as 'impulsive' and 'panic' in the expressive scenario is done to elicit emotions more related to an expressive crisis situation, and using words as 'plan' and 'you decide' to elicit emotions more related to an instrumental crisis situation. However, integrating these words as subtle as possible to avoid the consequences of participants being aware of the manipulation (Hauser, Ellsworth & Gonzalez, 2018) but still prone enough for participants to experience the intended emotions, was not effective to manipulate the type of crisis between groups. One recommendation to strengthen the elicited emotions

through the scenario is to make use of media stimuli: visual (pictures) or multimodal (film clips). Gross and Levenson (1995) have carefully selected short clips of films that could be used in eliciting emotions. However, pictures might also be effective: Uhrig et al. (2016) showed that pictures were even more efficient in evoking negative emotions. Preliminary analysis can be conducted in order to explore the addition of either visual or multimodal stimuli on the effectiveness of the manipulation of the type of crisis.

A second point is that the participants throughout all three conditions have experienced the avatar (or control image) as less anthropomorph according to the manipulation check variable. This means that the participants have had different opinions about whether an avatar is anthropomorph or not: my participants perspectives on anthropomorphism were not in the same line as my own perspective. This resulted in the same conclusion that has been made for the type of crisis manipulation: ineffective. Before conducting the experiment, there were no preliminary analyses conducted to gain insight in how people think about the anthropomorphism regarding the avatars. However, the different levels of anthropomorphism included in the avatars were based on literature I have found (Kang & Watt, 2013; Kim & Sundar, 2012; Nowak & Rauh, 2008; Nowak et al., 2015). To make sure that the manipulation of the avatar's anthropomorphism is as intended in future studies, it is recommended to pre-test the different levels of anthropomorphic avatars. Next to this, it might be interesting to explore the effects of mindless anthropomorphism together with mindful anthropomorphism on dependent variables such as rapport, trust and the avatar's perceived realism.

A third point that needs to be prioritized is the choice of participants in my subject pool. In this study, I have used college and University students as a subject pool and this comes along with advantages and disadvantages of which I mention a few to discuss the choice of participants. A first advantage of using this type of subject pool to study and understand behavioural variation is the fact that students are used to learn, and they are educated and intelligent which contributes to cognitive sophistication (Gächter, 2010). In other words, these characteristics minimize chances of confounding behavioural reactions to the manipulations in experiments. This cognitive sophistication of students 'perfectly' fits as a subject pool for exploring a model as I did in this study (Gächter, 2010). Secondly, the use of students makes experiments to be easily replicated – due to the availability of students – and this is important for empirical regularity (Gächter, 2010). On the other hand, a disadvantage – in any empirical study (Falk & Heckman, 2009) – is the generalizability of a subject pool towards the population of real suspects and crisis negotiations in the context of this study. This subject pool consists of WEIRD (Western, Educated, Industrialized, Rich and Democratic) societies, and specifically WEIRD college and University students (Heinrich, Heine & Norenzayan, 2010). Even more specifically: WEIRD college and University students who understand and speak Dutch. This means that the psychological concepts I have studied can not be considered to be universal across diverse populations. However, based on the argumentation above, I believe that the students subject pool fits the purpose of this study: exploring whether a manipulation is making a difference regarding the establishment of

psychological concepts between groups. Even so, I recommend future studies to include diverse (sub)populations into their subject pools to make sure that the results are generalizable for real suspects and crisis negotiations if their studies do not serve as an exploration like mine did.

Together with the benefits of diversity in a subject pool towards the generalizability, differentiation in cultural aspects in the appearance of the negotiator represented by the avatar could also be beneficial regarding the establishment of the measures: rapport, trust, perceived realism and disclosure of information (willingness and actual information provision). In this experiment, the avatar used in the high anthropomorphic condition is Caucasian, and this could have been of value for some participants that – perhaps unconsciously – influenced the establishment of the studied measures without me gaining knowledge of it. Several studies have shown that ethnicity can be influential in online social interactions (e.g., Lester, Vicari & Paraguaçu, 2004; Pratt, Hauser, Ugray & Patterson, 2007; Rossen, Johnsen, Deladisma, Lind & Lok, 2008), and taking into account cultural differences when encountering suspects are becoming more and more important (Giebels & Taylor, 2009). For example, it could be that participants with a cultural background other than the Western culture prefer an avatar with a different skin tone than Caucasian, and that it has an influence on whether they perceive the negotiator as friendly or trustworthy, or as someone they would provide information to. When future studies include a more culturally diverse subject pool, I recommend to take the cultural aspects of the negotiator represented by the avatar into account as well.

A final point I want to prioritize is the choice of pre-programming crisis negotiator René, and what could be improved in future studies. In this study I have chosen to pre-programme the conversation with René to standardize the suspect interviews for each participant which contributes to the reliability of the experiment. Further, in order to explore a possible influence of anthropomorph avatars, I have only included one aspect of anthropomorphism – namely mindful anthropomorphism – as a human-like cue. However, I am aware that an actual person of interest is communicating with a human negotiator during a real-life crisis negotiation which means that there are more human-like cues present than there were in this experiment. In order to establish an online crisis negotiation interview that represents a real-life crisis negotiation more, the previously mentioned mindless anthropomorphism can contribute to this. However, the behavioural realism of the avatar might contribute to it as well. Literature suggests that – next to the level of anthropomorphism (visual form realism) – the behavioural realism of an avatar can also influence social interactions in virtual environments. More realistic behaviours of avatars provides more social cues, and therefore, it increases the social effects of using avatars in computer-mediated communication (Bailenson et al., 2006; Garau, 2003; von der Pütten, Krämer, Gratch & Kang, 2010). It might be interesting to conduct (pilot) studies with the integration of the avatar's behavioural realism to see if it has an effect on making the first contact in crisis negotiations.

Conclusion

To conclude, this study explores the effects of using avatars when making the first contact between the person of interest and the crisis negotiator during crisis negotiations. The main question was whether avatar-mediated communication in making the first contact in crisis negotiations could be a help or a hindrance? Based on the results, it can not be concluded whether the use of avatars differing in levels of anthropomorphism is either a help or a hindrance when making the first contact in a crisis negotiation. It can be concluded that the three different visuals that have been used were not making a meaningful difference regarding the establishment of rapport, trust, perceived realism, and the willingness to disclose information as well, but it did regarding the provided information by the person of interest. I believe that this study gives perspectives for future research in exploring the use of avatars in crisis negotiations. Future research can explore the value of additional realism aspects – such as mindless anthropomorphism and behavioural realism – to establish rapport, trust, the avatar's perceived realism and the (willingness to) disclose information.

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Appendix A

Dutch version

Ik wil je vragen om even de tijd te nemen om je in te leven in de volgende situatie:

Je bent tweedejaars student(e). Je familieomstandigheden zijn heel moeilijk. Je vader is af en toe gewelddadig en je moeder drinkt te veel. Gezien je thuissituatie ontvlucht je deze vaak. Daardoor breng je veel tijd door op straat. Je studie moet je al twee jaar zelf betalen en daarom heb je ook vaak geldnood. Je hebt daardoor al eens een aantal kleine vergrijpen gepleegd: een paar keer onbeheerde spullen meegenomen en wel eens geshopt zonder af te rekenen. Het collegejaar is net begonnen en je hebt ternauwernood je collegegeld bij elkaar kunnen sprokkelen. Nu heb je geen geld meer over voor de aanschaf van je boeken.

Vanochtend heb je in het nachtkastje van je moeder een wapen gevonden. Je vreest dat ze zichzelf iets wil aandoen. Om erger te voorkomen, stop je het wapen in je tas, fietst naar school en gaat naar je les. Als je na jouw les door het schoolgebouw loopt zie je een kraampje voor een inzamelingsactie staan. Kennelijk zamelt een studievereniging geld in voor armlastige studenten. Precies wat jij bent, een armlastige student! Ineens lijkt het alsof de inzameling ten einde is en terwijl de studenten hun jas pakken blijft het geldkistje even onbeheerd achter. Impulsief besluit je het geldkistje te pakken. Helaas hebben andere studenten aanwezig op dezelfde verdieping door dat er iets aan de hand is en komen naar je toe. Je raakt in paniek, rent weg en ziet dat een kamerdeur op dezelfde verdieping open staat. Je gaat naar binnen en doet de deur op slot.

Hoe zou het zijn om in de schoenen van deze student te staan? Welke gedachten roept deze situatie bij je op? Welke gevoelens krijg je hierbij?

Stel je het volgende vervolgscenario voor:

Je zit met het geldkistje in de kamer met de deur op slot. Buiten verzamelen zich steeds meer mensen en je hoort dat de politie wordt gebeld. Je herinnert je het wapen in jouw tas, en je raakt meer in paniek. Je roept dat je een wapen bij je hebt en gaat schieten als iemand naar binnen probeert te komen. Het wordt even stil en dan hoor je de politie arriveren. Je kijkt om je heen en ziet dat er een pc op een tafel staat. De pc staat nog aan. Een paar minuten later zie je dat er via een chatverbinding een oproep wordt gedaan… (je besluit om te kijken wie dat is)

Het kan enkele minuten duren voordat de politie reageert.

English version

I want to ask you to take the time to emphasize with the following situation:

You are a second years student. Your family circumstances are really complex. Your dad is sometimes violent and your mom drinks too much. You often flee away from your home situation. Therefore, you spend much time on the streets. You are paying your college tuition fees for two years now and because of that you are often in need of money. Due to this, you have committed small offenses: you took unmanaged stuff a few times and you have shopped without paying. A new college years has just started and you have barely managed to gather money needed to pay your tuition fee. You currently have no money left to purchase study books.

This morning you have found a weapon inside your mother's bedside table. You are fearing that she is going to hurt herself. To prevent the worse, you place the weapon in your bag, cycles to school and follow your class. When walking through the school building after your class, you see a stall for a fundraising campaign. Apparently a study association is collecting money for the poorer students. That is exactly what you are: a poorer student! In all of a sudden it seems to look like the fundraising is coming to an end, and while the students are getting their jackets the box with money remains unmanaged. Impulsively you decide to grab the box with money. Unfortunately, other students at the same floor noticed that something is going on and are coming to you. You are panicking, you run away and you see the door of a room that is open at the same floor as you are. You go inside and lock the door.

How would it be like to be in the position of this student? What thoughts does this situation evoke in you? What feelings do you get?

Imagine the following follow-up scenario:

You are sitting in the room with the box of money while the door is locked. There are more people gathering outside and you hear that the police is called. You remember the weapon in your bag, and you panic even more. You call that you have a weapon and that you are going to shoot if someone tries to enter the room. It becomes silent for a while and then you hear the police arriving. You look around and see a computer on the table. The computer is still on. A few minutes later you see a call via the chat connection… (you decide to look who that is)

It can take a few minutes before the police is responding.

Appendix B

Dutch version

Ik wil je vragen om even de tijd te nemen om je in te leven in de volgende situatie:

Je bent tweedejaars student(e). Je familieomstandigheden zijn heel moeilijk. Je vader is af en toe gewelddadig en je moeder drinkt te veel. Gezien je thuissituatie ontvlucht je deze vaak. Daardoor breng je veel tijd door op straat. Je studie moet je al twee jaar zelf betalen en daarom heb je ook vaak geldnood. Je hebt daardoor al eens een aantal kleine vergrijpen gepleegd: een paar keer onbeheerde spullen meegenomen en wel eens geshopt zonder af te rekenen. Het collegejaar is net begonnen en je hebt ternauwernood je collegegeld bij elkaar kunnen sprokkelen. Nu heb je geen geld meer over voor de aanschaf van je boeken. Daarom heb je een plan bedacht. Je weet dat een studievereniging een geldinzamelingsactie houdt voor armlastige studenten. Je besluit om aan het eind van de inzameling te kijken of je het geldkistje mee kunt nemen. Het schoolbestuur zal de schade vast vergoeden.

Je fietst naar de les. Als je na jouw les door het schoolgebouw loopt zie je het kraampje van de inzamelingsactie staan. Op een onbewaakt moment pak je rustig het geldkistje en loop je weg. Wat helpt is dat je vanochtend in het nachtkastje van je moeder een wapen hebt gevonden en deze in je tas hebt meegenomen voor het geval dat het van pas komt.
Helaas hebben andere studenten aanwezig op dezelfde verdieping door dat er iets aan de hand is en komen achter je aan. Je ziet dat een kamerdeur op dezelfde verdieping open staat. Je loopt naar binnen en doet de deur op slot.

Hoe zou het zijn om in de schoenen van deze student te staan? Welke gedachten roept deze situatie bij je op? Welke gevoelens krijg je hierbij?

Stel je het volgende vervolgscenario voor:

Je zit met het geldkistje in de kamer met de deur op slot. Buiten verzamelen zich steeds meer mensen en je hoort dat de politie wordt gebeld. Je herinnert je het wapen in jouw tas, dat geeft je ook wat rust. Je roept dat je een wapen bij je hebt en gaat schieten als iemand naar binnen probeert te komen. Het wordt even stil en dan hoor je de politie arriveren. Je kijkt om je heen en ziet dat er een pc op een tafel staat. De pc staat nog aan. Een paar minuten later zie je dat er via een chatverbinding een oproep wordt gedaan… (je besluit om te kijken wie dat is).

Het kan enkele minuten duren voordat de politie reageert.

English version

I want to ask you to take the time to emphasize with the following situation:

You are a second years student. Your family circumstances are really complex. Your dad is sometimes violent and your mom drinks too much. You often flee away from your home situation. Therefore, you spend much time on the streets. You are paying your college tuition fees for two years now and because of that you are often in need of money. Due to this, you have committed small offenses: you took unmanaged stuff a few times and you have shopped without paying. A new college years has just started and you have barely managed to gather money needed to pay your tuition fee. You currently have no money left to purchase study books. Therefore, you have made a plan. You know that a study association is doing a fundraising campaign for poorer students. You decide to take a look at the end of the fundraising whether you can take the box of money. The school board would probably compensate the damage.

You cycle to class. When walking through the school building after your class, you see the stall for the fundraising campaign. You take the box of money at an unmanaged moment and you walk away. What is helping you is the fact that you found a weapon inside your mother's bedside table this morning and that you put this in your bag in case it would be convenient to use the weapon. Unfortunately, other students at the same floor noticed that something is going on and are coming to you. You are panicking, you run away and you see the door of a room that is open at the same floor as you are. You go inside and lock the door.

How would it be like to be in the position of this student? What thoughts does this situation evoke in you? What feelings do you get?

Imagine the following follow-up scenario:

You are sitting in the room with the box of money while the door is locked. There are more people gathering outside and you hear that the police is called. You remember the weapon in your bag, and that gives you some rest. You call that you have a weapon and that you are going to shoot if someone tries to enter the room. It becomes silent for a while and then you hear the police arriving. You look around and see a computer on the table. The computer is still on. A few minutes later you see a call via the chat connection… (you decide to look who that is)

It can take a few minutes before the police is responding.

Appendix D

Table 9.

Questions asked to participant displayed per independent variable to check the manipulation in Dutch and English

Measure	**Questions (Dutch)**	**Questions (English)**
Type of crisis	Het verplaatsen van mezelf in de situatie van de student roept bij mij een gevoel op van… 1. Wanhoop 2. Verdriet 3. Kracht 4. Stress 5. Impulsiviteit 6. Goed voorbereid zijn 7. Paniek	Putting myself in the student's situation evokes a feeling of being… 1. Despair 2. Sadness 3. Power 4. Stress 5. Impulsivity 6. Being well prepared 7. Panic
Visual form realism: anthropomorphism	1. René lijkt erg natuurlijk 2. René lijkt erg op een mens 3. René lijkt levensecht	1. René looks very natural 2. Rene looks very like a human 3. René looks lifelike
Survey check	1. Ik kon me goed inleven in het scenario die in dit onderzoek werd gebruikt 2. Ik kan me voorstellen dat ik een vergelijkbare situatie als student zou kunnen meemaken 3. Ik denk niet dat dit scenario in het echte leven zou kunnen gebeuren 4. Hoeveel energie heb je in het inleven in het scenario gestopt?	1. I could empathize with the scenario used in this study 2. I can imagine that I could experience a similar situation as a student 3. I don't think this scenario could happen in real life 4. How much energy have you put into empathizing with the scenario? 5. What picture did you see during the interview?

5. Welk plaatje heb jij gezien tijdens het gesprek?	6. Would you rather have had a different picture?
6. Zou je liever een ander plaatje willen hebben gehad?	7. If yes, which one?
7. Zo ja, welke?	

Appendix D

Table 10.

Displayed images of possible avatars during the survey check if the participant rather would have been exposed to a different avatar.

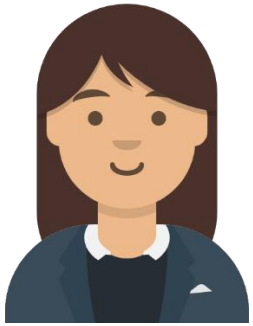
Option 1

Option 4

Option 2

Option 5

Option 3



Option 6

Appendix E

Table 11.

Questions asked to participant displayed per dependent variable

Measure	Questions (Dutch)	Questions (English)
Rapport	1. Oplettend	1. Engrossed
	2. Betrokken	2. Involved
	3. Vriendelijk	3. Friendly
	4. Actief	4. Active
	5. Positief	5. Positive
	6. Vlot	6. Smooth
	7. Verveelt	7. Bored
	8. Tevreden	8. Satisfied
	9. Ongemakkelijk	9. Awkward

Trust	1. René is zeer bekwaam om zijn/haar werk uit te voeren 2. Het is bekend dat René succesvol is in de dingen die hij/zij probeert te doen 3. René heeft veel kennis over het werk dat gedaan moet worden 4. Ik heb veel vertrouwen in de vaardigheden van René 5. René heeft gespecialiseerde vaardigheden die onze prestaties kunnen verbeteren 6. René maakt zich grote zorgen over mijn welzijn 7. René zou niet willens en wetens iets doen om me pijn te doen 8. René let echt op wat voor mij belangrijk is 9. René zal er alles aan doen om mij te helpen 10. Mijn behoeften en wensen zijn erg belangrijk voor René 11. De acties en het gedrag van René zijn niet erg consistent 12. René heeft een sterk rechtvaardigheidsgevoel 13. Ik hoef me nooit af te vragen of René zich aan haar/zijn woord houdt 14. Ik waardeer de waarden van René 15. Goede principes lijken het gedrag van René te sturen 16. René doet zijn/haar best om eerlijk te zijn in de omgang met anderen	1. René is very capable of performing his/her job 2. René is known to be successful at the things he/she tries to do 3. René has much knowledge about the work that needs to be done 4. I feel very confident about René's skills 5. René has specialized capabilities that can increase our performance 6. René is very concerned about my welfare 7. René would not knowingly do anything to hurt me 8. René really looks out for what is important to me 9. René will go out of its way to help me 10. My needs and desires are very important to René 11. René's actions and behaviours are not very consistent 12. René has a strong sense of justice 13. I never have to wonder whether René will stick to its word 14. I like René's values 15. Sound principles seem to guide René's behaviour 16. René tries to be fair in dealings with others
Disclosure of information: willingness	1. Aan René zou ik alles vertellen 2. Aan René zou ik veel informatie geven 3. Aan René zou ik geneigd zijn de waarheid te vertellen	1. I would tell everything to René 2. I would provide lots of information to René 3. I would be inclined to speak the truth to René

	4. Wanneer ik online ben, voel ik me meer op mijn gemak als ik persoonlijke informatie openbaar maak 5. Ik heb het gevoel dat ik soms persoonlijker kan zijn tijdens internetgesprekken 6. Het is gemakkelijker om persoonlijke informatie online vrij te geven 7. Ik heb het gevoel dat ik meer open kan zijn als ik online communiceer 8. Ik voel me minder verlegen als ik online communiceer 9. Ik voel me minder zenuwachtig als ik online persoonlijke informatie deel 10. Ik schaam me minder voor het delen van persoonlijke informatie met iemand anders online	4. When online, I feel more comfortable disclosing personal information 5. I feel like I can sometimes be more personal during Internet conversations 6. It is easier to disclose personal information online 7. I feel like I can be more open when I am communicating online 8. I feel less shy when I am communicating online 9. I feel less nervous when sharing personal information online 10. I feel less embarrassed sharing personal information with another person online
Disclosure of information: actual information provision	1. Hoi René van de politie hier, met wie spreek ik? 2. Ik heb gehoord dat je jezelf opgesloten hebt in een kamer? 3. Hoe is dat zo gekomen? 4. En hoe zit het met het geld? 5. Kun je mij nog iets meer vertellen over de situatie? 6. Ben je alleen in die kamer? 7. Wat ben je precies van plan?	1. Hi this is René from the police, who am I talking to? 2. I have heard that you have locked yourself in a room? 3. How has this happened? 4. And what about the money? 5. Can you tell me something more about the situation? 6. Are you alone in that room? 7. What exactly are you planning to do?
Perceived realism	1. Terwijl je een gesprek had met René, in hoeverre voelde het alsof je communiceerde met een computer?	1. While you were interacting with René, how much did you feel as if it was an intelligent being?

	2. Terwijl je een gesprek had met René, in hoeverre voelde het alsof je communiceerde met een sociaal wezen? 3. Terwijl je een gesprek had met René, in hoeverre voelde het alsof René met jou communiceerde? 4. Terwijl je een gesprek had met René, in hoeverre besteedde je aandacht aan René? 5. Terwijl je een gesprek had met René, in hoeverre voelde je je betrokken in het gesprek?	2. While you were interacting with René, how much did you feel as if it were a social being? 3. While you were interacting with René, how much did you feel as if you René was communicating with you? 4. While you were interacting with René, how much attention did you pay to René? 5. While you were interacting with René, how much did you feel you were involved in the conversation?
Survey check	1. Hoe zorgvuldig heb je de vragen gelezen?	1. How carefully have you read the questions?

Appendix F

Table 12.

Means and standard deviations regarding the answers provided by the participants per asked question.

Questions asked by negotiator René	***M***	***SD***	***Range***	***N***
1. Hi this is René from the police, who am I talking to?	4.24	6.03	45	182
2. I have heard that you have locked yourself in a room?	5.15	6.99	47	182
3. How has this happened?	12.31	15.8	183	182
4. And what about the money?	8.12	8.59	49	182
5. Can you tell me something more about the situation?	19.73	15.94	75	182
6. Are you alone in that room?	2.23	3.30	22	182
7. What exactly are you planning to do?	10.41	8.42	46	182

Appendix G

Participants

A total of 158 college and University students who were able to understand and speak Dutch participated in this study. These students were randomly divided in six different conditions with a rule-of-thumb of minimal 25 participants per condition in order to be classified as a sufficient group size. Of the total 158 respondents, 32 were male and 126 were female with an average age of 22.59 years (*SD* = 4.55). Most participants had the Dutch nationality (85.4%), 7 percent were German and 7.6 percent had other nationalities (Belgium, *N* = 9, Bulgaria, *N* = 1, Romania, *N* = 1, and South-Korea, *N* = 1). The majority of participants were studying a program which fitted in the category of 'Behaviour and society' (54.4%). Somewhat more than a quarter of the participants were following a Master's program (27.2%).

Manipulation check

Type of crisis. Analysis showed that the emotions experienced by the participants after reading the scenario were to some extent more related to an expressive crisis situation. As expected, the group of participants who read the expressive scenario had experiences the scenario as more expressive than instrumental (*M* = 5.42, *SD* = .87, *N* = 74). However, unexpectedly so did the group who read the instrumental scenario (*M* = 5.28, *SD* = .82, *N* = 84). An independent samples t-test was conducted to compare the two groups (instrumental vs. expressive scenario), and these two groups did not significantly differ from each other when it came to the experienced emotions belonging to the two types of crisis situations ($t(156) = 1.08$, $p = .283$). Thus, the manipulation has not succeeded. This means that we are not furtherly analysing this variable as an independent variable but as a control variable due to the two versions of tasks that participants have participated in. Therefore, henceforth we will speak of task A (expressive scenario) and task B (instrumental scenario).

Visual form realism: anthropomorphism. Since participants who have not recollected the exposed avatar correctly have been removed from the dataset in this analysis, all participants have recollected the avatar they have been exposed to correctly. In terms of the experienced level of anthropomorphism, all three conditions have experienced the avatar (or control image) as barely anthropomorph. As expected, the control condition (*M* = 3.91, *SD* = 1.48, *N* = 58) and the low anthropomorphic condition (*M* = 3.81, *SD* = 1.71, *N* = 45), but, unexpectedly, the high anthropomorphic condition as well (*M* = 3.75, *SD* = 1.46, *N* = 5). A one-way ANOVA was conducted to compare the experienced level of anthropomorphism between the three conditions (control vs. low anthropomorphic avatar vs. high anthropomorphic avatar), and these three groups did not significantly differ from each other ($F(2, 157) = .147$, $p = .863$). Thus, the manipulation has not succeeded. Regarding further analysis, there is still a differentiation made in groups based on the avatar they have seen because we believe that it had an unconscious influence on our dependent variables. Therefore, henceforth we will talk about three different visuals (condition 1 vs. condition 2 vs. condition 3) instead of avatar's differing in levels of anthropomorphism (control vs. low vs. high).

Task check

Almost every participant has carefully read the questions while participating in this study (*N* = 143, 90.5%), and has also spend energy in empathizing with the student's situation that was described in the scenario (*N* = 135, 87.7%). Almost 75 percent of the participants were able to empathize with the student's situation in the scenario (*N* = 118). On the other hand, 70 percent of the respondents were not able to imagine that they would experience a similar situation as the student experienced in the scenario (*N* = 112). However, a large majority did think that the scenario presented to them could happen in real life (*N* = 97, 61.4%).

Scale reliability

Table 13 shows the means, standard deviations, Cronbach's alpha's and inter-correlations among the studied dependent variables. As expected in the hypotheses, significantly moderate positive associations were found between the level of anthropomorphism of the avatar[5] and rapport, trust and a high correlation with perceived realism. This suggests that when the participant is perceiving the avatar as more anthropomorph, then the level of rapport and trust, and the perceived realism of the avatar is also increasing. Moreover, a significant moderate and positive correlation between perceived realism and the willingness to provide information was found which suggests that there is a moderately strong association between these two variables. In other words, this suggests that when the participant perceived the avatar as more human-operated participants were more willing to provide information and vice versa. Also, a significant positive but lower correlation was found between perceived realism and the actual provided information: this suggests more provision of information by participants when the avatar was perceived as more human-operated and vice versa. Findings that have been found that were not based on the hypotheses were that all measures significantly and positively correlated with each other, except for rapport and trust with the actual provided information. Also, a significant positive but lower correlation was found between the disclosure of information: online and the willingness to provide information. A significant high positive correlation between rapport and trust was found which suggests that a higher level of rapport was established when a higher level of trust also was established and vice versa. Additionally, a significant moderate positive correlation between rapport and perceived realism was found which suggests that participants perceived the avatar as more human-operated when higher levels of rapport were established and vice versa. This was also the case with trust and perceived realism.

[5] This is not an error. We do talk about the avatar's level of anthropomorphism (instead of visuals) because in this analysis we are talking about the participants' scores reflecting how anthropomorph they perceived the avatar they have been exposed to without connecting this to the conditions they were in (and thus without whether the manipulation was effective or not). This additional analysis has been done to explore whether this variable is associated to the dependent variables.

Table 13.

Means, standard deviations, Cronbach's alpha and inter-correlations of the studied variables together with the manipulation variables

Variables	*M*	*SD*	α	1	2	3	4	5	6
1. Rapport	4.42	.89	.814	-					
2. Trust	3.03	.58	.891	.724**	-				
3. Perceived realism	3.95	1.20	.856	.620**	.589**	-			
4. Disclosure of information: willingness	2.80	.95	.869	.529**	.592**	.524**	-		
5. Disclosure of information: online	2.81	.92	.894	.036	.033	.069	.184*	-	
6. Disclosure of information: actual information provision	61.06	37.94	-	.108	.102	.206**	.317**	.075	-
7. Visual form realism: anthropomorphism	3.83	1.54	.928	.565**	.508**	.704**	.516**	.081	.162*

Note: $N = 158$

*Correlation is significant at the level of 0.05 level (2-tailed)

**Correlation is significant at the level of 0.01 level (2-tailed)

Hypothesis testing

Rapport and trust. Table 14 represents the means and standard deviations belonging to the participants' established level of rapport and trust as a result of the different visuals they have been exposed to. Also shown are the means and standard deviations of rapport and trust of the participants when they were divided into two groups based on the tasks (A vs. B) they have executed. The prediction was that a face – compared to the name and the silhouette – will be associated with a higher perceived level of rapport (H_1/H_2) and a higher perceived level of trust (H_3/H_4)[6]. A one-way MANCOVA was conducted to test whether there were differences in the mean levels of rapport and trust of participants exposed to either one of the three visuals (name vs. silhouette vs. face) when controlled by the two tasks (task A vs. task B). Results showed that the established levels of rapport were not adjusted by the control variable, i.e. the different tasks they have executed ($F(1, 154) = .0$, $p = .998$), and that there were no significant differences in the established levels of rapport between the groups that have been exposed to different visuals ($F(2, 154) = .73$, $p = .484$). The established levels of trust were also no adjusted by the control variable ($F(1, 154) = .04$, $p = .849$), and there were also no differences found in the established level of trust between the groups that have been exposed to different visuals ($F(2, 154) = .31$, $p = .731$).

[6] These hypotheses are adjusted due to the ineffectiveness of the manipulations. The initial hypotheses were: the predictions for rapport were a high anthropomorphic avatar will be associated with a higher perceived level of rapport in an expressive crisis situation (H_1) and a low anthropomorphic avatar with a higher perceived level of rapport in an instrumental crisis situation (H_2). The predictions for trust were that a high anthropomorphic avatar will be associated with a higher perceived level of trust in an expressive crisis situation (H_3) and a low anthropomorphic avatar with a higher perceived level of trust in an instrumental crisis situation (H_4).

Table 14.

Means and standard deviations of rapport and trust per condition

	Type of crisis								
	Total			Task A			Task B		
				Rapport					
Visual	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Condition 1 (control)	4.40	.87	58	4.52	.83	26	4.30	.90	32
Condition 2	4.31	1.00	45	4.46	.92	24	4.14	1.08	21
Condition 3	4.53	.81	55	4.25	.70	24	4.74	.84	31
				Trust					
Visuals	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Condition 1 (control)	2.99	.54	58	3.07	.53	26	2.93	.55	32
Condition 2	3.02	.65	45	3.03	.70	24	3.00	.60	21
Condition 3	3.08	.58	55	2.95	.56	24	3.18	.58	31

Disclosure of information: willingness and perceived realism. Table 15 represents the means and standard deviations belonging to the participants' willingness to disclose information and the perceived realism (i.e., to what extent they felt interacting with a computer or human) as a result of the different visuals they have been exposed to. A one-way MANOVA was conducted to test whether there are differences in the mean level of the willingness to disclose information and the perceived realism by participants exposed to either one of the three visuals that they have been exposed (name vs. silhouette vs. face), and whether the perceived realism mediated a relationship between the visuals and the willingness to disclose information by the participant. The prediction was that a face – compared to the name and the silhouette – will be associated with perceiving the avatar as human-operated causing the person of interest being more willing to disclose information (H_5). Results showed that there were no significant differences in the willingness to disclose information between the groups that have been exposed to different visuals ($F(2, 155) = 1.41$, $p = .248$), and neither for the perceived realism ($F(2, 155) = .17$, $p = .845$).

Regardless of the fact that the total effect is not significant, it is chosen to still study the proposed mediation of the perceived realism mentioned in H_5. A mediator analysis using model 4 of the Hayes PROCESS Macro was conducted using 5000 bootstrapping samples to derive confidence intervals. The mediation analysis is done through using disclosure of information: willingness as the Y variable, condition as the X variable, and perceived realism as the M variable. The X variable is recoded in order to have condition 3 as a reference category in the mediation analysis. When comparing condition 3 to condition 2, the results showed an insignificant indirect effect (IE = -.06, SE = .10, CI[95%] = -.25, .14), thus no mediation effect by the avatar's perceived realism has occurred. This is also the case when condition 3 was compared to condition 1 (IE = -.04, SE = 1.0, CI[95%] = -.22, .16).

Table 15.

Means and standard deviations of perceived realism and disclosure of information: willingness per condition

	Perceived realism			Disclosure of information: willingness		
Visuals	*M*	*SD*	*N*	*M*	*SD*	*N*
Condition 1 (control)	3.93	1.20	58	2.90	.84	58
Condition 2	3.88	1.18	45	2.87	1.01	45
Condition 3	4.02	1.24	55	2.62	.99	55

Disclosure of information: actual information provision. Table 16 represents the means, mean ranks, standard deviations and the ranges belonging to the participants' actual information provision as a result of the different visuals they have been exposed to. Contributing to the descriptive insight of this measure, the answers of the participant with the least amount of total words that was provided counted 12 words and the answers of the participant with the highest amount of total words counted 260 words. While checking the MANOVA assumptions, univariate outliers were explored in a boxplot and it showed six univariate outliers within this variable. Therefore, this measure did not met the MANOVA assumptions, and the Kruskal-Wallis test was conducted to test whether there are differences in the mean ranks of the information provided by the participants and the exposure to one of the three visuals (name vs. silhouette vs. face). The prediction was that a face – compared to the name and the silhouette – will be associated with perceiving the avatar as human-operated causing a higher quantity of information provision by the person of interest (H_6). Results showed that there were significant differences in the provided information by participants between the groups that have been exposed to different visuals ($H(2) = 6.08$, $p = .048$). Follow-up analysis showed a significant difference between condition 2 and condition 3 ($U = 892.5$, $Z = -2.39$, $p = .017$) with more information provided in condition 2 ($M = 58.17$) compared to condition 3($M = 44.23$).

To test the mediation proposed by H_6, a mediator analysis using model 4 of the Hayes PROCESS Macro was conducted using 5000 bootstrapping samples to derive confidence intervals. The mediation analysis is done through using disclosure of information: actual information provision as the Y variable, condition as the X variable, and perceived realism as the M variable. The X variable is recoded in order to have condition 3 as a reference category in the mediation analysis. When comparing condition 3 to condition 2, the results showed an insignificant indirect effect (IE = -.93, SE = 1.71, CI[95%] = -4.44, 2.46), thus no mediation effect by the avatar's perceived realism has occurred. This is also the case when condition 3 was compared to condition 1 (IE = -.58=9, SE = 1.58, CI[95%] = -3.63, 2.86).

Table 16.

Means and standard deviations of disclosure of information: actual information provision per condition

	Disclosure of information: actual information provision				
Visuals	*M*	*Mean Rank*	*SD*	*Range*	*N*
Condition 1 (control)	60.67	88.12	37.93	238	58
Condition 2	70.27	91.59	40.14	179	45
Condition 3	53.93	68.95	35.09	176	55

Additional explorative testing

Disclosure of information: self-disclosure online. In the survey I have included seven items that measured the willingness to disclose information in an online environment in order to test whether the online environment might have made a difference in the willingness to provide information to the crisis negotiator. To test whether there were differences in the mean levels of the willingness to disclose information in an online environment by participants being exposed to either one of the three visuals (name vs. silhouette vs. face), a one-way ANOVA was conducted. To test whether there are differences in the mean level of the willingness to disclose information in an online environment by participants being exposed to either one of the three visuals (condition 1 vs. condition 2 vs. condition 3), a one-way ANOVA was conducted. Results showed that there were no significant differences in the disclosure of information in an online setting between the groups have been exposed to different visuals ($F(2, 157) = .78$, $p = .460$). This means that participants were not more willing to provide information in a online environment: participants in condition 3 were the least willing to provide information in an online environment ($M = 2.69$, $SD = 1.01$, $N = 55$) followed by condition 1 ($M = 2.88$, $SD = .90$, $N = 58$) and condition 2 ($M = 2.89$, $SD = .83$, $N = 45$).