

BACHELOR THESIS

**The influence of curiosity on
victims' willingness to participate
in victim-offender-mediation**

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Abstract

Participation rates in victim-offender-mediation (VOM) are considered as relatively low. For this reason, research is needed that aims to explore the factors that influence victims' willingness to participate in VOM. The current study tackles this issue. Based on previous research, it was expected that victims' willingness to participate in VOM can be predicted by the victim's level of state-curiosity, trait-curiosity, and openness to experience. Moreover, it was expected that state-curiosity can be predicted by trait-curiosity, openness to experience, and a manipulation. The manipulation was included to stimulate the victims' level of state-curiosity. Lastly, it was expected that the influence of the independent variables (trait-curiosity, openness to experience, and the manipulation) on the willingness to participate in VOM was mediated by state-curiosity. An experiment was executed using a between-subject design with two conditions ('low curiosity' and 'high curiosity'), to which 60 undergraduate student participants were randomly assigned. The experiment comprised watching a virtual reality video in which the participants were placed on a crime scene. The outcomes indicated that state-curiosity and the manipulation positively predicted victims' willingness to participate in VOM. The remaining expectations could not be supported. These findings suggest that the willingness to participate in VOM is higher when victims indicate high levels of state-curiosity. Future researchers and VOM practitioners should take this finding into account in order to improve interpretations regarding the factors that influence victims' willingness to participate in VOM. In addition to that, this study illustrates that the group membership in a manipulation can influence participants' willingness to participate in VOM. However, the factors that have been influenced by the manipulation and hence created the significant effect are not observable. Most probably, the manipulation had an effect on the victims' sense of power and their feeling of fear. Future researchers should target those variables in order to get more insight if these factors are responsible for this difference.

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Restorative justice

What should happen after a crime is committed? This is a fundamental question regarding the criminal justice system that involves the judgment of the entire society. Even though the criminal justice system has a lot of good characteristics, it still features a lot of downsides that affect the satisfaction of various parties regarding the way crimes are handled. One major controversy concerns the way victims are treated after a crime is committed. For the reason that the most commonly used approach within the criminal justice system is *retributive justice*, victims are not regarded as a major attention point. Retributive justice is concerned with the government, the laws that have been broken with that crime and the punishment that is imposed on the offender. Much less attention has been placed on the victims which creates a lot of discontents (Carlsmith & Darley, 2008).

Since the first half of the nineteenth century, a fundamental shift has taken place within the criminal justice system. This involved the implementation of *restorative justice*, in parallel with the initial retributive approach. Restorative justice differs from retributive justice in the way the involved parties are treated within the justice process. Whereas the retributive justice approach is mainly concerned with legal issues and punishment for the offender, restorative justice places its attention on all parties that are involved in the crime: the victim, the offender and the community (Justice, 1985). A fundamental tool of restorative justice is to allow the parties involved to decide what needs to be done after a crime has been committed. Its main goal is to repair the inflicted suffering and to make up for the damage as much as possible. Additionally, it attempts to ensure that crimes are not repeated and that all parties can live their life with as little emotional burden as possible ("Wat is Restorative

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Justice of herstelrecht," n.d.). A definition of restorative justice can be given by Marshall (1999):

"... a process whereby all the parties with a stake in a particular offence come together to resolve collectively how to deal with the aftermath of the offence and its implications for the future" (Marshall 1999, p. 5).

By means of communication, all parties involved are given the opportunity to share information with the other party. On the one hand, this approach offers victims the possibility to enlighten the offender of the impact of the crime and pose questions concerning the crime, the offender's reasons to commit the crime and everything else that the victim wants to know. On the other hand, offenders are held accountable for what they have done, so that they feel responsible for their own actions ("Criminal Justice," n.d.).

Various studies indicate the positive impact of restorative justice. A study by Latimer, Dowden, and Muise (2005) showed that restorative justice characterizes positive effects that traditional non-restorative approaches do not feature. Firstly, the satisfaction of both victim and offender is higher after restorative justice procedures than after retributive justice procedures. Secondly, the offender's compliance with restitution is increased. Thirdly, the recidivism of offenders is decreased when compared to more traditional criminal justice procedures. Another study by Shnabel and Nadler (2008) showed that restorative justice has beneficial effects for victims and offenders. Their study indicated that the offender's moral image is oftentimes threatened by a crime, resulting in a greater need for social acceptance. Restorative justice gives the offender a chance to apologize to the victim. If the apology is accepted by the victim, the offender's public moral image has shown to increase (Shnabel & Nadler, 2008). Besides the impact of restorative justice on the offender, it also has a positive effect on the victim's sense of power. The victim's sense of power is oftentimes threatened by a crime, which results in a need to restore it. Shnabel and Nadler's study (2008) indicated

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that through interpersonal communication between the two parties the victim's sense of power is increased due to the empowering messages given by the offender.

The positive effects of restorative justice indicate its high value in the criminal justice system. One thing that stands central within restorative justice is the communication between various parties. One approach that tackles this issue is *victim-offender-mediation*.

Victim-Offender-Mediation

Victim-Offender-Mediation (VOM) is a procedure that allows all parties involved in a crime to face each other by means of communication. Its emphasis lies on victim healing, offender accountability, and the restoration of losses. The mediation is a voluntary option for both the victim and the offender. It can take place in different channels of communication and is always assisted by a trained mediator to ensure a safe and structured setting (Umbreit 2002). The different communication channels include mail, telephone or face-to-face meetings. VOM gives the victim the chance to hold the offender accountable for the crime, inform the offender about the impact the crime had on the victim, receive answers to unresolved questions and be involved in the development of a restitution plan. In addition to that, the offender can take direct responsibility for the crime and get a better understanding of the impact his crime had on the victim (Umbreit 2002).

In VOM, the informational and emotional needs of the victim are addressed, which stand central to the victim's healing (Umbreit, Coates, & Vos, 2004). Additionally, the offender's development of empathy towards the victim can be improved, which can result in less criminal behavior in the future (Umbreit, Coates, & Vos, 2004).

Due to the fact that the participation in VOM is completely voluntary, not all victims and offenders participate. This results in relatively low VOM participation rates, ranging from 40 to 60 percent of all victims and offenders which have been offered VOM (Umbreit,

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Coates, & Vos, 2004). Besides the fact that VOM is voluntary to all, there are some other reasons why the participation rates are that low. Various explanations exist that can justify the current participation rates:

Regarding the offenders, a fear of being judged by the victim as immoral can be a crucial factor in decreasing their participation in VOM (Umbreit, Vos, & Coates, 2006). Notwithstanding, in most cases, offenders do participate in VOM, because it can have a reducing effect on their sentence (Wyrick & Costanzo, 1999).

Regarding the victims, high levels of anxiety, depression, hostility, and alienation can harm their willingness to participate in VOM (Wyrick & Costanzo, 1999). Besides that, the nature of the crime can have an effect on the victims' willingness to participate. Wyrick and Costanzo (1999) indicated that victims of property crimes are more willing to participate in mediation than victims of violent crimes. Additionally, the right timing for introducing VOM to the victims can be an influential factor in determining participation. Wyrick and Costanzo (1999) showed that victims of property crimes required less time to cope with a crime than victims of violent crimes. Hence, if VOM is suggested at the wrong moment in time, it can inhibit their willingness to participate. Furthermore, there are different factors that can enhance clients' willingness to participate in VOM. Several studies found that character-traits are closely related to clients' willingness to participate in VOM. A study by McAdams (2009) indicates that extrovert and friendly people tend to participate more in restorative justice. In addition, Wyrick & Costanzo (1999) indicate that the motivations of victims to participate in VOM include a high level of curiosity or a desire to know why the offender committed the crime. Wyrick & Costanzo (1999) ascertained this knowledge by an oral questioning toward the victims of their study.

The factors that determine clients' participation in VOM are quite diverse. Importantly, some of these factors have not yet been studied empirically, such as the role of

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curiosity. Hence, this creates a good foundation for new research. The concept of curiosity and its relation to VOM participation is introduced in the following paragraph.

Curiosity

In the history of psychology, curiosity has always been of great interest. A definition can be given by Kashdan and Roberts (2004), who defined curiosity as follows:

“The positive emotional-motivational system oriented toward the recognition, pursuit, and self-regulation of novel and challenging information and experiences”.

From childhood on, curiosity plays an important role in seeking new information and minimizing uncertainty about things. Curiosity is considered to evolve throughout one's whole life, is strongly related to decision-making and is important for a healthy development (Kidd & Hayden, 2015).

Curiosity can be categorized into two types: *state-curiosity* and *trait-curiosity*. For a better understanding of these two curiosity types, a clear distinction between a trait and a state needs to be made. A trait is a relatively permanent individual characteristic. Traits form an individual to a unique human being with specific characteristics, such as being outgoing, friendly, confident, or shy. A state, in turn, can be defined as a temporary change in one's personality. States are mostly the reaction to something that happened. They can embrace being fearful, depressed or angry. Traits and states are not necessarily related to each other. For this reason, they will be independently introduced for the purpose of this research.

State-curiosity can be defined as an approach-oriented motivational state associated with exploration (Kidd & Hayden, 2015). More specifically, it can be viewed as an intrinsic motivation to seek more information. This means, curiosity-driven activities are performed for its own sake and are not controlled by external pressures. Most prevalently, curiosity functions as a catalyst for learning. It arises when a person perceives a gap in knowledge and

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understanding and thus needs to resolve this issue by seeking more information. The motivation that follows a state of curiosity can be compared to fundamental needs such as hunger, which motivates eating (Kidd & Hayden, 2015).

The I/D Model of Curiosity by Litman (2005) introduced a more specific explanation of state-curiosity. Within this model, curiosity is not only characterized by the perceived gap in knowledge that needs to be resolved but is further sub-divided into two categories: curiosity as a feeling of interest and curiosity as a feeling of deprivation. The former equates to the aforementioned definition of state-curiosity. Within this category, curiosity motivates people's behavior due to the anticipated pleasure of new discoveries. This behavior is performed out of positive feelings and is not related to any feeling of deprivation. The latter one, however, introduces curiosity as a different factor. It describes curiosity as an action that is performed out of frustration of not knowing. When an individual has the feeling of being deprived of information, a need to reduce that uncertainty and eliminate the undesirable states of ignorance is favored.

The second type of curiosity is *trait-curiosity*. Trait-curiosity can be defined as a personality trait that is relatively stable over time. It comprises frequent or intense pleasurable engagements with the environment (Watson, 1988). Individuals that are characterized by this trait generally favor the minimization of uncertainty or actively seek out new information (Kidd & Hayden, 2015). A variety of measurements exist that can examine trait-curiosity of individuals, for instance, the *Curiosity and Exploration Inventory* (CEI-II) (Kashdan et al., 2009). By answering the questions of such inventories, a score can be generated that represents an individual's level of trait-curiosity. An example question of the CEI-II is the following: "I would describe myself as someone who actively seeks as much information as I can in a new situation". Besides the CEI-II, other personality trait inventories include curiosity as a personality trait.

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Given the fact that trait-curiosity is an individual characteristic, it seems compelling to relate this trait to other character-traits and clarify possible relationships between them. As a study by McCrae (1996) found, openness to experience is associated with one's level of curiosity. The stronger an individual's openness to experience, the higher would thus also be an individual's curiosity and vice versa. In addition to that, a study by Kang et al. (2009) indicates that decision-makers are less curious when they do not have any knowledge about an answer to a question than when they have a slight idea about it.

All the aforementioned associations between curiosity and other character-traits give rise to the question if these character-traits are also related to VOM participation. McCrae (1996) indicated a clear association between openness to experience and curiosity. Additionally, many other character-traits have been shown to be associated with VOM participation, such as extraversion (McAdams, 2009). It would thus be compelling to find out if openness to experience is actually directly related to clients' willingness to participate in VOM. For this, a better understanding of openness to experience is needed. This will be accomplished by introducing a widely-used personality-trait model in the following paragraph: *the five-factor model of personality*.

Five-factor model of personality

The *five-factor model of personality* is a widely used model, which gives an indication of the major personality traits of human beings (McCrae & John, 1992). It narrows down the variety of personality traits into five basic categories: *extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience*.

Robertson and Callinan (1998) stated that the factors of this model remain stable and consistent across situations and time. In addition to that, despite some differences in factor labeling, the five factors remain stable when applied to different cultures (John, 1990).

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Generally, each of these factors suggests how a person behaves in certain situations. Taking these factors into account, the five-factor model of personality seems applicable and useful for research on personality.

The category *extraversion* is embodied in individuals that are very active, assertive and energetic (McCrae & John, 1992). Additionally, people that hold this trait are very enthusiastic, outgoing, talkative and often very skilled in play and humor. Individuals that characterize as *agreeable* are very appreciative, forgiving and generous. Furthermore, they are often very kind, sympathetic and trusting and rarely behave in a critical or skeptical manner. The category *conscientiousness* is embodied in very efficient and organized individuals. In addition to that, a very reliable, responsible and thorough type of character is considered to fit into this category. Very tense, self-pitying and anxious individuals would score high in the category of *neuroticism*. A very touchy, unstable and worrying type of character is also considered to fit into this category. The last category, *openness to experience*, is characterized by curiosity and embodies imaginative, insightful and original people.

From the five factors that build up the hierarchical organization of personality traits, one factor is of most importance for this study: openness to experience. Because curiosity is closely connected to openness to experience (McCrae, 1996) and curiosity is argued to be related to VOM participation, it would be interesting to find out if a direct link exists between openness to experience and VOM participation.

Research question

Very little research is available on the effects of curiosity on VOM participation.

Nonetheless, the aforementioned study by Wyrick and Costanzo (1999) argued that some of the participants in their study were influenced by their level of curiosity concerning their

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willingness to participate in VOM. However, this factor has not yet been studied experimentally and was only indicated as a possible influencing factor. Given that information, there is a need to causally demonstrate the role of curiosity in the victims' willingness to participate in VOM. In addition, it seems compelling to include the variable openness to experience into this research, due to its association with curiosity (McCrae, 1996).

Therefore, the research question is the following:

“What effect do state-curiosity, trait-curiosity, and openness to experience have on a victim's decision to participate in Victim-Offender-Mediation after experiencing a violent physical crime?”

Hypotheses

A manipulation will be created that aims to influence the victims' willingness to participate in VOM. The manipulation entails watching a video using virtual-reality glasses. In this video, a violent physical crime from the first-person perspective will be shown. By watching the video, the experimental condition is thought to be more willing to participate in VOM than the control group. The first hypothesis is as follows:

H1: The manipulation positively predicts participants' willingness to participate in VOM as victims of a violent physical crime.

Wyrick and Costanzo (1999) argued that curiosity and willingness to participate in VOM are associated. Participants that score high on this trait should thus be more willing to participate in VOM. The second hypothesis is as follows:

H2: A high level of trait-curiosity positively predicts participants' willingness to participate in VOM as victims of a violent physical crime.

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Research showed that an association exists between openness to experience and curiosity. Nonetheless, the direct effect of openness to experience and willingness to participate in VOM has not been studied yet. In order to find out if this effect is existent, willingness to participate in VOM is expected to be positively predicted by openness to experience. The third hypothesis is as follows:

H3: A high level of openness to experience positively predicts participants' willingness to participate in VOM as victims of a violent physical crime.

It is further expected that the relationship between openness to experience and participants' willingness to participate in VOM can be mediated by state-curiosity. This is due to the fact that openness to experience is associated with state-curiosity and state-curiosity is associated with participants' willingness to participate in VOM. The fourth hypothesis is the following:

H4: The effect of openness to experience to positively predict participants' willingness to participate in VOM is mediated by state-curiosity.

Moreover, it is expected that the relation between trait-curiosity and participants' willingness to participate in VOM can be mediated by state-curiosity. This is due to the fact that trait-curiosity is associated with state-curiosity and state-curiosity is associated with participants' willingness to participate in VOM. The fifth hypothesis is the following:

H5: The effect of trait-curiosity to positively predict participants' willingness to participate in VOM is mediated by state-curiosity.

Lastly, it is expected that the relation between the manipulation and participants' willingness to participate in VOM can be mediated by state-curiosity. This is due to the fact that the manipulation is associated with state-curiosity and state-curiosity is associated with participants' willingness to participate in VOM. The sixth hypothesis is the following:

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H6: The effect of the manipulation to positively predict participants' willingness to participate in VOM is mediated by state-curiosity.

For a better illustration of the aforementioned hypotheses, a conceptual model is presented in *Figure 1*.

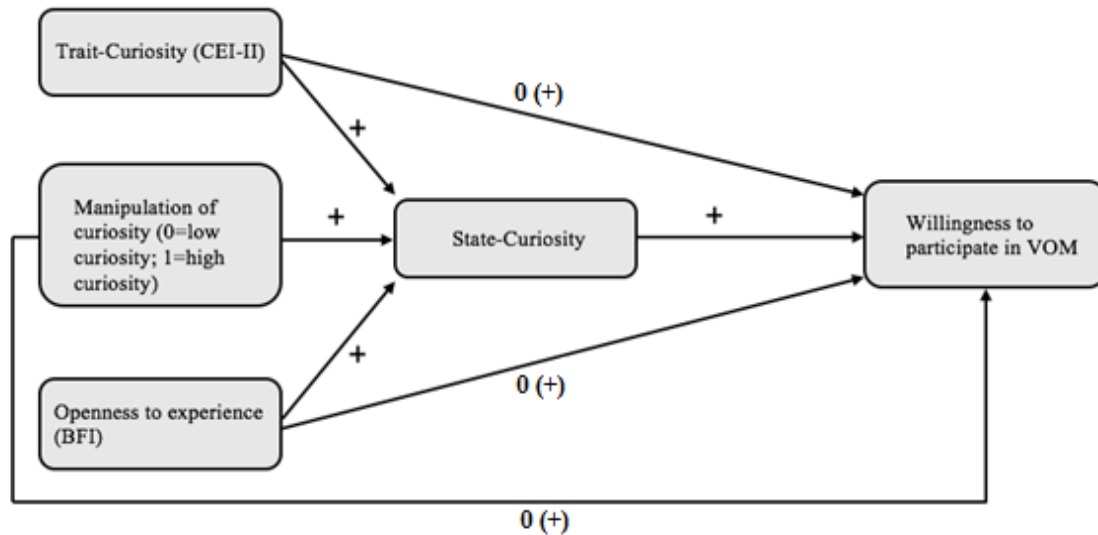


Figure 1. Conceptual model, illustrating the relations between the IV's, the mediator and the DV. Arrows indicate the relationship between two variables, with the variable being pointed at presenting the affected variable. Additional remarks next to the arrows (+ or 0) indicate the direction and strength of the respective path.

Method

Participants

In total, 61 participants took part in this study. The inclusion criteria for participating in this study were to be a student at the University of Twente and to speak English fluently. An exclusion criterion for this study was the incorrect procedure of completing the study (e.g. finishing all questionnaires without having seen the VR-video). Due to the fact that one participant did not perform the study in the right procedure, this participant had to be omitted from the data set. Hence, the data of 60 participants were used for this study (24 males and 37 females). The participants were randomly distributed over two conditions: a control group (N=29) and an experimental group (N=31). Their mean age was 21.35 (SD = 1.95), ranging from 18 to 26 years. All students received 0.5 SONA credits for their participation and were debriefed as their participation was over.

Design

This research consists of a between-group design with two conditions ('high curiosity' vs. 'low curiosity'). The dependent variable was the willingness to participate in VOM and the independent variables were trait-curiosity, the manipulation, and openness to experience. In addition, state-curiosity acted as a mediating variable between each of the independent variables and the dependent variable.

Independent variables

The independent variables were trait-curiosity, the manipulation of curiosity and openness to experience. Trait-curiosity and openness to experience were measured using questionnaires. The former using the 'Curiosity and Exploration Inventory II' (CEI-II), a 5-point Likert scale consisting of ten items (e.g. "I would describe myself as someone who actively seeks as

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much information as I can in a new situation.”) ($\alpha = .77$). The latter was measured using the ‘Big Five Inventory’ (BFI), a 5-point Likert scale consisting of 44 items. The items of the BFI are subdivided into different categories: extraversion (e.g. “I see myself as someone who is talkative.”) ($\alpha = .75$), agreeableness (e.g. “I see myself as someone who is helpful and unselfish with others.”) ($\alpha = .81$), conscientiousness (e.g. “I see myself as someone who does a thorough job.”) ($\alpha = .76$), neuroticism (e.g. “I see myself as someone who is depressed, blue.”) ($\alpha = .85$) and openness (e.g. “I see myself as someone who is original, comes up with new ideas.”) ($\alpha = .76$). It was chosen for this instrument because it is a widely known tool that gives a very broad examination of character-traits. The third independent variable, the manipulation of curiosity, consisted of an experimental and a control condition. Participants in the experimental condition were to be strongly stimulated in their state-curiosity, whereas participants in the control condition were not to be stimulated by that factor.

Dependent variables

The dependent variable of this research was the willingness to participate in VOM. This variable was comprised of 4 items (e.g. “I am willing to participate in VOM because I am eager to know more about the incident.”) reported on a 5-point Likert scale (one factor explained 80.32% of the variance, all factor loadings $> .45$). The scale was found to be highly reliable ($\alpha = .92$).

Mediator and additional variables

The mediating variable of this research was state-curiosity. This variable was measured using a scale created by the researcher (Appendix A). The scale was comprised of 5 items (e.g. ‘I feel curious about the reasons for the incident’) reported on a 5-point Likert scale (one factor

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explained 71.78% of the variance, all factor loadings $> .45$). The scale was found to be highly reliable ($\alpha = .89$).

Regarding the manipulation, other variables might mediate the effect of the manipulation on the willingness to participate in VOM. Those variables were measured using scales created by the researcher (Appendix A). The variables are the following:

Feelings of shame or embarrassment were detected by using a 5-point Likert scale consisting of five items (e.g. "I feel embarrassed when I think about the incident."). Factor analysis for this variable was conducted and two factors were detected (two factors explained 74.53% of the variance; all factor loadings $> .45$). It was noticeable that two items of this variable loaded on a different factor (when two items removed, 70.97% of the variance were explained by one factor; all factor loadings $> .45$). The two excluded variables were formed to a different scale, measuring discomfort and awkwardness rather than shame and embarrassment (one factor explained 79.92% of the variance; all factor loadings $> .45$). Besides the factor analysis, the two scales were found to be moderately reliable (shame/embarrassment: $\alpha = .79$; discomfort/awkwardness: $r = .58$).

Feelings of anger were also measured, using a 5-point Likert scale consisting of six items (e.g. "I am angry at the person that pushed me."). Using factor analysis, one factor could be detected to explain 60.34% of the variance (all factor loadings $> .45$). Additionally, the scale was found to be highly reliable ($\alpha = .87$).

Feelings of harm- and wrongfulness were measured using a 5-point Likert scale consisting of four items (e.g. "As the victim in the scenario, what degree of emotional harm has this incident inflicted upon you?"). Factor analysis was conducted and two factors were detected (two factors explained 82.28% of the variance; all factor loadings $> .45$). The Varimax rotated matrix indicated that the items in this scale can best be divided up into two separate scales. One measuring harmfulness (one factor explained 75.29% of the variance; all

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factor loadings $> .45$) and the other measuring wrongfulness (one factor explained 84.22% of the variance; all factor loadings $> .45$). The two scales were also found to be reliable as their items moderately correlated (harmfulness: $r = .51$; wrongfulness: $r = .68$).

Lastly, two separate scales were designed to check if the participants feel like a victim or like an offender after experiencing the VR-video. The variable victim feeling was comprised of two items (e.g. 'I feel like a victim.') reported on a 5-point Likert scale (one factor explained 80.5% of the variance, all factor loadings $> .45$). This scale was found to be moderately reliable ($r = .65$). The variable offender feeling was comprised of two items (e.g. 'I feel like an offender.') reported on a 5-point Likert scale (one factor explained 57.79% of the variance, all factor loadings $> .45$). This scale was not found to be highly reliable ($r = .17$). Due to the fact that the reliability of this scale is not sufficient enough, the two items that comprise the scale were analyzed separately.

Procedure

Participants were introduced to the study on the website www.sona-systems.com. Due to its usability in the educational sector and the advantages, it has for the participants (gaining 'SONA-points'), this website was judged to be a good instrument. The name of this study that was presented on the website was: "Ensuring bus security." As 61 participants were recruited, they were referred to different time-slots they could choose from. Once everybody chose their time-slot, the study continued in face-to-face meetings. Before the meetings with the participants started, they had been randomly distributed over the two conditions (an experimental condition with 'high curiosity' vs. a control condition with 'low curiosity').

The meetings consisted of one researcher and up to 5 participants. At first, the participants had to click on a link that was sent to them, either using their laptop or their smartphone. The questionnaire started with a short introduction where all necessary

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information was provided, such as a short description of the study and the informed consent that had to be accepted by the participants (Appendix B). However, the description of the study did not provide the actual purpose of this study, in order to prevent any influence on the participants' responses. Once this was done, the participants had to fill out the Curiosity and Exploration Inventory II (CEI-II) and the Big 5 Inventory. The website used to collect the data on the questionnaires is called www.qualtrics.com. After filling in the CEI-II and the Big 5 Inventory, the participants were asked to enter a different room individually where they were given Virtual Reality Glasses (VR-glasses). Once a participant had finished watching the video, he/she left the room and the next one entered.

The decision to make use of Virtual Reality Glasses was due to its beneficial usability in the health sector. A study by van Gelder et al. (2017) indicated that the visualization of a crime has shown to produce a sense of presence that cannot be produced using other methods, such as reading a story and trying to empathize with the protagonist. Furthermore, a greater negative effect was detected for the participants who experienced the visual version of the scenario compared to the participants who have had the written scenario (van Gelder et al., 2017)

VR videos used for manipulation.

The video the participants saw can be described as follows: In the video, the participants experience a 360-degree, first-person VR-video. The video differs between the two conditions. In the control condition ('low curiosity') the participants experience a situation at a bus stop on the UT campus. The participant is standing at the bus stop, while a bus is standing right in front of him. He is blocking the entrance of the bus and thus hindering other people from entering it. After about 30 seconds of waiting, a person behind the participant starts screaming and runs towards the participant. The person screams "Give me some space!". When the person reaches the participant, he/she pushes the participant aside, so

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that the participant falls to the floor. Thereafter, the participant blacks out and the video ends.

The control condition was created with the intention to keep the participants' level of curiosity to a moderate degree. Given the fact, that the participant was standing in front of the entrance of the bus and was thus hindering others of entering the bus, the reason for the aggressive behavior by the offender was likely to be evident for the participant.

In the experimental condition ('high curiosity') the participants experience a situation at a bus stop on the UT campus. The participant is standing at that bus-stop, seemingly waiting for the bus. The participant cannot see any bus. In addition, there are few people around him, also waiting on the bus. After about 30 seconds of waiting, a person behind the participant starts screaming and runs towards the participant. The person screams "Give me some space!". When the person reaches the participant, he/she pushes the participant aside, so that the participant falls on the ground. Thereafter, the participant blacks out and the video ends. The experimental condition was created with the intention to stimulate the participants' level of curiosity. This should be accomplished by the very spontaneous and unreasonably aggressive act by the offender. This is due to the fact that it would be difficult for the participant to come up with any reasons for the aggressive act, as the spacious bus-stop suggests no pushing is necessary. Therefore, a high level of curiosity was likely to arise.

The two conditions are aimed to differ only in the way that they stimulate the participants' curiosity. The setting and the consequences of the aggressive actions are exactly the same and should thus not interfere with the participants' level of curiosity. For a better illustration of the two conditions, screenshots of the videos have been extracted (see Figure 2 & 3).



Figure 2. Screenshot of the 'low curiosity'- condition video



Figure 3. Screenshot of the 'high curiosity'- condition video

After experiencing the VR-video, the participants were asked to fill out a form on their own laptops that measured their current level of curiosity. With that, the manipulation effect could be detected. In addition, the participants were asked to fill out several forms that measured their current level of anger, embarrassment, shame, wrongfulness, and harmfulness. This was done due to the possible effects the VR-video could have on the participants, besides the effects on state-curiosity. Furthermore, given the fact that in the control condition the participant was hindering someone else from entering the bus, this could also have an effect on whether the participant feels like a victim or like an offender. This factor will be included in the study and tested by questions investigating this issue. Based on these scores,

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possible solutions could be formed that lead to VOM participation. As the forms were filled in, the participants were introduced to another story that indicated a police-officer asking the participant a few questions concerning the crime (Appendix C). In this story, the police-officer stated that the offender will be held accountable for his crime. The police-officer then introduced the participants to victim-offender-mediation. The police-officer gave general information about VOM and the benefits it has for victims and offenders. After being introduced to the VOM-approach the participants were asked to fill out the last form in which they either stated a tendency to accept the participation in VOM or stated a tendency to decline it.

After all these procedures, the experiment was completed, and the participants were given a debriefing, in which they were told what the study was actually about, which conditions there were and how these conditions were stimulated. In addition, the participants were given the chance to ask questions and were asked if they would like to receive the results of the study. If they did, they could leave their email address and be informed about the results when the research was completed.

When all data was collected, the complete data-set was downloaded from Qualtrics and opened with the statistical software 'SPSS'. Before any statistical analyses were conducted, the dataset was screened for missing data and so-called 'b-liners'. No missing data and b-liners were detected. Lastly, the data-set was screened for skewness and kurtosis, where one item ("I feel like an offender.") scored extremely high (kurtosis score of 24.32; skewness score of 4.56). The scores of this analysis should be kept in mind in order to interpret the results correctly. After the data screening was finished, the data-set was analyzed using different statistical analysis.

Results

Descriptive Statistics

The means and standard deviations of the different subscales that formed the questionnaire for this study are presented in Table 1. It is noticeable that most of the means and standard deviations are fairly normal and do not characterize extreme scores. However, there are some subscales that have remarkably high or low scores. For instance, the subscale Openness to experience has a very high mean score (3.90) with a relatively low standard deviation (.50). Another subscale that characterizes a high mean score is State-Curiosity ($M = 4.22$; $SD = .72$). According to the scores, most of the participants were experiencing high levels of state-curiosity. This could possibly distort the results of this study as it was aimed to create higher state-curiosity in the experimental condition than in the control condition. Lastly, the two items concerning Offender-Feeling have both relatively low mean scores (Item 1: $M = 1.37$, $SD = .71$; Item 2: $M = 1.13$, $SD = .47$). This fact is in favor of this research because the aim was to make the participants feel like the victims in the VR-scenario, which apparently worked out.

Correlations between the different subscales that formed the questionnaire for this study are presented in Table 1. No strong correlations were detected in these scores. However, some moderate correlations exist, such as between wrongfulness and victim feeling ($r = .55$). Another correlation that is noticeable, but not yet considered as moderate is the correlation between the willingness to participate in VOM and state-curiosity ($r = .44$). Additionally, the correlation between the willingness to participate in VOM and harmfulness is relatively high ($r = .41$). These two last correlations should be kept in mind as they demonstrate the factors that have a possible effect on the victims' willingness to participate in VOM.

Table 1. Summary of Means, Standard Deviations and Intercorrelations for scores on all variables

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | | |
|---------------------------------------|-------------|---|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|-----|--|
| 1. Trait-Curiosity | M (SD) | - | .30* | -.12 | -.13 | -.15 | .40* | -.07 | .09 | -.19 | -.21 | -.05 | .02 | .06 | -.15 | -.05 | .09 | |
| 2. Extraversion | 3.63 (.53) | - | .09 | .25 | -.28* | .14 | -.06 | -.16 | -.21 | -.12 | -.13 | .18 | .11 | -.22 | -.01 | .15 | | |
| 3. Agreeableness | 3.59 (.56) | - | - | .31* | -.27 | -.04 | .30* | .03 | .14 | .18 | .13 | .23 | .09 | .16 | .07 | .38* | | |
| 4. Conscientiousness | 3.87 (.60) | - | - | - | -.17 | .13 | .17 | -.18 | .12 | -.05 | .08 | .18 | -.03 | .16 | .07 | .25 | | |
| 5. Neuroticism | 3.42 (.61) | - | - | - | - | -.12 | -.06 | .16 | .11 | .27* | .19 | -.10 | .25 | .03 | -.10 | -.08 | | |
| 6. Openness to experience | 2.79 (.78) | - | - | - | - | - | .00 | -.02 | -.03 | -.25 | .10 | .12 | .07 | -.05 | -.03 | .04 | | |
| 7. State-Curiosity | 4.22 (.72) | - | - | - | - | - | - | .31* | .15 | .16 | .32* | .28* | .19 | -.02 | -.09 | .44* | | |
| 8. State-Anger | 3.31 (.92) | - | - | - | - | - | - | - | .11 | .39* | .34* | .38* | .61* | -.12 | .14 | .13 | | |
| 9. Shame/Embarrassment | 1.96 (1.00) | - | - | - | - | - | - | - | - | .43* | .32* | -.03 | -.03 | .21 | .19 | .02 | | |
| 10. Discomfort/Awkwardness | 2.87 (1.19) | - | - | - | - | - | - | - | - | - | .30* | .16 | .32* | .12 | -.06 | .08 | | |
| 11. Harmfulness | 2.50 (.96) | - | - | - | - | - | - | - | - | - | - | .21 | .45* | .28* | .34* | .41* | | |
| 12. Wrongfulness | 3.43 (1.08) | - | - | - | - | - | - | - | - | - | - | - | .55* | -.19 | -.10 | .24 | | |
| 13. Victim-Feeling | 3.36 (1.07) | - | - | - | - | - | - | - | - | - | - | - | - | -.18 | -.06 | .20 | | |
| 14. Offender-Feeling (Item 1) | 1.37 (.71) | - | - | - | - | - | - | - | - | - | - | - | - | - | .16 | .08 | | |
| 15. Offender-Feeling (Item 2) | 1.13 (.47) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -.05 | | |
| 16. Willingness to participate in VOM | 3.75 (1.04) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

Note. All variables were answered on a scale ranging from 1 to 5. * p < .05.

Manipulation Check

An independent sample t-test was conducted to compare state-curiosity for the control and the experimental condition. There was no significant difference in the scores for state-curiosity between the control ($M = 4.13$, $SD = .56$) and the experimental condition ($M = 4.31$, $SD = .84$); $t(58) = -.96$, $p = .341$. Hence, scores on state-curiosity were not significantly higher for participants in the *high curiosity* condition than in the *low curiosity* condition. Therefore, the manipulation was not successful.

In addition to that, several independent t-tests were conducted in order to check if the two groups differ significantly in their scores of *extraversion*, *agreeableness*, *conscientiousness*, *neuroticism*, *openness to experience*, *trait-curiosity*.

Concerning the variable *extraversion*, a significant difference in the scores between the control ($M = 3.75$, $SD = .50$) and the experimental condition ($M = 3.44$, $SD = .59$) was found; $t(58) = 2.17$, $p = .034$. Scores on extraversion were significantly higher for participants in the experimental condition than in the control condition. Given this information, it is necessary to test if this variable has an effect on the willingness to participate in VOM. By doing this, it can be checked if this variable influences the manipulation and if the manipulation would be different if controlled for by this variable.

Concerning the remaining variables *agreeableness*, *conscientiousness*, *neuroticism*, *openness to experience*, *trait-curiosity* no significant effects were found for the two conditions (all p -values $> .05$). Scores on these variables were not significantly higher for participants in the experimental condition than in the control condition.

In order to examine differences in the variables state-anger, harmfulness, wrongfulness, discomfort/awkwardness, shame/embarrassment, victim-feeling and offender-feeling between the control and experimental group after watching the VR-video, another independent samples t-test was conducted. No significant differences between the two groups

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for any of these variables (for all variables: $p > .05$) were found. These results suggest that individuals in the experimental group did not score significantly different on these variables than individuals in the control group and that the manipulation did not have any effect on these variables.

Table 3. Means, standard deviations and standard error means of the independent variables

| Variables | Group | <i>N</i> | <i>M</i> | <i>SD</i> | <i>SE</i> |
|------------------------|--------------|----------|----------|-----------|-----------|
| State-Curiosity | Control | 29 | 4.13 | .56 | .10 |
| | Experimental | 31 | 4.31 | .84 | .15 |
| Extraversion | Control | 29 | 3.75* | .50 | .09 |
| | Experimental | 31 | 3.44* | .59 | .11 |
| Agreeableness | Control | 29 | 3.91 | .70 | .13 |
| | Experimental | 31 | 3.84 | .50 | .09 |
| Conscientiousness | Control | 29 | 3.54 | .68 | .13 |
| | Experimental | 31 | 3.31 | .52 | .09 |
| Neuroticism | Control | 29 | 2.64 | .78 | .14 |
| | Experimental | 31 | 2.92 | .76 | .14 |
| Openness to experience | Control | 29 | 3.96 | .49 | .09 |
| | Experimental | 31 | 3.83 | .51 | .09 |
| Trait-curiosity | Control | 29 | 3.56 | .53 | .10 |
| | Experimental | 31 | 3.68 | .54 | .10 |

Note: * $p < .05$.

Regression analysis

The influence of the IV's on the DV.

Multiple regression analysis was used, to test if trait-curiosity, extraversion, agreeableness, conscientiousness, neuroticism, openness to experience and the manipulation significantly predicted participants' willingness to participate in VOM. The variables trait-curiosity, openness to experience and the manipulation were included to test for hypothesis 1, 2 and 3. The remaining variables were included for explorative analysis. Table 4 summarizes the descriptive statistics and analysis results. In support with hypothesis 1, the manipulation significantly predicted the willingness to participate in VOM ($\beta = .33$, $p = .01$). This indicates that the experimental group was more willing to participate in VOM ($M = 3.99$, $SD = .82$) than the control group ($M = 3.49$, $SD = 1.19$). Additionally, it was found that agreeableness significantly predicted the willingness to participate in VOM ($\beta = .35$, $p = .01$). This indicated that participants who were seemingly more agreeable were also more willing to participate in VOM. For the remaining variables, no significant effects were found. Hence, hypothesis 2 and 3 could be rejected.

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Table 4. *Summary of multiple regression analysis for variables predicting willingness to participate in VOM*

| Variables | <i>B</i> | <i>SE B</i> | β | <i>t</i> | <i>p</i> |
|------------------------|----------|-------------|---------|----------|----------|
| Trait-Curiosity | .13 | .28 | .07 | .48 | .63 |
| Extraversion | .28 | .25 | .15 | 1.11 | .27 |
| Agreeableness | .60 | .22 | .35 | 2.71 | .01* |
| Conscientiousness | .31 | .23 | .18 | 1.37 | .18 |
| Neuroticism | .06 | .17 | .05 | .35 | .73 |
| Openness to experience | .07 | .28 | .03 | .24 | .81 |
| Manipulation | .67 | .27 | .33 | 2.54 | .01* |

*Dependent variable: Willingness to participate in VOM. * $p < .05$.*

The influence of the IV's on the mediator.

Multiple regression analysis was used, to test if trait-curiosity, extraversion, agreeableness, conscientiousness, neuroticism, openness to experience and the manipulation significantly predicted state-curiosity. The variables trait-curiosity, openness to experience and the manipulation were included to test for the second requirement of a mediational effect. The second requirement of a mediation entails a positive prediction of the independent variables on the mediator. Thus, they partly test hypothesis 4, 5 and 6. The remaining variables were included for explorative analysis. Table 5 summarizes the descriptive statistics and analysis results. None of the variables were significant predictors of state-curiosity. Hence, hypothesis 4 and 5 can partly be rejected, because they do not fulfill the second requirement for a mediational effect. Participants who scored high on trait-curiosity or openness to experience did not significantly score higher on state-curiosity. Furthermore,

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hypothesis 6 can be rejected, since the experimental group did not score significantly higher on state-curiosity ($M = 4.31$, $SD = .84$) than the control group ($M = 4.13$, $SD = .56$).

Moreover, the variable extraversion did not significantly predict state-curiosity. Linking this back to the manipulation check, this variable did not have any influence on the manipulation which sustains the results of the manipulation check.

Table 5. Summary of multiple regression analysis for variables predicting state-curiosity

| Variables | <i>B</i> | <i>SE B</i> | β | <i>t</i> | <i>p</i> |
|------------------------|----------|-------------|---------|----------|----------|
| Trait-Curiosity | -.05 | .21 | -.04 | -.24 | .81 |
| Extraversion | -.09 | .19 | -.07 | -.44 | .66 |
| Agreeableness | .32 | .17 | .27 | 1.91 | .06 |
| Conscientiousness | .15 | .17 | .13 | .86 | .39 |
| Neuroticism | -.01 | .13 | -.02 | -.11 | .92 |
| Openness to experience | .05 | .21 | .04 | .26 | .80 |
| Manipulation | .23 | .20 | .16 | 1.11 | .27 |

*Dependent variable: State-Curiosity. * $p < .05$.*

Testing for the mediational effect.

Multiple regression analysis was used, to test if trait-curiosity, extraversion, agreeableness, conscientiousness, neuroticism, openness to experience, the manipulation, and state-curiosity significantly predicted participants' willingness to participate in VOM. The variables trait-curiosity, openness to experience, the manipulation, and state-curiosity were included to test for a mediational effect (hypothesis 4, 5 and 6). The remaining variables were included for explorative analysis. Table 6 summarizes the descriptive statistics and analysis

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results. The manipulation still significantly predicted the willingness to participate in VOM ($\beta = .28, p = .03$). This indicates that the experimental group was more willing to participate in VOM ($M = 3.99, SD = .82$) than the control group ($M = 3.49, SD = 1.19$). In addition to that, state-curiosity still significantly predicted the willingness to participate in VOM ($\beta = .32, p = .01$), as did agreeableness ($\beta = .26, p = .04$). Thus, participants who scored high on state-curiosity or agreeableness were more willing to participate in VOM than participants that scored low on these variables.

Taking all regression analyses together, it is possible to give an indication of whether a mediational effect is present. For a mediation to be present, the independent variables must have a significant effect on the mediator and on the dependent variable. Furthermore, the mediator must have an effect on the dependent variable. In fact, one of the independent variables (i.e. manipulation) had a significant effect on the dependent variable. Furthermore, the mediator had a significant effect on the dependent variable. Nonetheless, none of the expected variables (manipulation, trait-curiosity, and openness to experience) had a significant effect on the mediator. Hence, no mediation is present and hypothesis 4, 5 and 6 can be rejected.

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Table 6. Summary of multiple regression analysis for variables predicting willingness to participate in VOM (including state-curiosity)

| Variables | <i>B</i> | <i>SE B</i> | β | <i>t</i> | <i>p</i> |
|---------------------------|----------|-------------|---------|----------|----------|
| Trait-Curiosity | .16 | .27 | .08 | .60 | .56 |
| Extraversion | .32 | .24 | .17 | 1.34 | .19 |
| Agreeableness | .45 | .22 | .26 | 2.08 | .04* |
| Conscientiousness | .24 | .21 | .14 | 1.12 | .27 |
| Neuroticism | .07 | .16 | .05 | .41 | .68 |
| Openness to experience | .04 | .26 | .02 | .16 | .87 |
| Manipulation | .57 | .25 | .28 | 2.24 | .03* |
| State-Curiosity | .46 | .17 | .32 | 2.70 | .01* |

*Dependent variable: Willingness to participate in VOM. * $p < .05$.*

Discussion and Conclusion

Research on the effects of Victim-Offender-Mediation became more apparent in the last decade. It has been proven by various studies that the participation in VOM can have positive effects on victims that have experienced a crime. Shnabel and Nadler (2008) indicated that the victims' participation in VOM results in a restoration of the victims' sense of power, which is oftentimes threatened by the experience of a crime. In addition to that, VOM can provide victims with valuable information regarding the crime and the offender's motives that led to the crime.

The percentage of victims' participation in VOM is moderate at best (40-60 %), as indicated by Umbreit, Coates, and Vos (2004). Nonetheless, relatively few studies have been

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conducted regarding the factors that influence victims' decisions to participate in VOM. A study by Wyrick and Costanzo (1999) has shown that high levels of anxiety, depression, hostility, and alienation can harm victims' willingness to participate in VOM. Furthermore, the nature of the crime and the point of time at which VOM is introduced to victims can influence victims' decisions to participate in VOM. Aside from these factors, Wyrick and Costanzo (1999) found that high levels of curiosity or a desire to know why the offender committed the crime could have an influencing effect on victims' decision to participate in VOM. The latter factor has not yet been studied experimentally and was only indicated as a possible influencing factor. Hence, its causal influence is still unknown which in turn contributes to the innovative value of this research.

The current study aimed to find out to what extent curiosity has an influencing effect on a victim's willingness to participate in VOM after experiencing a physically violent crime. Hence, a manipulation was created that aimed to increase the participants' level of state-curiosity. According to the results, the manipulation (i.e. VR-videos) was not successful in creating different levels of state-curiosity for the two groups. Furthermore, this study was not able to confirm any predicting effect of trait-curiosity on state-curiosity and the willingness to participate in VOM. Moreover, openness to experience did not positively predict state-curiosity, nor the participants' willingness to participate in VOM. In addition to that, none of the expected mediational effects were found. Thus, state-curiosity cannot be regarded as mediating the effect between the IV's and the DV's. All of these findings stand in contrast with the majority of the hypotheses. Nonetheless, hypothesis 1 and 4 were supported by the results of this research. In fact, state-curiosity and the manipulation (i.e. VR-videos) both positively predicted the willingness to participate in VOM. Next to these findings, the explorative analysis indicated that agreeableness positively predicted participants' willingness to participate in VOM.

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The findings and their contextual importance will be presented in more detail in the next paragraph.

Findings

This study provided diverse results. Hypothesis 1 and 4 could be confirmed. The remaining hypotheses were all rejected due to insignificant test scores. Moreover, explorative analysis detected an unexpected effect of agreeableness positively predicting the willingness to participate in VOM.

Manipulation.

First of all, the manipulation check showed that the manipulation did not work out successfully. The goal of stimulating the participants' state-curiosity, with a higher stimulation for the experimental group than for the control group, was not accomplished. This could have various reasons, such as the VR-video. The VR-video that was used in this study did not suffice in creating a clear difference in stimulating state-curiosity for the two groups. One major factor that could have created this problem is the way the video for the control-group was filmed. The only difference between the two conditions was the fact that a bus was present in the VR-video. However, while filming the video-material for the control group it was practically not possible to place the camera extremely close to the bus entrance. Possibly this did not give the control group the feeling that they would be blocking the bus entrance. This feeling was essential for creating the difference between the two conditions, as it should make the control group less curious about the incident than the experimental group. In turn, if the feeling of blocking the bus entrance was not successfully created, the control group would not differ as much from the experimental group in terms of state-curiosity.

Despite the fact that the manipulation did not successfully predict the participants state-curiosity, it positively predicted the participants' willingness to participate in VOM. This raises the question of whether another factor was stimulated by the manipulation and

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which factor that could be. Independent samples t-tests have shown that all other variables which were measured after watching the VR-video were not significantly different between the two conditions (e.g. state-anger, shame/embarrassment). Hence, another factor which was not captured by the current instruments must have been responsible in creating a difference in the willingness to participate in VOM between the two groups. One factor that could have created this difference might be the loss of power that emerged after being placed in a crime scene. A study by Foster and Rusbult (1999) has shown that in a victimization episode, victims oftentimes feel inferior regarding their power. Based on that information, Shnabel and Nadler (2008) studied the effects, the loss of power could have on the willingness to participate in interpersonal reconciliation. Their study indicated that victims are more willing to participate in interpersonal reconciliation when they experienced a high loss of their sense of power. Taking this information into account, it seems reasonable to speculate about the role of loss of power in influencing the participants of the current study. However, the way the loss of power would have been stimulated by the manipulation (i.e. the VR-video) is still unknown. Several factors of the video could have had an influence on the loss of power. For instance, in the control condition, a bus was shown in which other people were present. However, there was no bus in the experimental condition and therefore fewer people present. A study by Cox (1989) showed that the presence of a group, especially when experiencing negative emotions, can have empowering effects. Taking this into account, it can be speculated that the presence of more people could have given the control group a greater feeling of empowerment. It could possibly be that the loss of power that was created through the VR-video differed sufficiently between the two conditions. It can be hypothesized that this difference can be held accountable for creating a difference in the groups' willingness to participate in VOM, making the experimental group more willing to participate in VOM than the control group.

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Another factor could have been stimulated by the manipulation, namely fear. The VR-videos most probably created some feeling of fear for the two conditions. Moreover, this feeling could have differed between the two conditions due to the differences in the videos. In the experimental condition, fear could have been stimulated to a greater extent due to the fact that the offender pushed the victim to the ground without any reason. Furthermore, only one other person was present which makes this incident more frightening compared to the video of the control group where more people were present. Especially the fact that the incident happened near a forest where not many people would be available to provide help is dangerous. It can be speculated that the level of fear of the control group could have been less stimulated compared to the experimental group, due to the fact that more people were present and the incident happened in front of a bus entrance.

State-curiosity.

State-curiosity was found to be positively predicting the willingness to participate in VOM. This matches with the findings of Wyrick and Constanzo (1999), that argued that curiosity could be influencing the willingness to participate in VOM. This finding is very crucial as it gives insight into how state-curiosity can have an influence on VOM participation. It shows that a higher level of state-curiosity leads to a higher willingness to participate in VOM. It can thus be used for future interpretations concerning VOM participation rates. However, due to the fact that the manipulation did not stimulate state-curiosity significantly, alternative factors could exist that have had an influence on this variable. Factors that could possibly have had an influence on the participants' state-curiosity might be demographic variables, such as age or gender. Besides that, the sole action of taking part in a study could have had an influence on participants' level of state-curiosity. Participants most probably differed in the times they participated in a study, with more experienced participants and less experienced ones. This could have created the difference in

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state-curiosity scores. In future research, it should be controlled for these variables in order to find out which variables have a possible influence on participants' level of state-curiosity.

This can be achieved by testing the relation between demographic variables and the scores of state-curiosity.

Trait-curiosity.

Trait-curiosity was not found to be positively predicting the willingness to participate in VOM. This stands in contrast with the findings of Wyrick and Constanzo (1999), that argued that curiosity could be influencing the willingness to participate in VOM.

Notwithstanding, it can be speculated about the type of curiosity this study was concerned with because they did not give a concrete definition of the term curiosity. It is thus not clear if they meant trait-curiosity or state-curiosity. However, because an effect was found for state-curiosity it could be the case that their study was focused on state-curiosity only, neglecting the factor trait-curiosity. It could be for this reason that only an effect of state-curiosity on the willingness to participate in VOM was found, and not of trait-curiosity.

Furthermore, trait-curiosity was not positively predicting state-curiosity. Considering their similarity in literal terms, it was expected that trait-curiosity would positively predict state-curiosity. Yet, this was not the case which makes them two distinct variables.

Openness to experience.

Openness to experience was not found to be positively predicting the willingness to participate in VOM. This stands in contrast with the expectation. However, this expectation was merely made based on very indirect reasoning. It was expected that openness to experience positively predicts the willingness to participate in VOM, because openness to experience is closely related to curiosity, as a study by McCrae (1996) showed. Besides that, Wyrick and Constanzo (1999) argued that curiosity is influencing victims' decision to participate in VOM. Combining these relations, it was expected that openness to experience

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would be positively predicting the willingness to participate in VOM. Perhaps, this reasoning was too unfounded and indirect which resulted in no support for this expectation.

In addition to that, openness to experience was not found to be positively predicting state-curiosity. This stands in contrast to a study by McCrae (1996), this expectation was based on. McCrae (1996) indicated that openness to experience is associated with one's level of curiosity. Besides that, the insignificant effect stands in contrast to the construct of openness to experience of the Big Five Inventory. Within this inventory, curiosity is an underlying variable of the construct openness to experience. The data of this study can thus not be regarded as representative for the effect of openness to experience on curiosity. Nonetheless, the current study only checked for the effect of openness to experience on state-curiosity. It has not been tested for its effect on trait-curiosity. Additionally, this study has not tested the reverse effect, where state-curiosity would be predicting openness to experience. No conclusions can thus be drawn about the full interaction between those variables because merely the effect of openness to experience on state-curiosity has been measured. Future researchers should take these factors into account. This can be achieved by testing for the effect of openness to experience on trait-curiosity. Furthermore, testing the effect of trait- and state-curiosity on openness to experience would provide future researchers with a better indication of their relationship.

Other findings.

Explorative analysis revealed some more findings that were not expected by the researcher. Firstly, agreeableness was found to be positively predicting willingness to participate in VOM. The more a participant was agreeable, the more he/she was willing to participate in VOM. This makes perfect sense when looking at the underlying factors, that make up the variable agreeableness. Agreeable individuals are very warm, forgiving and sympathetic. These characteristics, especially forgiving, can interpret the fact that

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agreeableness positively predicted participants' willingness to participate in VOM. A person that is very forgiving would namely tend to give the offender a chance to apologize for the incident and forgive the offender.

Besides that, extraversion differed significantly between the two groups, although it did not have an effect on state-curiosity or the willingness to participate in VOM. The control group had a higher level of extraversion than the experimental group. Notwithstanding, due to insignificant test results it cannot be concluded that this difference had any effect on state-curiosity or the willingness to participate in VOM. This difference can thus be ignored.

Limitations

This study contains a few limitations. Firstly, an important limitation concerns the fact that the participants were no actual crime victims. In this study, students were merely asked to empathize with a victim. Actual victims of a crime often experience characteristics of post-traumatic stress (Bonanno e.a. 2011, geciteerd in: Pemberton, 2012). Empathizing with a victim in an artificial crime scene does not create the same consequences that occur through the experience of an actual crime. Placing the participants in a real-life crime scene or selecting actual victims of violent physical crimes would thus have been more representative in terms of its emotional impact and the overall consequences the crime would have on the participants. However, ethical issues that could arise by placing the participants in a more realistic situation should be kept in mind and consequently strict ethical guidelines should be set.

Another limitation of this study is the fact that participants have only indicated their willingness to participate in VOM and not actually accepted or declined it. However, the willingness to participate in VOM does not necessarily lead to a specific behavior. A study where an actual police officer would offer the possibility to participate in VOM and

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participants would be asked to either accept or decline this offer would perhaps provide different results. Nonetheless, the ethical issues that could arise by placing the participants in a more realistic situation should be kept in mind and consequently strict ethical guidelines should be set.

Lastly, this study characterizes a limitation concerning the VR-video. Due to the fact that the manipulation did not work out successfully, the video that was shown to the participants was seemingly not sufficient enough in creating a difference in the participants' state-curiosity. Possibly, the differences in the video between the two conditions were not clear enough, in order to create a difference in state-curiosity between the two groups. However, the two conditions could also have been stimulated in their level of state-curiosity to the same extent, due to a ceiling-effect for state-curiosity. This could have hindered to create a difference between the two groups. Another type of video would have been better in creating this difference. A possible improvement for future research could entail a video that differs more between the two conditions. For instance, the experimental group could watch a video in which they get strongly attacked by the offender, whereby the control group could watch a video in which they get slightly pushed to the ground.

Future implications

This study might be beneficial to future researchers dealing with the factors that affect victims' willingness to participate in VOM. It showed that victims' willingness to participate in VOM can be predicted by their state-curiosity. Additionally, it showed that a manipulation in which participants were placed in a crime scene can have differing effects for the two groups on their willingness to participate in VOM. Yet, this study did not reveal the underlying factors which contributed to that difference.

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Future researchers should design a follow-up study more extensively. They should control for alternative variables that are stimulated by the manipulation, in order to define the factors that have been affected by the manipulation. Especially the variables loss of power and the feeling of fear should be included. These alternative variables can be tested by a questionnaire that is held after being placed in a crime scene. This questionnaire should target those variables with at least five items per variable. By doing this, a better examination of the factors that were influenced by the manipulation will be provided.

Furthermore, in a follow-up study future researchers should manipulate the two conditions in a different manner. It would be beneficial to create a manipulation that creates a bigger difference in state-curiosity between the two conditions. This could be achieved by placing the two conditions in less alike crime scenes. The control group could experience a VR-video in which the participant slightly gets pushed to the ground. The experimental group could experience a VR-video in which the participant gets strongly and purposefully pushed to the ground. By doing that, the experimental group would be more affected by the crime what, in turn, would make them more curious for the reasons of that crime.

Moreover, it might be that this study did not capture the variable state-curiosity sufficiently. This variable consisted of merely five items, which were all directed at the reasons for the crime. Another important kind of state-curiosity has possibly been left out. In a follow-up study, a broader examination of this variable should thus be included with at least eight to ten items that indicate more than just curiosity directed at the reasons for the crime. Those items should also target state-curiosity towards other topics, as the offender.

By making these changes, it is expected that a greater difference between the two conditions in their level of state-curiosity will be produced. This will give a better indication of how state-curiosity influences victims' willingness to participate in VOM. This, in turn, would provide a better answer to the current research question.

Conclusion

To sum up, the current study revealed that victims' willingness to participate in VOM can be predicted by their level of state-curiosity. This finding is crucial as it gives rise to the question of what factors drive victims to participate in VOM. Furthermore, because less curious victims are merely not so interested in finding out the reasons for the crime, it partly explains why the participation rates in VOM are fairly low. Practitioners in VOM can take this knowledge into account when arguing about factors that lead to certain participation rates in VOM. More specifically, when a crime is committed, and the victim is offered VOM, the decision can be explained by the victim's level of state-curiosity. Consequently, very curious victims would be more willing to participate in VOM than less curious victims. In addition to that, VOM practitioners could use this knowledge for improving the way they introduce VOM to victims. By knowing that less curious victims are less prone to participate in VOM, practitioners could tell victims that even if they are not curious about the reasons for the crime, VOM would still have positive outcomes for them. Moreover, the current study indicated that a manipulation with two different conditions can influence victims' willingness to participate in VOM depending on the condition. Even though the variables which have been stimulated by the manipulation were not made clear through this study, it reveals that being placed in a crime scene using VR-glasses influences victims' willingness to participate in VOM.

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Appendices

Appendix A

Please indicate in how far the following statements apply to you and your current emotional state.

| | Disagree strongly | Disagree a little | Neither agree nor disagree | Agree a little | Agree strongly |
|-------------------------------------------------------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| I feel curious about the reasons for the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am eager to know more about the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I do not want to seek more information regarding the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my curiosity is aroused because of the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel like I want to explore the factors related to the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please indicate in how far the following statements apply to you and your current emotional state.

| | Disagree strongly | Disagree a little | Neither agree nor disagree | Agree a little | Agree strongly |
|-------------------------------------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| I am angry at the person that pushed me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel annoyed of the person that pushed me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I do not feel mad at the person that pushed me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel irritated because of the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel like swearing because of the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel outraged when I think about the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please indicate in how far the following statements apply to you and your current emotional state.

| | Disagree strongly | Disagree a little | Neither agree nor disagree | Agree a little | Agree strongly |
|--------------------------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| I feel like a victim | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel like somebody has attacked me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel like an offender | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel like I have attacked somebody | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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Please answer the following questions regarding your current emotional state.

| | Not at all | A little | Moderately | Quite a bit | Extremely |
|--------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| As the victim in the scenario, what degree of emotional harm has this incident inflicted upon you? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| As the victim in the scenario, to what degree have you suffered physical damage as a result of the incident? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| As the victim in the scenario, to what extent do you find the incident morally wrong? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| As the victim in the scenario, to what extent did the person that pushed you mean to or intended to do that? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please indicate in how far the following statements apply to you and your current emotional state.

| | Disagree strongly | Disagree a little | Neither agree nor disagree | Agree a little | Agree strongly |
|-----------------------------------------------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| I feel embarrassed when I think about the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I do not feel ashamed when I think about the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel like people would laugh at me because I got pushed | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel awkward because I got pushed | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel uncomfortable because of the incident | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Appendix B

Informed Consent.

I hereby declare that I have been informed in an understandable manner about the research 'Ensuring Bus Security'. I agree to participate in this research and I know that I can withdraw this informed consent without the need to give any reason. I am also aware that I may withdraw from the experiment at any time. I accept that my personal data is fully anonymized. Also, my personal data will not be given to third parties without my permission.

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If I want to have further information about the research, now or in the future, I may contact Robin Wilms (r.c.wilms@student.utwente.nl).

Appendix C

Storyline.

After being pushed by the stranger at the bus-stop on the UT campus you fall on the floor and hit your right leg on the concrete. You feel a lot of pain in that leg but you still try to stand up again. After standing for a few seconds you start to feel a little bit dizzy and nauseous. You cannot hold yourself anymore and slowly fall to the ground. Two persons that were passing by with their bikes realize that you fell down and help you. They realize that you are having a lot of pain in your right leg and immediately call an ambulance. After a few minutes, the ambulance arrives and brings you to the closest hospital. In the hospital, the doctor handles your case and ultimately subscribes you pain-killers and stabilizes your right leg because it is slightly broken. Additionally, a policeman comes up to you and asks you a couple questions about the person that pushed you ("What did the offender look like?", "What did exactly happen?"). At the end of the day, the doctor sent you home.

Two weeks later, you get a call from your local police station. They ask you to come to the police station due to the incident that happened a few days ago. As you arrive at the police station the policeman tells you that they found the person that pushed you to the ground. He furthermore tells you that this person has to do 20 work hours of community service. After that, the policeman offers you to make use of Victim-Offender-Mediation. He tells you this:

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"I will give you some information about a practice that is currently used within the criminal justice system. It is called "Victim-Offender-Mediation". Within this practice, all parties that are involved in a crime are given the possibility to interact with each other. This can be done via mail, telephone or actual meetings. These meetings will especially help YOU in a lot of ways: You can tell him what you think about the incident; you can ask him questions concerning the incident and you can confront him with your physical disturbances that arose from that incident. In addition, the offender could apologize for his actions. ... Does this sound appealing to you? ... You always have the opportunity to take part at victim-offender-mediation and you can always stop it as you like. "

The policeman has introduced you now to Victim-Offender-Mediation (VOM).

If you have any other questions about this practice, feel free to ask them to the researcher.