Bachelorthesis
January, 2014

The Influence of Lying on the Use of Self-References: Does Self-Monitoring have an Effect on the Relation between Lying and Self-References?

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Abstract

Lying is not accepted by society and it raises feelings of shame and guilt. Therefore people tend to create a distance between the false story and themselves. As consequence, they reduce the use of first-person singular pronouns. Since people who score high on self-monitoring (high self-monitoring individuals) usually refer to external information or instructions, they should be less motivated to distance themselves from a lie, if they were told by instructions. In this research it was investigated first if lying has any effect on the use of first-person singular pronouns, also called self-references, and second if self-monitoring influences the usage of self-references. It was therefore expected that people scoring high on self-monitoring use more first-person singular pronouns than those who score low on self-monitoring. 88 participants were asked to write one lied and one true text which were based on a given situation followed by a questionnaire about self-monitoring. The analyses include the research about major effects of lying and self-monitoring on the number of used self-references and their interaction with each other. There are no significant results found in this research which leads to the conclusion that neither lying nor self-monitoring influence the use of self-references and that they do not interact. One possible reason for this is that writing a lie without attendance by a researcher might lead people to read their texts again and revise them, e. g. deleting first-person singular pronouns. For further research, it is suggested to change to an interview that is recorded instead of writing texts.

Introduction

Lying is something common and used in our everyday life. Nearly everybody does it. Feldman (2009) reveals that in a normal 10-minute conversation, the average number is three lies. According to Winter (2013), about 71 percent of UK citizens admitted to lie regularly to family, friends and colleagues. In general, the lies used in these situations are small lies, lies in everyday life without many consequences (Bok, 1987/2011). Whereas women most commonly lie about their emotional state ("I´m fine" even if they do not feel fine), men mostly lie about what they have done ("Yes, I've done it" when they did not do their task) (Winter, 2013). Serious lies are often used to cover personal failure or an inappropriate thought or feeling (DePaulo et al., 2003). Even though it seems interesting to know if somebody lies to us, we cannot tell with certainty. One possibility is to pay attention to aspects of language. The pattern of language may reveal what is true and what is not (Chung & Pennebaker, 2007; Newman et al., 2003). The amount of self-references in form of first-person singular pronouns, is one indicator for a lie. The rule of thumb is: The fewer self-references are in a story, the higher the possibility that this is a lie (Chung & Pennebaker, 2007; Newman et al., 2003). However, even if this is universally true, it is also known that some people are better liars than others. This leads to the problem that it is still a difficult matter to detect a lie properly. To make lie detection easier, factors that influence the ability to lie must be found. Personality may be one of these factors

that influence the effect of lying on the use of language. Two aspects that are decisive for being able to lie are that people have to care less about doing something against their own inner states, and that they have to be able to cover up own emotions and attitudes which are then replaced by lies. The personality trait that combines both aspects that are just referred to is called self-monitoring. Self-Monitoring is the ability to behave as pleased by others in social situations (Snyder, 1974). As Snyder (1974) has discovered, people who score high on self-monitoring are good in hiding their own emotions and opinions by acting appropriate to the social situation in which they are. So, the central research question is:

What kind of effect can the trait 'Self-Monitoring' have on people's use of self-references while lying?

Theoretical Framework

Deception and Lying

According to the definition of Bok (1987/2011), a deception is when someone is misled to a conclusion by an intentionally false statement, gesture or disguise; it includes all action and even inactions such as silence. A lie is a false statement that is used to lead people to the wrong conclusion of what is actually meant (Bok, 1987/2011). These statements that characteristically indicate a lie are often expressed verbally or in writings. Further, it is interesting to point out the difference between a lie and a deception because it is important in the content of this study. A lie is part of deception but it is more concrete. That is why the participants in this research get the explicit task to tell a lie and the truth. To make it more clear, one example for deception and one for lying follows. If a person broke somebody's vase in the beginning of this year and somebody asks you 'Did you brake the vase?', the person can answer deceptively or lie (Bok, 1987/2011). The deceptive answer could be 'Not last year'. This is the truth. However, the truth is intended to be misleading. If the person lied, he or she would have said 'No.' (Bok, 1987/2011).

It is necessary to keep in mind what is involved in being deceptive to be able to get into detail and to understand what is discussed in this study. Zuckerman, DePaulo and Rosenthal (1981) define three major processes that are linked to deception. These three processes are firstly emotion, secondly cognitive effort and thirdly attempted behavioral control.

The emotions that come along with deception are fear, guilt, and duping delight. The first emotion 'fear' is a result of the idea of getting caught (Ekman, 1985/1992). It makes people feel more aroused (Vrij, 2008). In contrast to people who tell the truth and who are therefore less aroused, fear makes people have a higher pitch in their voice, speak louder and faster, make more speech errors, use more pauses, and use more indirect speech (Ekman, 1985/1992). The second emotion 'guilt' rises from the

idea to act against the social norm, and against their own norms and moral standards. This results in the fact that people have to destroy their positive self-view of being an honest person (Ekman, 1985/1992; Mazar, Amir & Ariely, 2008). This feeling of guilt causes negative feelings that make them want to distance themselves from the story (Zuckerman et al., 1981). This emotional state occurs in the following cues that can be detected by an observer: lower pitch, softer and slower speech, downward gazing (Ekman, 1985/1992) and using less first- person singular pronouns (Tausczik & Pennebaker, 2010). The third category of emotion that comes along with lying is duping delight. This feeling occurs when the liar has the idea of succeeding with the lie (whether it actually did or not is not of any matter) or just because they are excited about the challenge (Ekman, 1985). Again, the result is arousal which causes a higher pitch, faster and louder speech, and more use of illustrators (Ekman, 1997).

The second process 'cognitive effort' contains the increased cognitive complexity needed by inventing a deceptive story. In contrast to true-tellers, deceptive people have three different aspects where they have to pay attention to. The first aspect is that they have to focus their attention on creating a story that is internally convincing to others. This includes a smaller variety of motion words e.g. 'walk', 'move' and 'go' would be reduced to 'go' (Newman, Pennebaker, Berry & Richards, 2003). Further, they are preoccupied by paying attention to their own behavior and suppress true emotions and gestures. The third aspect is that they have to observe the reaction of their target and use these as feedback for their own story. This increased effort can be detected because it causes a couple of changes in the way of speaking compared to the way true-tellers speak. The frequency and speed of gestures changes, eye blinking decreases, and gaze aversion increases (Ekman, 1997).

Attempted behavioral control is the third process that is involved in deception. Normally facial expressions and hand movements tell if someone is deceptive or telling the truth. As mentioned earlier, an average person feels guilty while lying (Ekman, 1985/1992; Mazar, Amir & Ariely, 2008). With this feeling of guilt, a feeling of shame comes along (Keltner & Harker, 1998). Guilt has no specific facial expressions; they are general distressed and negative expression. Shame instead is characterized by gaze aversion and a closed posture (Keltner & Harker, 1998). However, the goal of deceptive people is that they seem honest and sincere by being positive and friendly (DePaulo et al., 2003). For that reason, they have to hide and control their actual emotions (Ekman & Friesen, 1969). By observing the reactions of their targets and adjust their behavior in that way, they behave as normal as possible and get the chance to succeed (Buller & Burgoon, 2008). However, this self-regulation may cause that behavior seem controlled (Vrij, 2008).

As Vrij (2008) said, we need more than one cue to detect a deception. To focus on just one cue is not reliable. In fact, over all research for cues to deception, 158 different impressions and behaviors of deceptions were discovered (DePaulo et al., 2003). Zuckerman (1981) divided these cues in three

different categories: physiological (psychophysiological factors), non-verbal (body language) and verbal (language use). Each factor has a field of research where it is studied in detail.
This research concentrates on the field of study about the use of langue. Pennebaker is one key character on this field. The use of language covers the verbal aspects of lying. Because language is a key variable in this study it is discussed in the following in more detail.

Language in Context of Deception and Lying

Writings are individual, same as spoken language. Language is similar to a "fingerprint" (Pennebaker & Graybeal, 2001) and the word use of each person is stable over time (Gleser, Gottschalk &Watkins, 1959; Schnurr, Rosenberg, Oxman & Tucker, 1986). Pennebaker and King (1999) did research about personality styles in language use. They found an internal consistency in the diary entries of their participants. Each participant had his individual use of language. This individuality ensues from personal differences which include e.g. sex, the status of mental health, deception and honesty, and personality (Pennebaker, Mehl & Niederhoffer, 2003). To name some examples: some gender-specific differences in language are that men use more self-references and women refer more to emotions (Mulac, Bradac & Gibbons, 2001), people with depression also use self-references more frequently (Chung & Pennebaker, 2007) and the first-person singular is an indicator for negative affective state (Weintraub, 1989; Bucci & Freedman, 1981). Language characteristics of deception are fewer self-references, less cognitive complexity (less exclusion and motion words) and less use of negative emotion words (Tausczik & Pennebaker, 2010; Newman et al., 2003; Pennebaker et al., 2003; Chung & Pennebaker, 2007).

As indicated, the difference of deception and honesty can be seen by having a closer look at the use of language. While lying, first-person singular pronouns are used less often than while telling the truth (Pennebaker, 2002; Newman et al., 2003; Chung & Pennebaker, 2008). This is how they create a distance between the story and themselves (Chung & Pennebaker, 2008). Other indicators are the use of more negative emotion words (bad, fear, ignorant etc.), more motion words (car, go, leave etc.) and fewer exclusion words (except, but, without etc.) (Tausczik & Pennebaker, 2010). Newman et al. (2003) mentioned that less cognitive complexity is observable by a decreased number of motion words. So, for the third factor cognitive complexity, it is important to analyze the use of motion words.

When liars are masters of their trades, the appearance of words in the text is balanced. On the one hand, liars need enough descriptive words to make the story believable but on the other hand it is risky to give to much information because liars might derange the story, so that it is not convincing anymore (Newman et al., 2003). However, even if they have some sort of control over their stories, the underlying lie will come up at some point of the story (Newman et al., 2003). By analyzing their spoken or written statements, the lie can be detected. A suitable example to this phenomenon is the

story of a woman who told the police that her children were kidnapped even though she actually killed her children. Because she used the past tense instead of the present tense while she telling her story to the police, they saw through her game (Newman et al., 2003)

The focus of this study lies on the use of first-person singular pronouns in the context of lying. By using first-person singular pronouns, people refer to themselves in their story and connect themselves with the story. The usage of self-references indicates that the person can identify with the story (Knapp, Hart & Dennis, 1974) or that they have a feeling of ownership for the story (Chung & Pennebaker, 2008). As said earlier in the text, guilt and shame come along with a lie because they behave against the social norm and against their positive view on themselves (Mazar et al., 2008). These negative feelings create the wish to reject the story. By avoiding pronouns, the person creates a distance between the event and him- or herself, and segregates from the event (Feldman, Williams & Fong, in press). Creating the distance helps the person to keep up the positive view. It reduces the feeling of guilt and shame. That has as result that when people lie, they use fewer first-person singular pronouns than when they tell the truth (Pennebaker et al., 2003). To conclude, to monitor own emotions and change behavior according to these emotions is an important ability involved in the process of lying successfully.

Self-Monitoring

Self-Monitoring can be regarded as a personality trait (Snyder, 1974) with the disposition of being general, internal and comparative. In general, traits are indicators for what kind of behavior can be expected of the person (McAdams, 2009). The trait self-monitoring is the measurement of the ability to observe and control own behavior to fit in social situations according to social norms (Snyder, 1974).

Further, Snyder (1974) defines the behavior that ensues from this trait as the use of self-observation guided by situational cues to behave in a social appropriate manner. To make it more clear, Snyder also gave a more detailed definition which leads to the goal of self-monitoring. Self-Monitoring includes that a person is able to communicate and present the own genuine emotions (or any emotional state) in a verbal manner. However, it also includes the opposite: hiding emotions that are not appropriate in that current situation and adapting a more suitable emotional state. The last criterion is to be able to get into an emotional state even if one does not experience any or an inappropriate one. All these aspects lead to the goal of being polite and please the partner of interaction.

There are two major sources of information that are relevant for the degree of self-monitoring (Snyder & Gangestad, 1982). It is of interest to look at these two sources in more detail to make it

easier to define high and low scores in self-monitoring specifically. The first source is the public effect. People become sensitive to social and interpersonal cues and respond in an appropriate manner according to these cues. This behavior is called 'situation-to-situation specificity' and leads to the phenomenon that people behave as 'a person that is called for' and not as they would behave based on their own attitudes (Snyder & Gangestad, 1982). People who have internalized this behavior score high on self-monitoring. In fact, they express verbally and non-verbally what they are supposed to express no matter if it is congruent with their own opinion or not. They follow the instructions and please the one who gives the instructions which is their primary goal. That causes that they do not feel guilty which can be useful for lying. Because they do not have those negative emotions coming along with the lie they do not need to create a distance between themselves and the story.

In contrast, the second source consists of internal cues (inner states, attitudes and dispositions) as basis for deciding how to act in social situations (Snyder & Gangestad, 1982). People who behave like this in social situations score low on self-monitoring. Low self-monitoring individuals pay more attention to their inner states. Their behavior is guided by their attitudes and dispositions. Through the social norm, lying belongs to the not appropriate behavior. It is not allowed to lie and often it is associated with a punishment. That causes a bad feeling while lying. So, people who focus on their inner states have difficulties with lying. It is expected that they create a stronger distance between themselves and the story.

Self-Monitoring can be learned and improved by watching other people's behavior in certain situations, adapt this and adjust own behavior according to the given feedback by partners of interactions. This feedback can be of verbal or non-verbal character (Elliott, 1979). To learn self-monitoring, it is important that the people who function as role models are similar to the subject and obviously perform appropriate behavior, especially emotional expressive behavior (Snyder, 1974). People who never learned to present themselves appropriate by others are not able to develop self-monitoring skills. This can be linked to the three different factors that form self-monitoring. These factors are Acting (having talent and pleasure in speaking and entertaining others), Extraversion (personality trait associated with impulsive behavior (McAdams, 2009)) and Other-Directedness (having the desire to suit others by changing own behavior). All of them include the desire for social contact. This form of contact is necessary to increase the degree of self-monitoring.

Focus of this study

As it is shown, lying has some consequences in verbal and non-verbal behavior. As it is also mentioned above, scoring high on self-monitoring covers the ability to behave as it is required by an

institution that has a higher state of authority and in the case that the person is forced to lie by that institution. The questions that rise from this information are if there are factors that make it easier to people to cover up their lie; Would it not be easier for people scoring high on self-monitoring to tell a lie that is more alike to the truth than for people who score low on self-monitoring?

To find out more about the lie, the focus lies on the verbal aspect in written form. As has been shown earlier, language is affected by lying. To get a more detailed look of word-groups and lie-detection, this research focuses on first-person singular pronouns.

The following hypotheses result from information gathered:

1) People use significantly fewer first-person singular pronouns while lying than while telling the truth.
2) People who score low on self-monitoring will use significantly less first-person singular pronouns in their lied text than in their true text. In contrast, people who score high on self-monitoring will not use significantly less first-person singular pronouns in their lied text than in their true text.

Conceptual Model

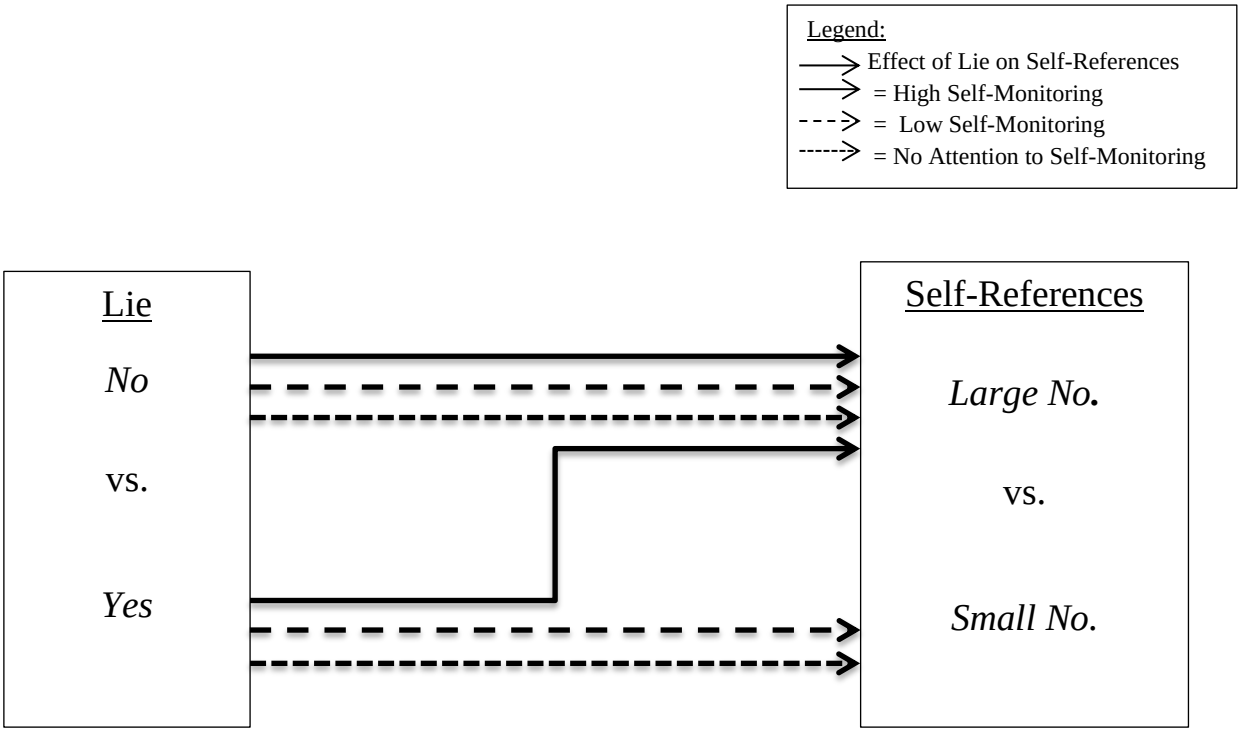

Figure 1. The Effects of Lying on the Use of Self-References

Methods

Participants

This research was conducted in October and November 2014. Participants were 88 people chosen from a pool of students from the University of Twente and of the private social environment of the researchers. The pool of participants consisted of 22 Dutch people, 64 German people, and two people with other nationalities. The entire group was composed of 31 men and 57 women with a mean age of 22.34 (*SD* = 5.14). The participants were recruited by internet and by addressing them personally. Students who took part in the courses Communication Science or Psychology participated for partial course credit. People with dyslexia and eye-problems were excluded from the research. Dyslexia can cause problems in relation to the correct word recognition by the LIWC. People with sight problems may have problems reading the questions correctly and may have difficulties using the computer.

Material

During the experiment the following materials were used: One paper, including the 'Informed Consent' (Appendix A), the main experiment (Appendix B), a questionnaire about Self-Monitoring (Self-Monitoring-Scale (Appendix C)), six additional questions via Thesis Tools (Appendix D), a mirror (Appendix E), a pen, and a blank paper.

The informed consent began with the title of the research as well as all contact information of the researchers. Furthermore, it included the goal of the research, its duration, instructions about what they had to expect and also the information about their privacy protection. Lying and Mirror were both tested during the study. These two factors were counterbalanced. Before analyzing the data, the participants were divided on basis of their score, into high and low Self-Monitoring by using the median of all scores of the group. The questionnaire about Self-Monitoring consisted of 25 questions divided in five questions per page. Different to the original version by Snyder (1974), the questionnaire had to be answered on a five-point Likert-scale ("I totally agree"; "I agree"; "I do not agree or disagree"; "I disagree"; "I totally disagree"). This made the questionnaire more sensitive for tendencies of high and low scores. In the end, the questionnaire implied six more questions respective emotions while telling a lie and feelings about lying in everyday life and in this study and the origin of the genuine story. Question 1-5 also had to be answered on a five-point Likert-Scale whereas the last question is a dichotomous question ("Yes"; "No").

For the research, one to three computers were available per day. The computers were placed in a one-person room that is sparse on stimuli, so that there was no distraction during the experiment.

There was just one session which the participants have to attend. To gather the information, Thesis-Tools was used.

Design

The design was a 2 x 2 x 2 mixed design including one dependent variable, two independent variables and one covariate. The dependent variable was the use of first-person singular pronouns ("I", "me" and "mine") (Newman et al., 2003). The languages which were used during the experiment are English, Dutch and German which accordingly include first- person singular pronouns as following ("Ich", "mir", "mich", "mein(e)" and "Ik", "mij", "mijn"). The two independent variables were Lying (Yes or No) and Self-Monitoring (High and Low). Lying was tested within subjects, whereas Self-Monitoring was tested between subjects. Mirror (Present or Absent) was the covariate. It was the dependent variable of a study of another researcher with whom the data was gathered. In this research, it was not relevant but because it is part of the manipulation and therefore part of the design, it had to be included in the analysis. Further, the experiment included a moderator analysis. There were two variables that may work together. The first variable was a continuous predictor variable and the second the continuous outcome variable. These two variables were moderated by the factor of Self-Monitoring.

Procedure

The participants were randomly assigned to the eight conditions of this research referring to the dependent variable Lying and the covariate Mirror (Self-Monitoring was part of every questionnaire). Before they could start, they were informed about the procedure by the 'Informed Consent' and admitted to participate by signing. To counterbalance the study and also for prevention of a copy-paste situation, two different contexts were created in every condition so that the participants have to put oneself in different situations. In the first situation, the participants should imagine that they repeatedly miss the obligatory workgroup. Because of that happening their course of study is in danger and they cannot take part anymore. The second situation is that they have to tell their friends that they cannot go on holiday with them because of a very important event. In both situations, the participants receive instructions about the frame (Appendix F). After one minute of preparation, they have seven minutes to write the text. When the time is up, the participants have a one-minute break before starting the second trail. This time, the procedure is the same as in the previous run: they have one minute to prepare themselves and, again, seven minutes time for the second text. After finishing the tasks, they are asked to fill in the Self-Monitoring Scale (Self-Monitoring-Scale). To fill in the test, they need about two minutes.

There was no option included that participants can choose if they cannot or do not want to answer one specific question, otherwise the data would not have been of any use. However, they could stop with this research at any point.

Analysis

To be able to focus on the special groups of words which are characterizing for lying, a program developed by Pennebaker, Francis and Booth (2001) called Language Inquiry and Word Count (LIWC) supports this research. LIWC helps to analyze texts by counting words. In this program, the words are organized in dimensions and categories, from general to specific (Pennebaker & King, 1999). Relevant for this research was the category of 'first-person singular pronouns'. LIWC gives the percentage of each word and how often it is used.

First, to make an analysis possible, the 25 answers belonging to the Self-Monitoring-Scale are reduced to one variable. This variable is the mean of all answers for each person. Second, the proportion of self-references in the true text as well as the proportion of self-references in the lied text were determined and subtracted from each other. For the primary analysis, a regression analysis for ordinary least squares (OLS) and logistic regressions by Hayes and Matthes (2009) is used to answer the hypotheses that the moderator Self-Monitoring influences the relation of lying on the usage of first-person singular pronouns. As Hayes and Matthes (2009) described it is important to probe an interaction to discover which factors enhance or limit the effect of an independent on the dependent variable. For the secondary analysis, a MANOVA is used to discover a possible correlation between the participant's attitude towards their daily use of lies, lying in general and in this study, and their difficulties with writing in lie per se and in contrast to the true story, and their lying attitude defined by the use of self-references. These general attitudes were tested by the additional questions 1-5. Additional question 6 discovers whether the true story is based on an experience or is fictional as well as the lied story. To proof the possibility that the origin of a story would make a difference between the lied and the true text in relation to the clarity and being related to the reality, those participants who wrote a fictional story twice, were excluded. With the new dataset, the regression analysis and the MANOVA were repeated.

Results

The mean value of all questions is used for this analysis. The group of participants (N=88) is divided into high Self-Monitoring (N=46) and low Self-Monitoring individuals (N=42) according to the median value (Mdn = 2.92). In the condition of 'Truth', there was a mean of 0.11 (SD=0.026) for low Self-Monitoring individuals and again a mean of 0.11 (SD=0.050). The distribution of the two groups of Self-Monitoring in the Condition Lying is mean of 0.11 (SD=0.035) for low Self-Monitoring

and a mean of 0.12 (*SD*=0.036) for high Self-Monitors. The internal consistency of the Self-Monitoring-Scale is acceptable ($\alpha = 0.69$). That means that the questionnaire can be regarded as reliable.

The analysis was started with a regression by Hayes and Matthes (2009). Because the data was not only collected for this study but also for a study about Self-Awareness, in the analysis the variable of Self-Monitoring was used as the 'Focal Predictor Variable'. The variable Mirror indicating Self-Awareness was entered in as the 'Moderator Variable'. The variable Order was placed as covariate to make sure that there was no bias based on the order of the tasks.

The analysis showed that the variable Self-Monitoring has no significant outcome, B = -0.046, *t* (88) = -1.077, n.s.. This means that Self-Monitoring did not have any effect on the use of self-references. The second variable Mirror did not reach any significance either, B = -0.047, *t* (88) = -0.606, n.s.. So, the mirror did not influence the use of language. Further, the interaction of Self-Monitoring and Mirror was also not significant, B = 0.020, *t* (88) = 0.810, n.s.. Last but not least, the order of the two tasks was not significant and therefore of no influence on the usage of self-references, B = -0.005, *t* (88) = -1.440, n.s..

Because no effect was found in the primary analysis, a secondary analysis was done. First, a MANOVA about the effects of the five additional questions and Self-Monitoring as dependent variable and with the variables Mirror and Order as covariate as well, on the usage of self-references. It is useful to have a look at the classification per question for the low and high Self-Monitoring group to get an idea of how the group is divided per question. The results of the Multivariate ANOVA-Test do not show any significance of the questions in general and Self-Monitoring (F (1,88) = 1.77, $p > 0.05$), Mirror (F (1,88) = 0.912, $p > 0.05$) and Order (F (1,88) = 1.180, $p > 0.05$). That means that there are no effects Self-Monitoring, Mirror and Order on any of the questions.

Further for the secondary analysis, the last additional question is needed. In this question, it is asked whether the true text is based on a true experience or if it is fictional. As it was said earlier, this information is important because it enables to differentiate the resulting number of self-references in the two texts more clearly and realistic. In everyday life, a person who tells the truth bases the story on an experience whereas a lie is a fictive story. So, if the lied text is based on a true experience, it is closer to a real situation.

By excluding the participants (N = 48) who used a fictional story as true text, a new dataset is created and a new median (Mdn = 2.94) is calculated. Based on this median, the low-Self-Monitoring group compromises 20 participants (M = 2.66, SD = 0.195), as well as the high-Self-Monitoring group (M = 3.25, SD = 0.256). With this dataset the regression analysis and the MANOVA were repeated.

Again, using Self-Monitoring as 'Predictor Variable', Mirror as 'Moderator' and Order as covariate, the result is not significant, neither for Self-Monitoring (B = -0.032, *t* (40) =-0.524, n.s.) nor for the Mirror (B = -0.038, *t* (40) = -0.340, n.s.). Transferred into words, Self-Monitoring and a mirror do not influence the use of self-references in any direction. Further, it was interesting to know if any interaction takes place between Self-Monitoring and the Mirror. In this case, again, there is no significance visible (B = -0.009, *t* (40) =0.272, n.s.). The variable Order is not of influence either (B = -0.002, *t* (40) = -0.355, n.s.), so there is no bias because of the order of the tasks.

The last analysis that is done is the Multivariate-ANOVA with the five additional questions. Self-Monitoring was used as dependent variable and the variables Mirror and Order were used as covariates. The analysis has the following results: there is no significant correlation discernible between Self-Monitoring (F (1,40) = 0.829, $p > 0.05$), the Mirror (F (1,40) = 1.492, $p > 0.05$), the Order (F (1,40) = 1.728, $p > 0.05$) and the additional questions. Again, this means that neither Self-Monitoring nor the mirror nor the condition influence the use of first-person singular pronouns.

Discussion

It was predicted that there is a difference of the use of self-references in telling the truth and lying. Furthermore, it was expected that high self-monitoring individuals will not use significantly more first-person singular pronouns while lying than while telling the truth whereas low self-monitoring individuals will use significantly less self-references in their lied texts. In this research the two hypotheses were not supported because there was no major effect of either lying or self-monitoring, and no interaction of these two factors. There are a couple of factors that may be the reason why this research has no significant outcome.

Methodological Aspect

In the current research, the focus lies on the use of language. Language is influenced by two groups containing individual differences and differences in settings. First, individual differences change the vocabulary that is used. It includes demographic variables, e.g. personality (Pennebaker et al., 2003). Second, situational and social settings are of influence containing formal and informal settings, deception and honesty (Pennebaker et al., 2003).

One possibility is to look at the variable personality again because of the trait extraversion and its relation to self-monitoring and its influence on the use of language. As has been said earlier, extraversion is per definition part of the trait self-monitoring (Briggs et al., 1980) and for that reason it is directly linked to self-monitoring. People who score low on self-monitoring can also score low on extraversion (high on introversion). An introvert person behaves less impulsive and shows less emotion (McAdams, 2009). However, emotions play a central role in lying e.g. feeling guilty and ashamed leads to create a distance between the person and the story to avoid this feeling. This absence

of emotions could influence the use of first-person singular pronouns regarding the insignificant difference of the number of self-references between lie and truth. Combining the two behavioral patterns of a person that scores low on self-monitoring and an introvert person and referring to the use of self-references, there is no guarantee that a low self-monitoring individual has problems with telling a lie. As assumed earlier in the text, the behavior of low self-monitors is directed by inner states (emotions, attitudes, etc.) and therefore their lie consists of fewer self-references than their true stories. The introversion reduces this directedness by inner states. The result is that the use of self-references of low self-monitors increases while lying. The other way round, this principle is also valid for people who score high on self-monitoring and extraversion. Impulsive people are guided by emotions. Lying has to be harder for them (decreased number of self-references while lying whereas an increased number is expected for high self-monitoring individuals). Even if it does not necessarily implicate that a person who has a low score on self-monitoring also has a low score on extraversion or the otherway round, it is still possible (Snyder & Gangestad, 1982). In those cases, it manipulates the use of self-references. In this research, there was no attention paid to Extraversion. It is possible that the different levels of extraversion influence the use of self-references inside the group of high or low self-monitoring. So, people who score low on self-monitoring can also have a low score on extraversion (they are introvert), and therefore tell less about themselves. This would lead to the fact that they use fewer first-person singular pronouns.
The factor honesty and deception is already discussed in this paper. However, it is obviously not the only factor. Another one is social interaction. In this research, there were two different social settings used, a personal interaction and a letter. They were counterbalanced to avoid a bias based on the order of the texts. The task to write a letter to a tutor contains a formal context whereas talking to the police officer is informal. According to the feedback given by a participant, this participant changed the use of language by deleting self-references from the text because formal letters (task with the tutor) contain less first-person singular pronouns than informal speeches (task with the police officer). If this happened in situations where the formal letter contained the truth, the number of self-references were reduced and their number was similar to the number of self-references of the lie. This difference in the social interaction leads to a less significant outcome of the difference between the use of first-person singular pronouns while lying and telling the truth.

Secondly, as has been mentioned earlier, there are more cues necessary than just one to detect a lie with certainty (Vrij, 2008). In this research, the focus lies on the aspect self-references of the cue to lie-detection 'language'. As Pennebaker and King (1999) discovered, self-references form only one of four word categories that change significantly in the context of lying. More precisely, they found that these categories are indicators for lying. However, they did not say that each person had a significant difference in the number of words per word group. By excluding the three other word

categories ‘negative emotion words’, ‘exclusive words’ and ‘motion words’, the factor language may not be powerful enough to produce a useful result in this context. Pennebaker and Graybeal (2001) said that language is like a fingerprint and no two individuals use the same vocabulary. Because each use of language is individual, it can be suggested that some people do not define their lying only by using fewer self-references. It is also possible that by analyzing language in context of lying, some people are caught because they use significantly fewer motion or exclusive words, or significantly more negative motion words. However, because it was not part of the research to look for these categories, the total result of the research was that no significant outcome was found.

Third, the time limit was not useful the way it was used in the study. In general, a time limit is useful to give an additional guideline for the length of the text that must be written as in the research by Seih, Chung and Pennebaker (2011). However, according to the feedback of participants and by reading the texts that were written, some participants needed more time and some less. This means that there are two different possibilities which created a bias.
First, those people who were faster than seven minutes had the time to change their texts to make them more appropriate or polite based on the setting that is given. For example, one participant deleted Self-References because it was not appropriate and polite to use in a formal letter as many first-person singular pronouns as the participant did. Other participants who finished before the time was up wrote only two to three sentences. That is not enough to be able to find a difference between the two texts. The second group needed more time than the seven minutes. The texts of these participants ended in the middle of a sentence. Most of the time, the participants did not finish the point of defending themselves. The part where the Self-References would be part of were therefore not finished which has as result that the total number of Self-References may not be used.

Theoretical Aspect

Focusing on self-monitoring, it is of interest to pick up the aspect of being polite. Again according to the feedback of a participant, writing a letter to a tutor to apologize is a formal undertaking according to the social norm. Behaving according to the social norm and not to the inner states is part of having a high score on self-monitoring (Snyder, 1974). So, it is possible that self-monitoring does not simply influence the use of language per se but the priority of the influence depends on what is asked in the instructions. By receiving the instruction to write a formal letter, the actual task of telling a lie or the truth is replaced and the new goal ‘Formal Letter’ has priority. As already mentioned in the paragraph about the problem of the ‘social interaction’, the number of self-references is reduced in those formal letters because it is seen as being polite. This manipulates the difference of the use of self-references those pieces of data where the truth condition contains the formal letter in the way that the difference is not significant anymore and therefore it also influences

the significance of the whole data.

Further Research

Referring to the setting of the experiment, there are some aspects that could be improved for repetitions of this research. By doing a pre- or pilot-test, this insignificant outcome can be avoided because the basic mistakes that are named in the paragraph about the methodological and theoretical can be improved.

Because of that fact that individual differences influence the use of language, there are some facts that have to be kept in mind for a repetition of this research. First, because Extraversion is linked to self-monitoring, it should also be tested by a questionnaire and be used as a covariate for the analysis.

Second, to escape the pitfalls of ignoring individual preferences of word use that create the 'fingerprint', 'negative emotion words', 'motion words' and 'exclusive words' should be taken into account in case of a repetition.

Furthermore, the tasks should be adjusted to the same setting. The instruction of both tasks should include the fact that the interactions with the tutor and the police officer were face-to-face. Important is that it is informal to prevent that the social norm of formulating the speeches with less first-person singular pronouns. The fact that it is face-to face increases the pressure on the participant because of lost distance even though the tasks are only imaginary. To increase the cognitive complexity the text should be spoken and recorded. By eliminating the aid of being able to read what is said earlier, the person has no possibility to recall what they have already told which leads the participants to use smaller sentences to be able to remember their story and control its development. The recording is necessary to be able to count the number of words of the each category directly, or to make a transcription of the spoken text to be able to use LIWC for the analysis. If a task containing speech is not possible, the texts can be written but only in the presence of a researcher who prevents corrections and other changes of the texts by the participant. In addition, a researcher should be sitting in front of the participant and listen to the story. This is more realistic and increases the pressure on the participant regarding the wish to succeed, the feeling of guilt and shame.

Building up the experimental setting this way, it also makes the shift of priority (referring to paying attention to the formal letter instead of lying) less possible. To make this point more clearly, two arguments follow. First, the plots have to be chosen carefully. Writing a formal letter acquires a specific type of language use, and that is why writing a letter should be avoided and the instructions

should force another monologue. Second, having a role play would include this aspect of having the same instructions twice. It also makes the goal of lying more present.

The problems that are results of the negotiation and misinterpretation can also be avoided. In a repetition of this research, the researcher could control the length of the answers by asking additional questions, encouraging and interrupting the participant with regard to receiving enough information and staying in time.

To sum up, there was no significant outcome regarding the influence of lying on the use of self-references or any possible effect that self-monitoring could have on the use of self-references. Also, no significant interaction came up from the results. Therefore, it is useful to change the setting of the experiment. The tasks are still introduced in a written form, but a researcher is part of the setting. The two tasks are similar to a role-play wherein the participant has the role of the student and the person who crosses a red traffic-light. The researcher plays the tutor and the police officer. The texts that the participant speaks are recorded. To control the time, the researcher may ask additional questions or interrupt the participant. The recording of the defense by the participants has another advantage. It is possible to include another cue of lie detection: the voice. So, the more realistic the setting is, the more resemble the results the reality.

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Appendix

Appendix A- Informed Consent

Titel: Criminal Minds – Be convincing

Researchers:

Katharina Maaßen: k.maassen@student.utwente.nl
Katharina Kübel: a.k.s.kubel@student.utwente.nl

Dear participant,

The goal of this research is to collect more information over how convincing people are. If you decide to attend this study, it will take about half an hour to participate. In the beginning, you will be asked to give some demographic information about your person (age and gender). Further, the task is to write two texts according to the given instructions. Those instructions contain the demand to either tell the truth or lie about a subject that you will receive through the instructions. All other necessary information will be also given to you by the instructions. So, read them carefully. It is important that you write the texts in your mother language.
In the end, you are asked to fill in a questionnaire and give some feedback. When you have finished the study, please call for the researcher.
This research is anonymous. That means that the data will not be linked to a name and only be seen by the researchers and Peter de Vries, the head of this research. In addition, your attendance is voluntary and you can stop at any time during the study. If you have any complaints about the research, or in case of discomfort about this research you can contact the Commission of Ethics of the faculty behavioral science of the University of Twente:

Commissie Ethiek Faculteit Gedragswetenschappen Universiteit Twente
Postbus 217
7500 AE Enschede
Tel: 053 – 4894591
E-mail: j.rademaker@utwente.nl

For further information, you can contact us or Peter de Vries (p.w.devries@utwente.nl).

Katharina and Katharina

I am sufficiently informed about the research.

Name of Participant/Signature

……

I am willing to answer further questions about the research as far as it is possible for me.

Name of Researcher/Signature

.....

Appendix B- Main Experiment

Red light:

1. LIE:

Project your thoughts in this situation:

You had some experiences that cause that you hate being late. Today, you have an appointment with a friend of yours. Unfortunately, you leave home late and therefore you have to hurry to be at your friend's place in time. You took the bike to get there. On your way, you drove through a red light. Unfortunately, the police stood around the corner hiding to catch traffic offenders.

Now, tell the police why you drove through a red light. If they do not believe you, you have to pay 100 Euro. So, you have to think of a credible story that could have been the reason for YOUR behavior ([b]lie[/b]). It is obvious that you cannot tell the truth. [b]Lie[/b] about what this story could be in a descriptive and convincing manner. Pay attention to the grammar, spelling and time.

Please, write about 200 words.

2. TRUTH:

Project your thoughts in this situation:

You had some experiences that cause that you hate being late. Today, you have an appointment with a friend of yours. Unfortunately, you leave home late and therefore you have to hurry to be at your friend's place in time. You took the bike to get there. On your way, you drove through a red light. Unfortunately, the police stood around the corner hiding to catch traffic offenders.

Now, tell the police why you drove through a red light. If they do not believe you, you have to pay 100 Euro. So, you have to tell the [b]truth[/b] about what could have been YOUR reason why you hate being late. Remember a situation where you have been late for an appointment. Use this memory! Write the story in a descriptive and convincing manner. Pay attention to the grammar, spelling and time.

Please, write about 200 words.

Late for class:

1. LIE:

Project your thoughts in this situation:

You repeatedly miss the obligatory workgroup of your study. Last time you missed class, the tutor, Mr. Smith, warned that you were not allowed to continue the course anymore, in case you would miss it again.

This morning, you wanted to go to that class. However, last night, you went out and had a really good time. You came home late and forgot to set the alarm. You woke up 15 minutes after the class started, therefore you did not manage to attend this class anymore.

Now, you have to write an email to Mr. Smith. Because the course of your study depends on this class, you have to think of a credible story that could have happened to YOU that morning ([b]lie[/b]). It is obvious that you cannot tell the truth. [b]Lie[/b] about what this story could be in a descriptive and convincing manner. Pay attention to the grammar, spelling and time.

Please, write about 200 words.

2. TRUTH:

Project your thoughts in this situation:

You repeatedly miss the obligatory workgroup of your study. Last time you missed class, the tutor, Mr. Smith, warned that you were not allowed to continue the course anymore, in case you would miss it again.

This morning, you wanted to go to that class. However, last night, you went out and had a really good time. You came home late and forgot to set the alarm. You woke up 15 minutes after the class started, therefore you did not manage to attend this class anymore.

Now, you have to write an email to Mr. Smith. Because the course of your study depends on this class, you have to tell the [b]truth[/b] about what did happen to YOU that morning. Remember a situation where you have been late for class. Use this memory! Write the story in a descriptive and convincing manner. Pay attention to the grammar, spelling and time.

Please, write about 200 words.

Appendix C- Self-Monitoring Scale

1. I find it hard to imitate the behavior of other people.
2. My behavior is usually an expression of my true inner feelings, attitudes, and beliefs.
3. At parties and social gatherings, I do not attempt to do or say things that others will like.
4. I can only argue for ideas which I already believe.
5. I can make impromptu speeches even on topics about which I have almost no information.
6. I guess I put on a show to impress or entertain people.
7. When I am uncertain how to act in a social situation, I look to the behavior of others for cues.
8. I would probably make a good actor.
9. I rarely seek the advice of my friends to choose movies, books, or music.
10. I sometimes appear to others to be experiencing deeper emotions than I actually am.
11. I laugh more when I watch a comedy with others than when alone.
12. In groups of people, I am rarely the center of attention.
13. In different situations and with different people, I often act like very different persons.
14. I am not particularly good at making other people like me.
15. Even if I am not enjoying myself, I often pretend to be having a good time.
16. I'm not always the person I appear to be.
17. I would not change my opinions (or the way I do things) in order to please someone else or win their favor.
18. I have considered being an entertainer.
19. In order to get along and be liked, I tend to be what people expect me to be rather than anything else.

20. I have never been good at games like charades or improvisational acting.
21. I have trouble changing my behavior to suit different people and different situations.
22. At a party, I let others keep the jokes and stories going.
23. I feel a bit awkward in company and do not show up quite as well as I should.
24. I can look anyone in the eye and tell a lie with a straight face (if for a right end)
25. I may deceive people by being friendly when I really dislike them.

Appendix D - Six additional Questions

1) In this study, it took longer to think of the lied story than of the true story.
2) I had difficulties to think of and write down the lied story.
3) I had a bad conscience while writing the lied text.
4) In everyday life, small lies are justifiable.
5) In everyday life, I do not lie often.
6) True text: Did you use a memory of yours for the text where you had to tell the truth?

Appendix E – Mirror

Appendix F - Instructions

1) Instruction:

Thank you for deciding to participate in this study!

First, you will be asked to write **two different texts**. For each text, you have **8 minutes**; 1 minute is scheduled for preparation. If you want to make notes, you may use the paper and the pen lying on the

table. In the following 7 minutes, you have time to write the text. When you have finished the two texts, you will be asked a **questionnaire** containing 25 questions in form of statements. In the end, we will ask you to give some feedback.

For further instructions and to start with the tasks, press '**Next**'.

2) Instruction:

Instructions for the tasks:

You will get instructions for the plot of the text before you may start writing. Read those instructions carefully. They differ from each other.

Even if the instructions are in English, please write those texts in your **first language**. It is important that you project your thoughts in these situations. This is easier to do in your native language.

Also, please pay attention to the countdown on each page to be able to finish in time. If you are ready before the time is up, press 'Next' to continue (you do not have to wait).

Press '**Next**' to start with the first text.