

Variations in Language Use: The Influence of Linguistic and Social Factors

I say to-may-to
and you say...



To-mah-to!



VARIATIONS IN LANGUAGE USE: THE INFLUENCE OF LINGUISTIC AND SOCIAL FACTORS

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**VARIATIONS IN LANGUAGE USE: THE INFLUENCE OF
LINGUISTIC AND SOCIAL FACTORS**

**Variaties in taalgebruik: de invloed van taalkundige en
sociale factoren**

Thesis

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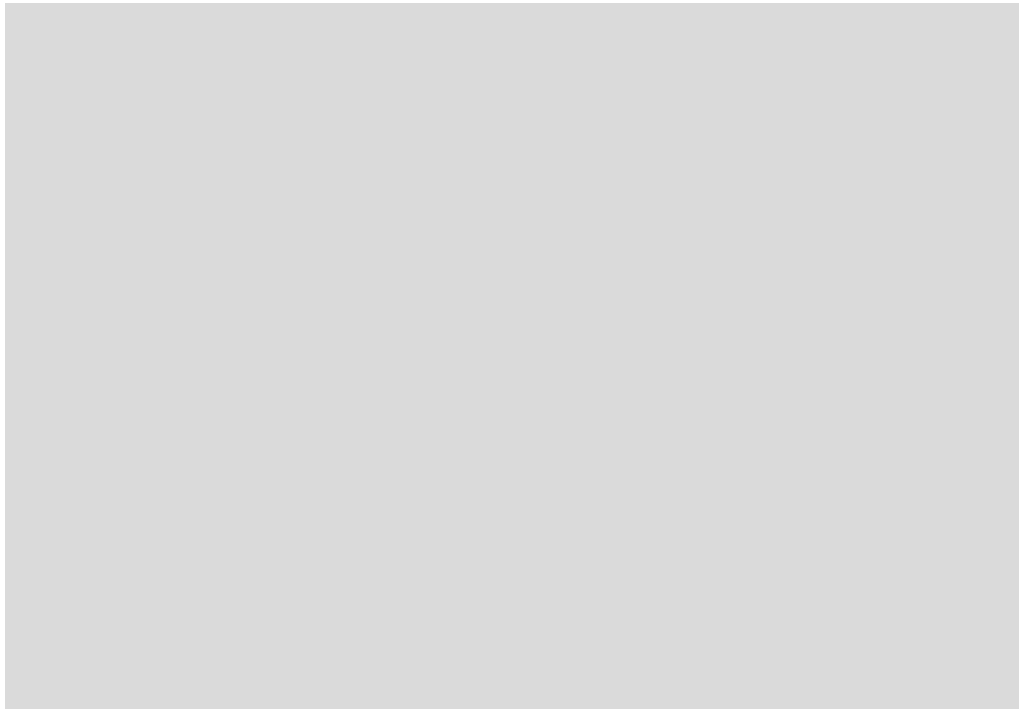
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Chapter 1

General Introduction



GENERAL INTRODUCTION

At the very beginning of the movie *Forrest Gump*, Gump is seen sitting on a park bench. He turns to the woman sitting next to him and utters one of the most famous quotes from the movie: “*My mom always said life was like a box of chocolates. You never know what you’re going to get.*” Literally, his mother meant that when you open a box of chocolates, a variety of flavors are available. Metaphorically, an important message is conveyed: *you never know what life will give you*. This quote perfectly covers the two keywords of this dissertation: quotations and variations. In this thesis, I will investigate the linguistic and social factors that influence the use of different variations of quotations (i.e., direct vs. indirect speech.).

The difference between direct and indirect speech

People frequently quote or refer to previous utterances during communication. Such quotations can be roughly divided into two types. Quotations constructed from the original speaker’s perspective (i.e., the first-person perspective) are known as *direct speech*. By contrast, quotations from the reporting speaker’s perspective (i.e., the third-person perspective) are *indirect speech*. Different reporting perspectives result in the use of different deictic terms and sentence structures. Consider the following examples:

- (1) Jessica said, “*I have dinner at my mom’s every Sunday.*”
- (2) Jessica said that *she had dinner at her mom’s every Sunday.*

Note how the first-person perspective deictic terms “I” and “my” are adjusted to the third-person perspective deictic terms “she” and “her.” In terms of syntactic structures, direct speech is constructed as a main clause, whereas indirect speech uses a subordinate clause. Another significant distinction between these two reporting styles is whether non-verbal information (e.g., voice and gestures) can be conveyed along with the quotation. Direct speech can convey what was said and how the content was said by depicting non-verbal information from the original speakers. Unlike direct speech, indirect speech only delivers the content (Clark, 2016).

Reported speech has long been investigated from a linguistic perspective. These studies have generally focused on describing the grammatical rules for direct and indirect speech and how these rules differ from language to language (Coulmas, 1986; Maier, 2009; Spronck & Nikitina, 2019). It was only recently that researchers have started experimentally investigating the comprehension and production of direct and indirect speech. Specifically, comprehension studies compare whether different reporting styles influence readers’ mental simulation, memory representation, and comprehension difficulties. By contrast, language production studies look at how

the use of direct and indirect speech varies as a function of speakers' communication goals and language abilities.

The comprehension of direct and indirect speech

With regard to reported speech and mental simulation, a series of investigations have demonstrated that direct speech evokes more vivid mental simulations of the depicted scene in readers. For example, the silent reading of direct speech sentences elicits more activation in the voice-selective areas of the auditory cortex compared to indirect speech (Yao et al., 2011, 2012). Direct speech is also related to more perceptual simulations of the reported speech act than is indirect speech (Yao & Scheepers, 2011). Specifically, in one study, participants were presented with a short discourse (4 sentences) depicting a fast or slow-talking protagonist who either spoke in direct or indirect speech. Participants read the discourse out loud, and oral reading rates (i.e., numbers of syllables per second) were measured. It was observed that the protagonist's reporting style (direct or indirect speech) and the context (i.e., fast- or slow-talking) significantly influenced participants' reading speed. The reading time was shortened when the protagonist spoke quickly in direct speech, while the protagonist's talking speed in indirect speech had no influence on the reader's reading time. The effect of the protagonist's talking speed on direct speech reading speed was later repeated and observed in a study in which only one sentence was used as the stimulus (Stites et al., 2013). To sum up, readers generate more detailed mental simulations of a speaker's speech when reading direct speech than when reading indirect speech.

Another series of experiments investigated whether direct and indirect speech are represented differently in memory. In these studies, participants read a short story and then performed a probe-recognition task by indicating whether or not the probe appeared in the story (Eerland et al., 2013). The probe types (communicative or referential information) were manipulated across experiments. Speech types (direct or indirect speech) did not influence participants' response time to either communicative probes (e.g., the situation in which a conversation took place) or referential probes (e.g., a noun that was mentioned in the story). However, participants focused more on the exact words in direct speech than in indirect speech, reflected by a higher accuracy rate in deciding whether the test sentence was exactly the same as the last sentence in the story. In sum, Eerland et al.'s (2013) study showed that even though speech types do not influence the accessibility of communicative or referential information in communication, direct speech indeed increases the mental representation of the exact wording of a sentence more so than indirect speech. In another series of experiments, Eerland and Zwaan (2018) tested whether speech type influenced the reader's memory of the identity of the speakers. They

found that indirect speech enhances the source memory of the gender as well as the identity of the speaker. Taken all together, these two studies suggest that direct speech increases people's memory of the wording of a sentence, whereas indirect speech enhances the memory of who uttered the sentence.

A final group of studies examined direct and indirect speech comprehension difficulties. The first study was carried out with individuals with and without aphasia. Both healthy individuals and individuals with aphasia scored higher in comprehension tests when the stories contained direct speech rather than indirect speech. The same pattern was observed for both Dutch and English stimuli (Groenewold et al., 2013, 2014). By contrast, Köder and colleagues (2015) found that children and adult participants spend more time and make more mistakes when interpreting pronouns in direct speech than in indirect speech. Even though people's comprehension performance for direct speech is better than for indirect speech, pronoun resolution in direct speech is more difficult than in indirect speech.

In summary, studies concerning direct and indirect speech comprehension processes have shown that, despite being meaning equivalents, these two reporting modes lead to differences in mental simulations, memory representations, and processing difficulties.

The production of direct and indirect speech

A relatively small number of studies have examined the production and use of reported speech. For example, quantitative descriptions show that direct speech occurs more often around the climax of a story, whereas indirect speech is used to deliver background information about the story (Holt, 1996, 2000; Tannen, 2007). This is because direct speech is associated with more vivid non-verbal information. Using direct speech to make a story more vivid and intriguing has also been observed in other experimental contexts. It has been found that speakers' communication intentions modulate the use of these two reporting modes. Speakers use direct speech more often when trying to convey a story in the most amusing manner possible than when they try to tell it accurately (Wade & Clark, 1993). In addition, people with aphasia have been observed to use direct speech more frequently compared to their healthy counterparts. It was speculated that people with limited language competencies prefer direct speech because they can use non-verbal information to deal with word-finding and grammar difficulties (Groenewold et al., 2013). To summarize, reported speech production studies suggest that the use of direct and indirect speech is sensitive to speakers' communication intentions and language abilities.

Limitations and research motivations

To date, a great deal is known about direct and indirect speech. For example, despite being almost meaning-equivalent to each other, direct and indirect speech differ significantly in surface structures (Coulmas, 1986). Moreover, people comprehend, perceive, represent, and use direct and indirect speech differently (Eerland et al., 2013; Eerland & Zwaan, 2018; Groenewold et al., 2013; Köder et al., 2015; Stites et al., 2013; Yao et al., 2011). Several clear limitations, however, are present in the current literature. First, compared to studies on reported speech comprehension, only very few studies have been conducted to investigate the production of direct and indirect speech. Researchers have voiced the importance of conducting more language production studies because language comprehension studies significantly outnumber language production studies in the psycholinguistics literature (Pickering & Ferreira, 2008). Moreover, given the prevalence of reported speech in everyday communication (Clark, 2016), more studies should be conducted to investigate the production processes and use of direct speech. Second, studies on language production thus far have only slightly touched upon the question of what factors influence the use of direct and indirect speech. These studies identified external conditions (e.g., communication goals or a speaker's language competence) in which people are more prone to use direct or indirect speech. However, on closer inspection, the choice between direct and indirect speech seems more complicated than one might assume. First, there might be factors internal to an utterance that influence whether it will be reported directly or indirectly. Specifically, one might wonder why people choose direct speech over indirect speech, or vice versa, for a given utterance. What properties of an utterance lead people to use direct or indirect speech? Second, social contexts, such as the relationship between interlocutors, are also widely investigated influential factors in language production research. However, no previous study has examined how social contexts influence direct and indirect speech production.

This dissertation has the following empirical motivations. First, this dissertation aims to experimentally investigate what utterance level factors influence the use of direct and indirect speech. Even though prior studies have suggested that people are more likely to use direct speech around the peak of a story (Tannen, 2007) or when prompted to tell more engaging stories (Wade & Clark, 1993), no study has ever explored the question of why a speaker uses direct or indirect speech for a specific utterance. Answering this question will: (1) advance our understanding of direct and indirect speech production processes, and (2) connect the production of direct and indirect speech to current language production theories. According to Levelt (1993), language production consists of macro-planning and micro-planning stages. In macro-planning, the conceptualizer selects the information that can be expected

to achieve the current communicative intention and determines which modalities (verbal or non-verbal channels) to use to express that information (de Ruiter, 2000; Levelt, 1993). Micro-planning is responsible for selecting the appropriate words and putting them into an appropriate syntactic structure. Since direct and indirect speech differ significantly in their surface forms, one would expect that the decision regarding which reporting style to use happens during micro-planning. However, we argue that if speakers would like to depict the non-verbal aspects of previous utterances by others, they will choose direct speech over indirect speech. If this is true, then the choice between direct and indirect speech might already happen during macro-planning. Therefore, in **Chapter 2**, we test whether there are utterance-level reasons that influence the use of direct vs. indirect speech. Specifically, we examine whether non-verbal information accompanying the original utterances has an impact on reporting type.

Second, this dissertation is inspired by several findings that individuals with limited language competence (e.g., children and people with aphasia) prefer direct speech compared to indirect speech. Researchers have speculated that there might be two reasons for such a preference for direct speech over indirect speech: (1) the similarity in surface form between direct speech and the original utterance makes it easier for speakers to produce direct speech; (2) speakers can benefit from the use of non-verbal information in direct speech production. However, neither of these two reasons has been directly tested before. In **Chapter 3**, we aim to empirically validate one of these two explanations.

The third motivation of this dissertation is that we would like to determine the extent to which language use is influenced by contextual factors. The fact that language production is significantly influenced by context has been repeatedly demonstrated in prior studies (Trope & Liberman, 2010; van Dijk, 2009). It is still unknown whether the use of direct and indirect speech is also subject to influence by social contextual factors. Theoretically, investigating this question contributes to the development of language production theories. Complete language theories should be able to explain language use and production in different contexts. As a practical matter, speakers' adaptation to different contexts results in the use of language that is also easier for their listeners to process. For example, research concerning psychological distance and language usage suggests that speakers prefer to use more abstract language when communicating with a psychologically distant listener compared to a psychologically proximal listener. By contrast, listeners process abstract language faster when communicating with psychologically distant speakers rather than proximal speakers (Amit et al., 2009).

An overview of the dissertation

In this dissertation, I mainly focused on linguistic and social factors that influence language production and use. **Chapter 2** is an empirical study in which we examined the effect of linguistic factors (i.e., the utterance type and the vividness of non-verbal information) on the decision regarding which reporting style (i.e., direct reported speech vs. indirect reported speech) is used in a narrative task. In **Chapter 3**, we examined the effect of memory representation and deictic shifts on direct and indirect speech production difficulties. In **Chapter 4**, we investigated the use of direct and indirect speech as a function of the psychological distance between speaker and listener. Taking **Chapter 2** and **Chapter 4** together, we examined whether the choice between the two reporting styles is influenced by either linguistics or social factors. **Chapter 4** provided the motivation for **Chapter 5**, in which we tested the relationship between contextual factors and the use of reported speech. **Chapter 5** continued to look at the question of whether contextual factors have impacts on other aspects of language use. Specifically, we conducted a literature review to investigate how the characteristics of listeners impact speakers' language, a phenomenon known as *audience design*. **Chapter 6** summarizes and discussed the main findings from all empirical and literature review studies in this dissertation. I discussed the importance of considering the listener's properties in language use in psycholinguistic studies. Furthermore, I discussed the limitations of series of studies in this dissertation and possible directions for future studies. Below, a more detailed presentation of the contents of each chapter of this dissertation is discussed.

Chapter 2: The influence of utterance-related factors on the use of direct and indirect speech

In daily communication, people often need to refer to what has been said by themselves or others. Based on the speakers' perspectives, either direct speech (the first-person perspective) or indirect speech (the third-person perspective) will be produced. Even though reported speech occurs in communication relatively frequently (Bavelas et al., 2014; Clark, 2016), fundamental questions, such as the factors that impact the choice between direct and indirect speech, remain underexplored. The research question of interest in **Chapter 2** was: are there utterance-related factors that influence the use of direct and indirect speech?

Direct and indirect speech differ in terms of their syntactic structures and ability to convey non-verbal information. Unlike indirect speech, direct speech can deliver the non-verbal information that accompanied the original utterance. We hypothesized that if speakers wish to convey the original speaker's non-verbal messages (e.g., facial expressions, voice, and gestures), they would be more likely to use direct speech than indirect speech. Another utterance-related factor is the original utter-

ance's structure. As described earlier, the content to be quoted can be put directly after the reporting word (e.g., "said") without grammatical restrictions. By contrast, indirect speech adopts a subordinate clause structure and requires all the obligatory components for a full sentence. Consequently, direct speech has a rather loose sentence structure compared to its indirect counterpart. We hypothesize that if the utterance to be reported is grammatically awkward in indirect speech, people would be more likely to use direct speech.

To test these two hypotheses, we asked participants to watch short movie clips and then describe what happened in the clips. Four dialogue-heavy movie clips were selected as stimuli to induce direct and indirect speech. We first recruited participants to rate the utterances from the movies in terms of the vividness of voices, the vividness of facial expressions, and the utterance type. Then another group of participants was invited to finish the narrative task. They were first asked to watch a movie clip and then retell what happened in the clips. In total, each participant watched four movie clips and produced four narrations. All the retellings were recorded and transcribed verbatim for later analysis. We compared the dialogues in the movie clips and retellings from the participants. If an utterance from the movie was reported directly, we assigned a value of "one" to that utterance. If an utterance from the movie was reported using indirect speech, a value of "zero" was assigned instead. Data were analyzed with a mixed-effects logistic regression model, with the vividness of voice, the vividness of facial expressions, and utterance type as predictors and reporting style (i.e., direct or indirect speech) as the independent variable. We expected that utterances with more vivid voices or facial expressions would be more likely to be reported in direct speech than in indirect speech. In addition, we predicted that utterances that belonged to the Main Clause Phenomena would be reported in direct speech more frequently than in indirect speech.

Chapter 3: Deictic shift in the production of direct and indirect speech

As mentioned previously, individuals with limited language competence (i.e., people with aphasia and children) use direct speech more frequently than normal adults (Goodell & Sachs, 1992; Groenewold et al., 2014). This has led researchers to suggest that direct speech may be an easier way of communicating than indirect speech. One explanation proposed in a prior study suggests that direct speech is easier because direct speech shares the same surface structures as the to-be-reported utterances. **Chapter 3** describes our empirical test of this hypothesis. We designed two experiments to test the effect of memory representation and deictic shift on direct and indirect speech production difficulties.

In Experiment 1, we investigated the production of direct and indirect speech when participants had verbatim memory of to-be-reported utterances. We first presented participants with a short story consisting of four sentences. The last two sentences were a dialogue between two characters. Participants were asked to read the short story and memorize the last sentence. After they indicated that they had understood the story and memorized the sentence, they were prompted to recall the last sentence and instructed to do so specifically in either direct or indirect speech. We expected speech latencies for direct speech to be shorter than those for indirect speech when participants had verbatim memory of the last sentence and when indirect speech production required a transformation of deictic terms.

In Experiment 2, we continued to investigate direct and indirect speech production in a situation where participants had no access to verbatim memory of the to-be-reported utterances. To reduce the strength of the verbatim trace, an intervening task was added to the paradigm. For half of the participants, we interfered with story-reading and the language-production task using an intervening task that aimed at reducing the participants' verbatim trace of the last sentence. The other half of the participants were not assigned the intervention task. Instead, they read the stories and then immediately completed the language production task. We predicted that when verbatim memory was disturbed by the intervening task, direct speech production would be slower than indirect speech production. When there was no intervening task, we predicted that direct speech production would be faster than indirect speech, as expected in Experiment 1.

Chapter 4: The use of direct and indirect speech across psychological distance

In Chapter 2, we investigated how linguistic factors affect the use of direct and indirect speech. We predicted that the use of these two reporting styles would be affected by the unique linguistic features of to-be-reported utterances. Prior studies have shown that language production is not only constrained by linguistic factors but also by social factors (e.g., the traits of the speakers and their listeners and the relationship between them) (van Dijk, 2007). Chapter 4 describes our investigation of the influence of social factors on language use. We examined the relationship between one of the most investigated social factors — namely, psychological distance — and the use of direct and indirect speech.

Psychological distance refers to a cognitive separation between the self and other persons, events, or times (Liberman & Trope, 2014; Trope & Liberman, 2010). It is comprised of social distance, temporal distance, spatial distance, and hypotheticality. Several prior studies have observed the influence of psychological distance on language use. When people communicate with others who are psychologically

distant, they are more likely to use communication modes that are more analogical, more concrete, and involve rich non-verbal information (Amit et al., 2013; Sneffjella & Kuperman, 2015). As described above, direct speech is an analogy of the previous scene and is associated with more non-verbal information compared to indirect speech (Clark, 2016). Based on the theory of psychological distance and the characteristics of direct and indirect speech, we predicted that psychological proximity would make people more likely to use direct speech, whereas psychological distance would make people prefer to use indirect speech.

We conducted three experiments to test the effect of different dimensions of psychological distance on people's preference for direct vs. indirect speech. Participants were first instructed to watch a short movie and then asked to retell what happened in the movie to others who were either socially (Experiment 1), temporally (Experiment 2), or spatially (Experiment 3) close or distant. We predicted that participants' preference for direct vs. indirect speech would be affected by the psychological distance between them and their listeners. Communication with socially, temporally, and spatially close people should involve a higher frequency of direct speech compared to communication with socially, temporarily, and spatially distant others.

Chapter 5: Audience design in offline and online communication

To gain a deeper understanding of the relationship between contexts and language use, in **Chapter 5**, a literature review was carried out to examine the influence of contextual factors on communication behaviors. Specifically, we looked at how speakers adjust their language use based on their listeners' knowledge state.

We first categorized those studies into two types based on whether offline or online communication was studied. Studies on offline communication were further classified into five subtopics based on the main research question each study tried to answer: audience design and common ground; the time course of audience design; audience design and memory; audience design in healthy older individuals or individuals with cognitive impairments; audience design in multiparty conversations. Studies on online audience design were not categorized in this fashion, because there was only a very limited amount of research investigating this topic.

The object of **Chapter 5**, together with **Chapter 2** and **Chapter 4**, was to present a more complete overview of the impact of contextual factors (i.e., linguistic factors and social factors) on individuals' communication behaviors. In general, in this dissertation, I will use direct and indirect speech as a cut-in point to explore the flexibility of language use in communication. I aim to understand how both internal (utterance-related reasons) and external (social contexts) factors influence people's choice of different communication strategies.

Chapter 2

The influence of utterance-related factors in the use of direct and indirect speech

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ABSTRACT

People routinely shift between direct and indirect speech in everyday communication. The factors that impact the selection between these two modes of reporting during language production are under-investigated. The present study examined how utterance-related factors (the vividness of non-verbal information and the utterance type) influence the use of direct and indirect reported speech in narratives. Participants were asked to watch and retell four movie clips. All narratives were videotaped and then transcribed verbatim for analyses. The data were analyzed using a mixed effects logistic regression model. The results showed that the utterances that accompanied by vivid voice were more likely to be reported in direct speech. The vividness of facial expressions did not influence the form in which utterances were reported. In addition, we found that utterances that belonged to so-called *Main Clause Phenomena* were more likely to be reported in direct speech than in indirect speech. The current study helps us further understand the factors that influence structure choices during language production.

Keywords: Direct Speech, Indirect Speech, Non-verbal Information, Utterance Type

INTRODUCTION

People often quote their own or others' speech in daily communication, a phenomenon known as reported speech. Reported speech normally consists of two forms of constructions: direct speech and indirect speech, distinguished by the reporter's perspective (Coulmas, 1986). In direct speech (*Paul said: "I am hungry."*), the reporter talks in the original speaker's point of view. In indirect speech (*Paul said that he was hungry.*), on the other hand, the reporter presents utterances from his/her own point of view. Another marked difference between these two forms of reported speech is that direct speech conveys both the content and co-speech non-verbal information of previous utterances (e.g., voice, facial expressions, and gestures) while indirect speech only communicates the content (Li, 1986). Much of the literature has been devoted to describing the grammatical properties (Banfield, 1973) and discourse functions (Holt, 1996; Macaulay, 1987) of direct and indirect speech. However, little is known about the factors that account for their use, especially on the utterance level. The current study takes the first step to empirically address this gap in the context of a narrative.

Direct and indirect speech in narratives

Because direct speech depicts the original speaker's voice, facial expressions, and gestures, it is often used in narratives to make stories more vivid and dramatic (Wierzbicka, 1974). It has been observed that people use direct speech to highlight the climax of stories and to deliver crucial information in narratives (Glock, 1986; Larson, 1977). Empirical evidence further supports these observations. In a study by Wade and Clark (1993), participants first watched videotaped dialogues and then were asked to recount what happened in the videos to listeners. Half of the participants were instructed to give accurate accounts, and the other half were asked to recount as amusingly as possible. Participants who were asked to entertain produced more direct speech than those participants who were asked to be accurate. In order to quantitatively test the assumption that direct speech is more vivid, Groenewold et al. (2014) tested whether direct speech was actually perceived as more lively than indirect speech. Participants listened and rated the liveliness of speech segments with or without direct speech. As predicted, speech fragments that contained direct speech received significantly higher scores for liveliness compared with fragments with indirect speech.

Together, these findings suggest that direct speech is associated with increased vividness or liveliness, explaining why speakers often use it to enrich and dramatize a story. However, on closer examination, the use of direct and indirect speech turns out to be more complicated. People used direct speech more frequently when they

told a story entertainingly compared to when they told it accurately (Wade & Clark, 1993). However, under the instruction of being amusing, participants did not use direct speech throughout the whole narration. Instead, they switched between direct and indirect speech (Wade & Clark, 1993). These results led us to hypothesize that the properties of upcoming utterances may play a role in how the language production system selects between these two forms of reported speech. Therefore, the goal of the current study was to explore whether the characteristics of an utterance can affect how it would be reported. We will discuss two factors that are derived from the existing literature.

The first factor is the vividness of non-verbal features accompanying the original utterance, which are incorporated during the macro-planning stages of language production (Levelt, 1993). In macro-planning, the conceptualizer selects the verbal and/or non-verbal information that is expected to achieve the current communicative intention and determines which modalities of expression should be involved (de Ruiter, 2000; Levelt, 1993). Why would narrators include non-verbal information in narratives? One basic premise about narratives is that narrators must tell a story that is worth listening to (Labov, 1982). When conveying non-verbal information, narrators directly demonstrate to others what the event looks like, sounds like or feels like (Clark & Gerrig, 1990) and can further modify or dramatize the voice or gestures of the character to make the narration more engaging (Clark, 2016). Therefore, conveying non-verbal messages is an effective way to create a reportable (Labov, 1982) or tellable (Sacks, 1992) story. We speculated that if the original utterance is accompanied by vivid non-verbal information, participants are more likely to include that non-verbal information and therefore use direct speech instead of indirect speech.

The second factor is the utterance type. Direct speech is constructed as a main clause, and it has a rather loose grammatical structure (Wilkinson et al., 2010). The to-be-reported content is directly attached to the reporting word (e.g., *say*), without any restrictions (e.g., *Neil said: "Tea? Sure!"*). However, indirect speech is constructed as a subordinate clause and must include all the obligatory constituents of a full sentence (Mayes, 1990). As a result of this constraint, some constructions cannot occur in indirect speech (e.g., **Neil said that tea? Sure.*). These constructions are called *Main Clause Phenomena* (MCP) (Banfield, 1973; Green, 1976): constructions that are grammatical in main clauses, but ungrammatical or much less acceptable in subordinate clauses (Green, 1976). MCP include discourse particles (e.g., "Well", "OK"), rhetorical questions (e.g., "You don't know?"), tag questions (e.g., "See, you don't ask me things like that, do you?"), truncations (e.g., "Tea? Sure."), vocatives (e.g., "John!") and exclamations (e.g., "Gosh!") (Holt, 1996; Mayes, 1990). We hypothesized that if

the to-be-reported utterance can be considered one of the Main Clause Phenomena, the reporter would probably use direct speech instead of indirect speech.

Previous studies have shown that people use indirect speech to deliver background information and use direct speech to highlight the peak in a narrative (Holt, 1996). However, no studies have investigated whether there are utterance-level reasons for using direct and indirect speech in a narrative context. Answering this question is important for at least three reasons. First, the fact that people shift back and forth between direct and indirect speech indicates that there might be utterance-level reasons for using one or the other. However, to the best of our knowledge, no research has investigated this question empirically. Second, the current study investigates factors that influence structure choices during language production. How the language production system makes the decision on utterance structures has been a crucial question in the field of language production (Bock & Warren, 1985; Solomon & Pearlmutter, 2004). Previous studies have shown that the final form of an utterance is constrained by many factors, such as the accessibility of concepts and qualities of the visual environment (Bock et al., 1992; Montag & MacDonald, 2014). Our study aims to further explore whether non-verbal information and the structure of the to-be-reported utterance can influence the choice between direct and indirect speech. Investigating factors that shape the speaker's choice between these two reporting styles helps create a more comprehensive understanding of the processes involved in language production, given that direct and indirect speech are an essential part of everyday communication (Clark, 2016). Third, the decision regarding utterance forms has been considered as a mechanism of grammatical encoding stage in the formulator (Levelt, 1993). As described before, the conceptualizer selects information according to the communicative goal and decides in which modality this information shall be expressed. If we find that non-verbal information plays a role in deciding which reporting method to use, we can provide tentative evidence that at least part of the final form (i.e., the utterance is constructed as direct or indirect speech) is constrained at an earlier stage: the macro-planning stage.

We conducted the current study based on the considerations described above. We provided participants with four movie clips and asked them to recount those clips. They watched one clip at a time and started to recount immediately after watching. We analyzed both the dialogues in the movies and participants' reconstructions. This approach allows us to examine how the properties of to-be-reported utterances influence the form in which they are reported. The in principle accepted stage 1 manuscript was registered at

https://osf.io/8stng/?view_only=597f32fb58ae4000bdbba45c30532f6e. No data collection and analyses were performed prior to the registration.

METHOD

Prior power analysis

We conducted a pilot study with $N = 23$ participants to estimate the power of these three factors: (a) utterance type, (b) voice, and (c) facial expressions. The expected effect sizes and parameter estimates for the predictors were based on the data from a pilot study in which we predicted the type of speech from this set of predictors for 23 students with an average of 48 observations per participants (range: 15-77). Following the methodology described below, participants were asked to complete four narrative tasks, in which they produced an average of 48 reported speech tokens. As predicted, utterances with vivid voice and vivid facial expressions were more likely to be reported in direct speech. Also, utterances that belonged to the class of Main Clause Phenomena were more likely to be reported using direct speech. We ran a power analysis in R using the MLPowSim program by Browne et al. (2009) for a logistic regression model to estimate the number of participants and items. This priori power analysis showed that for the three predictors a power > 0.80 could be achieved with 50 participants with 250 observations per participant, 100 participants with 150 observations per participant, 150 participants with 100 observations per participant, or 250 participants with fewer than 100 observations per participant. It is difficult to control the number of utterances a participant produces due to the nature of the narration production task. In order to ensure we would have enough observations, we set out to collect a maximum of 250 participants. Given the large amount of work on transcribing and coding, sequential analyses were carried out along with the data collection. Sequential analyses allow us to conduct a well-powered study while providing the possibility of collecting fewer participants. The spending function developed was used to calculate the adjusted alpha level (Reboussin et al., 2000). This spending function does not require an equal number of participants between each interim analyses. We decided to perform the first and the second interim analyses after collecting 80 (about one third of the maximum sample size) and 160 (about two-thirds of the maximum sample size) valid participants. The adjusted alpha boundaries for the first and second interim analyses were 0.016 and 0.032, respectively (Reboussin et al., 2000). If the p values of the three predictors were all smaller than 0.016 in the first interim analyses, data collection would be terminated. Otherwise, data for another group of valid 80 participants would be collected. If the p values of the three predictors in the second interim analyses all fell below 0.032, data collection would be terminated. If not, a final valid 90 participants would be collected. All materials can be found online

(https://osf.io/rtxuf/?view_only=296d4326269e4a318cee037f885ea146).

Participants

Utterance rating task. 22 participants (12 females, mean age = 18.59 years, aged 18–21 years) were recruited for the rating task. Participants were reimbursed with 0.75-hour course credit.

Narrative task. The first interim analyses showed that utterance type had a significant influence on the use of direct and indirect speech. The vividness of voice and facial expressions did not have an effect. Therefore, the second interim analysis was performed according to the preregistered plan. The results showed that utterance type and the vividness of voice influenced the choice between direct and indirect speech. We did not observe any effect of the vividness of facial expressions. Therefore, a final 90 valid participants were recruited, which resulted in a total of 250 English native speakers (117 females, 7 others, mean age = 31.71 years, aged 18–50 years) recruited from Prolific, an online participants recruitment platform. They were paid £ 4.38 for their participation. All participants signed an informed consent form prior to participation to give consent for audio and video recording. This study was approved by the Ethics Committee of Psychology at the Erasmus University Rotterdam.

Materials

Four movie clips of approximately three minutes each, taken from “Breakfast at Tiffany’s” (3:01), “A Beautiful Mind” (3:03), “Dead Poets Society” (2:51) and “Diner” (2:50), were used in the experiment. The clip “Breakfast at Tiffany’s” portrayed a conversation between three characters: two young people and a shop assistant at a jewelry store. The clip “A Beautiful Mind” portrayed a conversation between two characters: a woman and her husband who was in a psychiatric hospital. The clip “Dead Poets Society” portrayed a conversation between a teacher and a student who visited the teacher to ask for advice. In the clip “Diner”, a male and a female character argued about the arrangement of records. All movie clips can be easily understood without background information. We selected clips with only two or three characters because too many characters might make it difficult for participants to remember “who said what”, which is important in our study. We chose clips that focus more on talk than on action because of our study’s focus on reported speech.

Procedure

Utterance rating task. Dialogues from the four movie clips were transcribed. Then, the transcripts were segmented into utterances. The separation procedure was performed by two coders following conventional sentence boundaries and intonation contour. Sentence fragments, repetitions, and incomplete sentences were considered as separate utterances. Lexical fillers, such as “well”, “I mean”, “you

know”, and “let us see” were treated as separate utterances if they occurred at the beginning or end of another utterance. If they occurred within an utterance, they were treated as being part of that utterance (Dijkstra et al., 2004; Lyons et al., 1994). After segmentation, these utterances were rated on three dimensions: vividness of voice (continuous), vividness of facial expressions (continuous), and utterance type (categorical).

Ten participants were instructed to rate the vividness of voice. Another ten participants were instructed to rate the vividness of the facial expressions. Each participant finished the task individually in a sound-attenuated room. After seated in front of a computer, they were handed a pencil and a paper rating scale with the to-be rated utterances on it. To facilitate ratings, movie clips were segmented into short pieces that lasted approximately five seconds. For the participants who rated the vividness of voice, they were asked to pay attention to the character’s voice. Specifically, they were instructed to answer the question “How vivid do you find the voice of the character while producing this utterance” and indicate their answers on a five-point scale ranging from “not vivid at all” to “highly vivid.” The rating procedure was the same for the facial expressions with the only difference being that participants were instructed to focus on the character’s facial expressions.

Two trained judges naive to the purpose of the experiment coded the utterances from the movies as “one” if the utterance belonged to the class of Main Clause Phenomena, and with “zero” if it did not. The inter-rater reliability with Kappa coefficient was 0.89, which indicated a relatively high agreement between two coders (Landis & Koch, 1977). Disagreements between the two coders were discussed and resolved before later analyses.

Narrative task. Participants were asked to finish the task in a quiet and non-distracting environment. Overall, participants were asked to finish four narrative tasks. They were first instructed to watch one movie clip carefully so that they could provide a detailed account of what happened in the movie. The movie was shown on a computer screen. After viewing each clip, they immediately began to recount. To induce elaborate narrations, we asked participants to retell the clip as if they were telling the story to someone who is not watching. Upon completion of the retelling of one clip, participants took a rest for two minutes before they started to watch and recount the next movie clip. The order of presentation of the movie clips was counterbalanced across participants. All narrations were videotaped. The whole procedure lasted approximately 40 minutes.

ANALYSIS

Exclusion criteria. Participants whose narrations were not recorded because of a recording device malfunction were excluded from the analysis. Narrations that did not contain direct or indirect speech were also excluded. In total, the data from 38 participants were excluded due to the device malfunction and 180 narrations were excluded because no reported speech was included.

Transcription and coding procedure. All recordings obtained from the narrative task were transcribed verbatim for coding. The coding procedure consisted of two steps. In step one, two trained coders categorize each reported speech from participants' narrations as either direct speech or indirect speech. Three grammatical criteria were used for distinguishing direct versus indirect speech. The first one was the deictic words. The deictic words (e.g., I/she; this/that; here/there) in indirect speech (e.g., He said that he thought it would be very smart.) were paraphrased according to the current speaking situation while the deictic words in direct speech (e.g., He said: "I think it would be very smart.") were the same as in the reported situation. The second one was the verb tense. Like deictic words, the verb tense in indirect speech (e.g., She said that she didn't know.) should be adjusted to the current reporting context while the verb tense in direct speech (e.g., She said: "I don't know.") remained unchanged (Li, 1986). The last one was the absence/presence of the complementizer "that"¹. In indirect speech (e.g., She said that there's no William Parcher.), the reported content was introduced by "that" while there was no complementizer in direct speech (e.g., She said: "There's no William Parcher."). There were 89 utterances that could not be classified by the above-mentioned criteria, the coders listened to the recording for speaker's intonation. If there was any change in the speaker's voice compared to her/his normal voice, this utterance was coded as direct speech. Otherwise, it was treated as indirect speech (Nordqvist, 2001; Wade & Clark, 1993).

In step two, these two judges identified the utterance from the movie dialogue to which the reported speech corresponded. If an utterance from the movie was reported using direct speech, a value of "one" was assigned to that utterance. If this utterance was reported using indirect speech, a value of "zero" was assigned. All utterances were coded by two coders individually. Kappa coefficients were computed to assess the agreement between coders. In step one we achieved a substantial

1 The complementizer "that" can sometimes be omitted in indirect speech. The criterion "absence/presence" of "that" alone is not enough to determine whether an utterance is direct or indirect speech. Therefore, we will take this criterion into account only when the deictic terms and verb tenses are the same in both direct and indirect speech. In most cases, direct speech and indirect speech can be differentiated by deictic terms and verb tenses.

interrater reliability with a Kappa coefficient of 0.81. In step two we achieved an interrater reliability with a Kappa coefficient of 0.87. Coding disagreements were resolved by a discussion between coders before analyses.

Data analysis and results: Mixed effects logistic regression model. The data were analyzed using a mixed effects logistic regression model with the generalized linear mixed model function in R (Bates et al., 2015). The dependent measure was a categorical variable coding whether an utterance was reported in direct speech or indirect speech. Fixed effects included the independent variables: the vividness of voice, the vividness of facial expressions and the utterance type. We also included random intercepts for participants and items. The analyses revealed a significant effect of the vividness of voice ($\beta = 0.51$, 95% CI [0.12; 0.90], $SE = 0.20$, $Z = 2.60$, $p < 0.01$, odds ratio = 1.67, 95% CI [1.13; 2.46]), which means participants were 1.67 times more likely to use direct speech with one point increase (e.g., from 3 to 4) on the vividness scale. The utterance type had a main effect ($\beta = 1.32$, 95% CI [0.80; 1.83], $SE = 0.26$, $Z = 5.02$, $p < 0.001$, odds ratio = 3.73, 95% CI [2.23; 6.24]). Utterances that belonged to the Main Clause Phenomena were 3.73 times more likely to be reported in direct speech. There was no significant effect of the vividness of facial expressions ($\beta = -0.11$, 95% CI [-0.50; 0.29], $SE = 0.20$, $Z = -0.53$, $p > 0.05$, odds ratio = 0.90, 95% CI [0.60; 1.34]). Table 1 summarizes the model.

Table 1.
Effects of the Vividness of Voice, the Vividness Facial Expressions and Utterance Type on the Use of Direct and Indirect speech

	Estimate	SE	Z	p	95% CI	
					Lower bound	Upper bound
Fixed effects						
Intercept	-1.72	0.60	-2.88	0.004	-2.89	-0.55
Voice	0.51	0.20	2.60	0.009	0.12	0.90
Utterance type	1.32	0.26	5.02	<0.001	0.80	1.83
Facial expressions	-0.11	0.20	-0.53	0.597	-0.50	0.29
Random effects	Variance	SD				
Participant	3.61	1.90				
Item	1.75	1.32				

DISCUSSION

The current study aimed to investigate utterance-related factors that influence people’s use of direct and indirect speech in a narrative task. Participants were asked to watch and retell short movie clips. The results showed that utterances accompanied by vivid voice were more likely to be reported in direct speech. The

vividness of facial expressions did not affect the choice between direct and indirect speech. The utterance type had an influence on the use of direct and indirect speech. Utterances that can be considered examples of the Main Clause Phenomena were more frequently reported in direct speech than in indirect speech. Taken together, this experiment showed that both the non-verbal information accompanying the original utterances and the structures of the original utterances have impacts on how likely utterances will be reported directly.

Existing evidence shows that the rates of direct speech in communication are influenced by the aims and contexts of communication. People produce relatively more direct speech for an amusement purpose and in less formal contexts (Koppen et al., 2019; Wade & Clark, 1993). What remains unclear is why people shift between direct and indirect speech on an utterance level.

The present study expands on previous studies in that we found that the choice of direct and indirect speech can be partially explained by utterance level reasons. First, people are more prone to report directly when the original utterances are accompanied by vivid non-verbal information, specifically, by vivid voices. This finding is consistent with the view of the demonstration theory (Clark, 2016). According to Clark (2016), direct speech is an act of demonstration that mainly relies on auditory, visual, and tactile knowledge of physical scenes. Direct speech is associated with a frequent use of demonstrations from both auditory and visual channels, whereas indirect speech is associated with a less frequent use of demonstrations (Blackwell et al., 2015; Stec et al., 2016). Direct speech, unlike indirect speech, is capable of conveying non-verbal information that accompanied previous utterances. This property of direct speech makes it a better candidate when people wish to deliver the non-verbal aspects of the original utterances in narrations than does indirect speech.

As mentioned earlier, even though direct speech makes stories more vivid and involving, people do not use direct speech throughout the whole narration. Actually, only using direct speech in a narration will likely impose an extra cognitive load on listeners (Köder et al., 2015), given that it requires them to constantly change vantage point to comprehend the story. Therefore, direct speech occurs more frequently at the climax of a story (Mayes, 1990). In this study, we found that if the original utterances contain vivid non-verbal information, then participants are more likely to convey the non-verbal information along with the verbal information to enhance the story. However, there is an important caveat when interpreting this result. Our finding can only reveal part of the picture. We found that the utterance with a more vivid voice will be reported more often in direct speech than in indirect speech in a narrative context. This result might not hold for other contexts such as a writing task in which no non-verbal information is involved or a courtroom testimony

setting where the main function of direct speech is evidentiality (Chaemsathong, 2017). The decision between direct and indirect speech is highly flexible and is subject to be influenced by contextual factors. It will be an interesting topic for future studies to investigate factors that account for the use of direct and indirect speech in various other settings.

Contrary to our hypothesis, we did not observe the effect of the vividness of facial expressions on the use direct and indirect speech. We propose two, not mutually exclusive, explanations for this null result. First, it is possible that the effect size of facial expressions is too small to be detected. Given the large sample size in this study, we would expect to detect an influence of the vividness of facial expressions if there is a medium to large effect size. Direct speech is a selective depiction of original utterances (Clark, 2016). This means that not every aspect from the original utterances will be conveyed. Empirical evidence shows that differences exist in the use of non-verbal information from different modalities. For example, Stec et al. (2016) found that character's intonation and facial expressions occurred more frequently than gestures in direct quotations. In addition, speakers used multimodal depictions when quoting others, whereas self-quotations were more often accompanied by depiction of one modality (Stec et al., 2017). These results are in line with Clark's (2016) view that people selectively depict non-verbal information from previous utterances. The second explanation for the null result is that the monologue setting we created might make it difficult to detect the effect of facial expressions. Existing evidence shows that facial portrayals happen more often in dialogue conditions (face-to-face and telephone communication) than in a monologue condition (Bavelas et al., 2014). It is possible that the effect of the vividness of facial expressions will be more significant in a dialogue setting, but this is something that could be examined in future studies.

In accordance with our prediction, utterance type also plays a role in deciding how likely an utterance will be reported in direct speech or indirect speech. An utterance that is an example of the Main Clause Phenomena is more likely to be reported in direct speech. This is due to the fact that direct speech has a relative loose sentence structure. The quoted content can be directly placed after the quoting verbs (i.e., say) without any restrictions. Utterances that belong to the Main Clause Phenomena are grammatically correct in direct speech but are incorrect or less acceptable in indirect speech. Therefore, people are more likely to convey them in the form of direct speech. Our finding falls in line with work from Mayes (1990), who also found that direct speech is used when the structures are grammatically incorrect in indirect speech. Due to the relatively lower grammatical complexity of direct speech, people with language deficits benefit from the use of direct speech.

For example, aphasic people were found to use direct speech more often than normal people (Groenewold et al., 2013).

The decision between direct and indirect speech can be explained by a current language production model. The language production theory proposed by Levelt (1993) proposed that the production of language can be divided into several sub-processes. The conceptualizer and grammar encoder are of relevance with the current study. The conceptualizer orders information to be expressed to achieve communication goals. The syntactic structure of selected information will be later determined in the grammar encoder (Levelt, 1993). Levelt's model is targeted at the production of verbal messages. It therefore does not explain how non-verbal information is produced. Therefore, this model was extended later by researchers to accommodate the production of non-verbal information such as gestures. It is proposed that the conceptualizer not only selects information whose expression will fulfill the communication goal but also decides in which channel or modality information shall be expressed (de Ruiter, 2000). Returning to the production of direct and indirect speech, if the conceptualizer selects to convey non-verbal information, the utterance will more likely be in the form of direct speech, given that indirect speech is not capable of delivering non-verbal information.

Limitations

There are a few limitations to our findings that may limit the generalizability of the results. First of all, as mentioned earlier, the monologue setting used in this experiment might not be powerful enough to detect the effect of the vividness of facial expressions on the use of direct and indirect speech. The rate of demonstrations in a conversation is sensitive to speaking contexts. Demonstration is an act of communication that is designed for others to directly experience the depicted event. Therefore, the absence of an interlocutor has been observed to significantly reduce the frequency of direct speech (Bavelas et al., 2014). If we could increase the rate of direct speech, we might be more likely to detect the effect of facial expressions. Future studies could evaluate the effects of non-verbal information, especially facial expressions, in a dialogue context or a more interactive context.

The second limitation is that we only examined two types of non-verbal information in this study. Except for voice and facial expressions, gestures, gazes, even the lips, and nose movement can be depicted in direct speech (Cooperrider & Núñez, 2012). It will be interesting to examine the effects of non-verbal information from other modalities. Our intuition is that other non-verbal information also contributes to the decision between direct and indirect speech. Future studies could design experiments that are more sensitive to detect the effects of non-verbal information from other modalities.

In summary, the current findings improve our understanding in that we found that the use of reported speech is more complicated than we already knew. Except for the aim of reporting and reporting contexts, utterance-level factors account for the use of direct and indirect speech as well. Both the vividness of non-verbal information that accompanying the original utterances and the structures of the original utterances have an influence on in which form the utterances will be reported.

Chapter 4

The use of direct and indirect speech across psychological distance

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ABSTRACT

The current study investigated how psychological distance affects people's preference for direct and indirect speech in a narrative task. In three experiments, participants were instructed to first watch a video and then retell what happened in the video to an imagined/anticipated listener. We manipulated social distance (Experiment 1), temporal distance (Experiment 2), and spatial distance (Experiment 3) between participants and the listener. We compared the proportions of direct speech in the narrations from psychologically proximal versus distal conditions. Experiments 1 and 2 showed that social and temporal proximity increased the rates of direct speech. Social and temporal distance, conversely, increased the rates of indirect speech. Experiment 3 did not yield a significant difference in the use of direct and indirect speech between spatially proximal and distal conditions. Taken together, our results indicate that different psychological dimensions might have discrepant effects on people's choices between these direct and indirect speech. Possible explanations for the discrepancy among different psychological distance dimensions are discussed.

Keywords: Direct speech, Indirect speech, Psychological distance, Construal level theory

INTRODUCTION

People communicate differently in different situations. Situational factors have been observed to affect both the content and linguistic-paralinguistic-nonverbal features of communication (Giles & Ogay, 2007). As regards content, situational factors play a key role in deciding what message to convey. For example, if someone wants to retell a story, the aim of retelling will influence the content being produced. People who retell a story with the purpose of being entertaining, tend to produce fewer story events but more emotion words compared to those individuals who have been instructed to be accurate (Dudukovic et al., 2004).

The effect of situational factors on communication extends to the paralinguistic and nonverbal aspects of communication, such as speech rate and gesturing. For instance, people who are engaged in a conversation will adjust their speech rate to match that of their interlocutor (Freud et al., 2018; Schultz et al., 2016). Other studies have demonstrated that the visibility and shared knowledge between interlocutors affect the frequencies of gestures and what types of gestures are produced (Alibali et al., 2001; Cochet & Vauclair, 2014; Hilliard & Cook, 2016).

The literature reviewed above provides converging evidence that communication behaviors are flexible and sensitive to the current speaking contexts. However, what remains unclear is whether the speaking situation affects communication in terms of basic communication methods. Specifically, do people's relative preferences for two communication methods – depiction and description – shift along with changes in communication context? Although depiction, together with description and indication, are considered to be basic communicating methods, it has received scant attention from most language theories (Clark, 2016). In the current study, we fill this omission by comparing the frequency of the use of depiction and description as a function of communication context. The goal is to improve our understanding of different communication methods and thereby contributing to incorporating depiction into current language theories.

There is a clear contrast between depiction and description. Imagine you are talking with your friend about how a male character in a television show knocks on his neighbor's door. You can use depiction by imitating the character's behavior as follows: *You lift your hand up and knock on an imagery door three times while saying "knock, knock, knock, Penny", and then you repeat the whole procedures two more times.* Conversely, you can also use description and say, *"His knock consists of three knocks before stating his neighbor's name, and then he repeats this process two additional times."* As we can see from the example, depiction is *showing* other people what an event looks like, sounds like, or feels like, whereas description is *telling* others about an event using the knowledge of a language or a code (Clark, 2016).

Depiction consists of several subtypes including iconic gestures, facial gestures, direct speech, full-scale demonstrations, and make-believe plays (Clark, 2016). In the current research, we examined the effects of situational factors on the use of direct speech (e.g., *Mary said: "I am hungry."*) and indirect speech (e.g., *Mary said that she was hungry.*). Reported speech is of interest to the current study for two reasons. First, direct speech and indirect speech belong to contrasting communication methods. Direct speech is a type of depiction, whereas indirect speech is description (Clark, 2016). Second, direct and indirect speech convey complete messages and can be used interchangeably. Other kinds of depictions, such as iconic gestures, are seldom used independently. The information from the non-verbal channel (e.g., gestures) must be integrated with the verbal channel in order to fully understand a speaker's intention. For example, one can say, "*I caught a fish of this size!*" while indicating the size of the fish with hands. Previous studies therefore have focused more on how depiction helps description to achieve the communicator's intentions (de Ruiter et al., 2012; Kita, 2000). Less is known about how people use different methods in specific circumstances to achieve communicative goals. Investigating this question helps to improve our understanding of different communication methods and to reveal how they vary across communicative functions. Understanding these differences also contributes to confirming the necessity of treating depiction as a communication method and therefore as a topic of research in its own right.

To our knowledge, only two studies thus far have investigated how situational factors affect the use of direct speech and indirect speech. In one seminal study, participants watched movie segments and then retold the stories for different purposes. The results show that people use direct speech more frequently when they were asked to be amusing than when they were told to tell accurate stories (Wade & Clark, 1993). A more recent study further demonstrates that people use more direct speech in a dialogue context than in a monologue context (Bavelas et al., 2014). These two studies support the idea that the use of direct speech is sensitive to the aims of communication (e.g., to be amusing or to be accurate) and is also dependent upon the absence/presence of an interlocutor. Inspired by Bavelas et al.'s (2014) work, we investigate here whether the characteristics of interlocutors/recipients play a role in the choice between direct and indirect speech in a narrative context. Given the pervasive nature of psychological distance, a key dimension on which communication situations differ is the psychological distance that the interlocutors appear to be from each other. More insight into the relationship between psychological distance and reported speech will lead to a more detailed description of the flexibility of communication in terms of the methods that are used.

Prior research suggests that people communicate differently with psychologically proximal others as opposed to psychologically distant others. The first line of

evidence to support this claim comes from media studies. There are findings showing that people prefer a symbolic (e.g., words) over analogical (e.g., pictures) medium when psychological distance increases. For example, in a series of experiments investigating the use of verbal and pictorial messages, participants were asked to send a message either to psychologically distal others or to proximal others. It shows that psychological proximity leads to an increasing preference of verbal messages relative to pictorial messages (Amit et al., 2013).

Psychological distance has also been observed to influence language use by increasing the level of abstractness. In a recent study, researchers manipulated psychological distance by varying audience size. An increase in audience size is associated with a correspondingly larger social and spatial distance. Participants were motivated to write a self-description either for fifty people or for one person. When the size of the audience increased, the level of abstractness of the descriptions increased correspondingly (Joshi & Wakslak, 2014). Similar results have been obtained when researchers directly manipulate spatial distance and social distance (Joshi et al., 2016; Stephan et al., 2010). Bhatia and Walasek (2016) extended this effect to temporal dimension and beyond the laboratory setting. After analyzing two large twitter and newspaper databases, they found that people use more concrete language when they refer to near events than when speaking of distant events.

Just as from verbal communication, non-verbal communication is influenced by psychological distance. One study about iconic gesture use is of particular relevance to the current research. Like direct speech, iconic gestures belong to the category of depiction. Iconic gestures are considered as an embodied form of verbal statement (Hostetter & Alibali, 2008). The use of iconic gesture is affected by temporal distance between interlocutors. In Wessler and Hansen's (2017) study, participants were assigned to the role of a job interviewer. This job would either begin one week later (temporally proximal) or one year later (temporally distal). The participants were subsequently instructed to interact with an applicant. It was found that participants displayed more imitation of the iconic gestures in the temporally close condition than in the temporally distant condition (Wessler & Hansen, 2017). This result is in line with previous observations that people prefer to use more pictorial and embodied forms of communication when they feel temporal close to the interlocutors.

Taken together, these findings inform us that psychological proximity encourages the use of communication modes that are relatively more analogical, concrete and rich in non-verbal information. What is the mechanism underlying this effect? The rationale behind these observations is that people traverse distance by using either low level or high level mental construals (Trope & Liberman, 2010). Construal level theory (CLT) assumes that a high level of construal contains relatively abstract, decontextualized and essential aspects of events or objects. A low level of construal,

instead, captures concrete, contextualized and secondary aspects. High construal level features are more stable and less prone to change across distance. Therefore, distant communication focuses more on conveying the relatively abstract and essential information about a situation, whereas proximal communication provides more context dependent and concrete information.

In the present study, we predicted that psychological distance would result in a contradictory impact regarding the relative use of direct and indirect speech. Psychological proximity should lead people to use direct speech more compared to psychological distance. On the other hand, psychological distance should lead people to use indirect speech more often. There are two reasons for this prediction.

First, using direct speech requires speakers to take a first-person perspective, whereas using indirect speech requires a third-person perspective. According to CLT, the first-person perspective induces less distance than the third-person perspective and thus elicits a lower level of construal on the part of the speaker. Meanwhile, communicating with recipients who are psychologically near will also activate a lower level of construal (Trope & Liberman, 2010). Therefore, we predicted that speakers will use direct speech more often when recipients are psychologically proximal than distal.

The second reason for the prediction is that direct speech is thought to convey more non-verbal information than indirect speech. By depicting the original speaker's non-verbal information, direct speech creates a physical scene analogous to the original scene (Clark, 2016). Indirect speech, on the other hand, provides a description of the original scene in a symbolic way. Previous studies have shown that people prefer an analogical way (e.g., pictures) over a symbolic way (e.g., words) when an interaction partner is psychologically proximal. Drawing on this logic, it is reasonable to assume that people would use direct speech more frequently when communicating with psychologically proximal others. In the current research, we manipulated three dimensions of psychological distance – social distance (Experiment 1), temporal distance (Experiment 2), and spatial distance (Experiment 3) – to examine our hypotheses. We predicted that people would show an increase in the use of direct speech when they communicate with psychologically proximal others compared to psychologically distal others.

EXPERIMENT 1

The goal of Experiment 1 was to investigate the effect of social distance on the use of direct and indirect speech. We predicted that participants who were assigned to

the socially proximal condition would produce a higher rate of direct speech than participants who were assigned to the socially distal condition.

Method

Materials

A 5-minute movie named “One-Minute Time Machine” was used. The movie included a male protagonist and a female protagonist. The male protagonist had a time machine. The story was about how he used the time machine to travel one minute back in time every time he said something wrong while trying to make a good impression on this female protagonist.

Participants

Participants were recruited from Erasmus University Rotterdam in the Netherlands. They were reimbursed with course credit of 0.5 hour. G*Power 3 was used to calculate the sample size. We estimated the sample size based on a one-tailed independent t-test assuming a medium effect size between 0.4 ~ 0.5, $\alpha = 0.05$, and power between 80% ~ 90%. The power analysis showed that a sample size between 102 and 216 was needed to detect the effect. We therefore decided to collect a maximum 220 participants (110 participants per condition). We used a sequential data collection procedure. Sequential analyses provide an efficient way to conduct high-powered studies. By performing interim analyses, researchers can terminate data collection earlier when there is convincing evidence to conclude that an effect is present or absent without increasing the rates of Type 1 error (Lakens, 2014). In the current study, alpha boundaries for interim analyses were calculated using the GroupSeq package with the alpha spending function in R (Lakens, 2014). Given that the alpha spending function does not require the interim analyses to be evenly spaced, we decided to perform analyses at $n = 100$, $n = 160$ and $n = 220$. The adjusted alpha levels for the first, second and third test were 0.023, 0.022 and 0.026, respectively. The smallest effect size of interest for this study is Cohen’s $d = 0.3$. The first interim analysis was planned after collecting 100 valid participants. If the p -value was smaller than 0.023 or the effect size was below 0.30, data collection would be terminated. Otherwise, an additional 60 valid participants were to be collected. If the p -value of the second interim analysis was lower than the alpha level of 0.022 or the effect size was smaller than 0.30, data collection would be terminated. Otherwise, a final 60 valid participants were to be recruited. In Experiment 1, data collection was terminated after the first interim analysis because the p -value was smaller than 0.023. Therefore, the final sample size in Experiment 1 was 100 participants (71 females, average

age = 19.89, range = 18–28). This study was approved by the Ethics Committee of Psychology at the Erasmus University Rotterdam.

Procedure

Data collection was carried out partially in a sound-attenuated room in the Erasmus Behavioral Lab and partially online via Qualtrics. Consent with agreement to video recording were obtained before participants started the experiment. Participants were informed that their task was to watch a movie clip and then retell the story. They needed to pay close attention to what happened in the movie in order to retell it in detail afterwards. After participants declared that they had fully understood the instructions, the experimental movie clip was shown on the computer screen. Following this, participants were presented with instructions specifying how they should retell the story. They were first instructed to imagine a communication scenario where they told a story to an imagined addressee. To manipulate social distance, half of the participants were instructed to imagine retelling the story to a good friend. The other half were instructed to imagine retelling the story to someone they met for the first time (i.e., a stranger). Upon completion of the retelling task, participants answered a manipulation check question. They reported whether they complied with the instructions and telling the story to a good friend or a stranger.

Data preparation and coding

Invalid recordings were discarded prior to data analyses. Recordings were considered invalid if they fell into one of four categories: (1) when participants reported that they had not followed the instructions to retell the story to a friend or a stranger were excluded ($n = 9$), (2) when participants withdrew from the experiment before finishing all tasks ($n = 26$), (3) when recordings were difficult to transcribe due to noise ($n = 1$) or recording device malfunction ($n = 13$), (4) when recordings did not contain any reported speech ($n = 17$). This resulted in the removal of data from 66 participants (45 participants from the socially proximal condition).

All retellings were transcribed verbatim and then segmented into utterances. Utterance was defined as a main clause together with dependent clauses (Bishop & Donlan, 2005). Main clauses linked by coordinating conjunctions such as “and”, “so”, “but” were coded as separate utterances unless the subject of the clause was omitted. Utterances that omitted obligatory elements of a clause structure were treated as a separate utterance (Bishop & Donlan, 2005). Reported speech that contained more than one main clause were treated as several individual utterances if the main clause itself met the criteria for a new utterance (Frizelle, et al., 2018). For example, “She said ‘My 5-year-old niece likes science. This is not science.’” would be treated as two utterances. Incomplete utterances, self-corrections, and repetitions of

a previous utterances, utterances that were not related to the content of the video (e.g., I don't remember what he said exactly) were discarded.

Next, all quotations were categorized as direct or indirect speech based on deictic terms indicating perspective (e.g., pronouns, verbs, space reference, and time reference). Quotations that were from the character's point of view were coded as direct speech, whereas quotations from the observer's point of view were coded as indirect speech. For quotations that could not be classified by the above-mentioned criteria, the coders would listen to the recording for speaker's intonation (Wade & Clark, 1993). If there was any change in the speaker's voice compared to her/his normal voice, the utterance was coded as direct speech. Otherwise, it was treated as indirect speech (Wade & Clark, 1993). Two coders who are not involved in data collection and are blind to the manipulation were recruited to code all recordings. The inter-rater reliability between two coders was 0.82, which indicated very high agreement (Landis & Koch, 1977). Disagreements between two coders were discussed and resolved before data analyses.

RESULTS AND DISCUSSION

The dependent variable was the number of utterances of direct speech as a proportion of the number of utterances of reported speech that a participant produced. Data analyses were performed using a mixed-effects model with the lme4 package in R (Baayen et al., 2008). Social distance was treated as the fixed effect and participants were treated as random effects. The proportion of direct speech in the socially proximal condition ($M = 55.38\%$, $SD = 0.31$) was higher than in the socially distal condition ($M = 35.51\%$, $SD = 0.41$). Models comparison revealed a significant effect of social distance on the use of direct speech ($\chi^2(1) = 7.34$, $p = 0.007$, Cohen's $d = 0.55$). The results showed that social proximity led to an increase in the proportion of direct speech among reported speech utterances. When reporting previous utterances, participants were more likely to use direct speech when they told the story to a friend than to a stranger, which supports our hypothesis.

Table 1.
Descriptive Information (M and SD) of Narrations from the Socially Proximal and Distal Condition

Condition	Number of Utterances	Number of Words	Number of Utterances of Direct Speech	Number of Utterances of Indirect Speech
Proximal	44.42 (28.25)	488.18 (268.86)	10.20 (15.21)	3.40 (3.65)
Distal	34.12 (24.05)	395.50 (250.45)	5.82 (9.60)	3.00(2.71)

EXPERIMENT 2

The results of experiment 1 indicated that people evaluated a recipient’s social distance and constructed their narrations correspondingly. This result supports the prediction of CLT that people in social proximity favor an analogical way (direct speech) rather than a symbolic way (indirect speech) of communication. In Experiment 2 we focused on another dimension of psychological distance, namely temporal distance. We predicted that participants in a temporally proximal condition should produce a higher rate of direct speech than participants in a temporally distal condition.

Method

Materials and participants

The same video “One-Minute Time Machine” as in Experiment 1was used. A power analysis showed that a maximum 220 participants were needed. A sequential analysis was carried out along data collection. The alpha level for each interim analysis was as the same as those in Experiment 1. The first interim analysis showed that there was no significant difference in the use of direct speech between temporally proximal and distal condition ($\chi^2(1) = 2.34, p = 0.13$). The p value was larger than the alpha level of 0.023. The effect size was Cohen’s $d = 0.30$. Therefore, another 60 participants were collected. The second analysis showed a significant difference in the use of direct speech between two conditions ($\chi^2(1) = 4.67, p = 0.031$). The p value was larger than 0.022. Therefore, the final 60 participants were collected. The final sample size consisted of 220 participants (184 females, 2 others, average age = 19.81, range = 17–29).

Procedure

Data collection was performed partially in the Erasmus Behavioral Lab and partially online via Qualtrics. The procedures of Experiment 2 were identical to those of Experiment 1 except for two adjustments. First, a different pair of instructions was shown to participants. In Experiment 2, after viewing the movie, participants were instructed to retell what happened in the video either to a temporally distant

other or a temporally proximal other. Second, the manipulation check question was changed correspondingly. Participants were asked to report when the other participant would watch his /her video. Specific instructions in temporally distal and proximal conditions were as follows:

The temporally distal condition:

This project investigates “Information transfer between individuals”. It consists of two parts. You are now participating in the first part. Please retell what went on in the movie as detailed as possible. In the second part, another participant will watch your video 6 months later. After watching, he/she will retell the story again. Please keep in mind when the other participant will watch your video while you are retelling the story.

The temporally proximal condition:

This project investigates “Information transfer between individuals”. It consists of two parts. You are now participating in the first part. Please retell what went on in the movie as detailed as possible. In the second part, another participant will watch your video tomorrow. After watching, he/she will retell the story again. Please keep in mind when the other participant will watch your video while you are retelling the story.

Data preparation and coding

The same exclusion criteria were applied in Experiment 2 as in Experiment 1. Recordings were excluded from the analyses when: (1) when participants failed to answer the manipulation check question correctly ($n = 9$); (2) when participants withdrew from the experiment before finishing all tasks ($n = 59$); (3) when recordings failed due to device malfunction ($n = 17$); (4) when there was no reported speech in the recordings ($n = 35$). A total of 120 participants was removed from data analyses. The remained recordings were then transcribed and coded following the exact same protocol used in Experiment 1. The same two coders from Experiment 1 coded all recordings independently. The inter-rater reliability between two coders were 0.86, which indicated very high agreement (Landis & Koch, 1977). Disagreements were discussed and resolved before data analyses.

RESULTS AND DISCUSSION

We ran a mixed-effects regression model with temporal distance as a fixed factor and participants as random factors. Participants used more direct speech in the temporally proximal condition ($M = 54.04\%$, $SD = 0.42$) than in the temporally distal condition ($M = 41.88\%$, $SD = 0.37$). Models comparison revealed a significant effect of temporal distance on the rates of direct speech ($\chi^2(1) = 5.10$, $p = 0.024$, Cohen's $d = 0.31$). This result supports our prediction that people in temporal proximity produce

a higher rate of direct speech compared to people in temporal distance, whereas people in the temporal distance condition produced a higher rate of indirect speech compared to those in the temporal proximity condition. It is in line with previous studies of gesturing and the abstractness of language and supports the view that feeling temporally close to a recipient would lead to a preference for the analogical way of communicating.

Table 2.
Descriptive Information (M and SD) of Narrations from the Temporally Proximal and Distal Conditions

Condition	Number of Utterances	Number of Words	Number of Utterances of Direct Speech	Number of Utterances of Indirect Speech
Proximal	39.00 (29.78)	400.53 (263.58)	9.39 (15.00)	2.20 (2.79)
Distal	36.84 (28.34)	380.74 (243.41)	7.44 (12.04)	3.88(6.80)

EXPERIMENT 3

The results of Experiment 1 and Experiment 2 showed that social distance and temporal distance influence the preferences of communicating methods in the same manner. A feeling of social and temporal proximity was associated with a more frequent use of direct speech. The goal of Experiment 3 was to investigate the effect of spatial distance on the use of direct and indirect speech. We predicted that participants who were assigned to the spatially proximal condition would produce a higher rate of direct speech than participants who were assigned to the spatially distal condition.

Method

Material and participants

The same video “One-Minute Time Machine” was used in Experiment 3 to elicit reported speech. Sample size was determined by power analysis as well as a sequential analysis, similar to Experiment 1. In the first interim analysis, we did not find a significant difference in the use of direct speech between the spatially proximal and distal condition. In addition, the effect size was 0.20. This is smaller than the minimum effect size 0.30. Therefore, data collection was terminated after collecting 100 valid participants (69 females, 1 other, average age = 19.96, range = 17–25).

Procedure

Data collection was performed in the Erasmus Behavioral Lab. The procedure of Experiment 3 was similar to those of Experiment 2. After watching the movie, participants read a cover story in which we manipulated spatial distance between them and the anticipated recipients. Upon completion of the storytelling task, participants were asked to recall the location of the other participant who would watch their video. The specific instructions that manipulate spatial distance were as follows:

The spatially proximal condition:

You are participating in a project investigating “Information transfer between individuals”. Two research groups are collaborating on this project. One group is from Rotterdam, the Netherlands, and the other group is from Nebraska, US. Now please retell what went on in the movie as detailed as possible. Another participant who is in Rotterdam will watch your video. After watching, he/she will retell it again. Please keep in mind this participant’s location while you are retelling the story.

The spatially distal condition:

You are participating in a project investigating “Information transfer between individuals”. Two research groups are collaborating on this project. One group is from Rotterdam, the Netherlands, and the other group is from Nebraska, US. Now please retell what went on in the movie as detailed as possible. Another participant who is in Nebraska will watch your video. After watching, he/she will retell it again. Please keep in mind this participant’s location while you are retelling the story.

Data preparation and coding

Data cleaning were performed in the same manner as with Experiment 1 and 2. Recordings were excluded from analyses when: (1) participants did not answer the manipulation check question correctly ($n = 7$); (2) recordings failed due to device malfunction ($n = 1$); (3) recordings did not contain any reported speech ($n = 12$). This resulted in a total 20 of recordings were removed. The remained recordings were transcribed and coded. All recordings were coded by two independent coders. The inter-rater reliability was 0.85, which indicated a very high agreement (Landis & Koch, 1977). Disagreement was discussed and resolved before data analyses.

RESULTS AND DISCUSSION

We ran the mixed-effects regression in R with spatial distance as a fixed factor and participants as the random factors. Participants did not differ in the extent to which they used direct speech in the spatially proximal ($M = 49.39\%$, $SD = 0.36$) and distal

condition ($M = 56.96\%$, $SD = 0.38$). Model comparisons showed spatial distance did not affect the rates of direct speech in two conditions ($\chi^2(1) = 1.04$, $p = 0.31$, Cohen's $d = 0.20$). It is a bit puzzling that no significant difference in the use of direct and indirect speech was detected, given that different dimensions of psychological distance has been argued to be related and to have similar effects on various cognitive processes. We return to this unexpected outcome in the general discussion.

Table 3.
Descriptive Information (M and SD) of Narrations from the Spatially Proximal and Distal Conditions

Condition	Number of Utterances	Number of Words	Number of Utterances of Direct Speech	Number of Utterances of Indirect Speech
Proximal	47.66 (28.45)	510.64 (275.46)	10.6 (13.89)	4.18 (3.86)
Distal	40.64 (29.75)	437.12 (253.04)	10.8 (17.34)	3.68 (7.88)

DISCUSSION

The current study aimed to investigate whether psychological distance has an effect on the use of different communication methods: depiction (i.e., direct speech) and description (i.e., indirect speech) in a narrative context. In three experiments, participants watched a short video and then retold what happened in the video to either psychologically proximal others or psychologically distal others. The results of Experiment 1 (social distance) and Experiment 2 (temporal distance) showed that participants were more likely to use direct speech instead of indirect speech when communicating with psychologically proximal others. Unexpectedly, in Experiment 3 (spatial distance), no significant difference in the use of direct speech between spatially proximal and distal condition was detected. We will discuss the theoretical implications of this work and possible explanations for the non-significant results in Experiment 3.

The current study is based on CLT and Clark's (2016) proposal about methods of communication. CLT argues that the lesser the psychological distance is, the more likely a speaker will communicate in an analogical way. Depiction, as stated by Clark (2016), is a physical analogy of the original scene and characterized by rich simulations (Yao et al., 2011, 2012). Taken together, CLT predicts that psychological proximity should encourage the use of depiction. Consistent with this assumption, we found that participants took recipients' distance into account when constructing a narration. They used depiction (i.e., direct speech) more often when the recipients were psychologically proximal compared to when they were psychologically distant. On the other hand, participants used description (i.e., indirect speech) more frequently when the recipients were psychologically distant than when they were

proximal. These results are also in line with existing work showing that psychological distance attenuates the use of pictures (Torrez et al., 2019) and temporal distance attenuates the imitation of iconic gestures from an interaction partner (Wessler & Hansen, 2017).

This study enhances our understanding of direct and indirect speech. Though these two reporting styles occur frequently in daily communication, limited resources have been devoted to investigating them empirically. Existing evidence shows that direct speech, as opposed to indirect speech, increases the vividness and the comprehensibility of stories (Groenewold et al., 2014; Wade, & Clark, 1993). In two experiments, we observed that people's choice to use direct or indirect speech in a description varied as a function of psychological distance. This indicates that direct speech and indirect speech differ from each other in terms of the communication function they fulfil. Direct speech can be used to reflect the closeness between speakers and recipients, whereas indirect speech is used to reflect the distance.

This study also has implications for the construal level theory due to the non-significant result in Experiment 3. In Experiment 3, we examined the relationship between spatial distance and the use of direct and indirect speech. Unexpectedly, we found that participants did not differ in the extent to which they use direct speech when communicating to a recipient who is either spatially near or far. This result does not support the CLT's prediction that spatial proximity increases the use of low-level construals and the analogical way of communication. Besides that, this result is also in contrast with existing evidence showing that spatial distance reduces the use of pictorial communication (Amit et al., 2013). Presumably, the characteristics of different psychological distance dimensions or the nature of our design can account for this puzzling result.

First, it is possible that the strengths of different psychological dimensions might vary. Spatial distance has no or a weak effect on the use of direct speech and indirect speech. Though it has been argued that different dimensions of distance are interrelated, the possibility that some distance dimensions have greater influence than others has not been ruled out. Which dimension is more fundamental, is still a matter of dispute. Spatial distance, for example, could be the more basic dimension because children acquire the concept of spatial distance earlier as it is highly relevant to them being able to move around safely (Boroditsky & Ramscar, 2002). In support of this assumption, researchers found an asymmetrical relationship between spatial distance and other psychological distances. After receiving a distal prime on the spatial dimension, people perceive greater distance on social, temporal, and hypothetical dimensions, but not the other way around (Zhang & Wang, 2009). Indeed, inconsistent results among different psychological distance dimensions have been observed in the field of moral evaluation. For example, in

one study people were asked to judge moral transgressions of different social and temporal distances. They judged socially distant transgressions more harshly but not temporally distant ones (Žeželj & Jokić, 2014). Taken together, these studies show us a possibility that different psychological distance dimensions might have various effects. However, more research is needed to determine which dimension is more primary and has the strongest effect. In the current study, we did not observe an effect of spatial distance, whereas Žeželj and Jokić (2014) failed to observe an effect of temporal distance. Therefore, whether we can observe an effect could also be depending on both the strength of a psychological distance dimension and the nature of the cognitive activities. Back to our study, the non-significant results in Experiment 3 could be caused by the intrinsic differences that lie in different psychological dimensions. Further research is needed to fully understand how different dimensions interact with each other and whether different dimensions have similar effects on language use.

Second, the non-significant result in Experiment 3 could also be due to the nature of our design. In Experiment 3, we instructed participants to retell the story. They were told that another participant who was either spatially near or spatially far away would watch their video. However, the communication between participants and anticipated recipients was in an online context in the form of digital communication (Norman et al., 2016). Various digital communication tools make it possible for us to communicate with spatially distal people simultaneously. This means that perceived spatial distance might be attenuated in online contexts (Norman et al., 2016). Furthermore, the use of digital communication technologies allows people to experience discrepancy between different psychological dimensions more frequently (Norman et al., 2016). Therefore, among the three dimensions, spatial distance is the most prone to be influenced by communicating media (Sungur et al., 2017). The potential influence of digital communication on psychological distance has caught the attention of researchers. A recent study investigating the relationship between hypotheticality and spatial distance in online message processing revealed inconsistent results between experiments. In Sungur et al.'s (2017) Experiment 3, it is observed that participants in the spatially near condition tended to believe that the event described in the online message was more likely to happen. In their Experiment 4, however, participants' expectation on spatial distance of the online message's source was not influenced by the probability of the event described in the message. The researchers argued that online communication allowed more inconsistencies between psychological distance dimensions. Therefore, the congruency effect might be less strong in online contexts than in offline contexts (Sungur et al., 2017). In our study, participants and anticipated recipients "communicate" through video-recorded messages. Participants may not perceive the distal location as far as

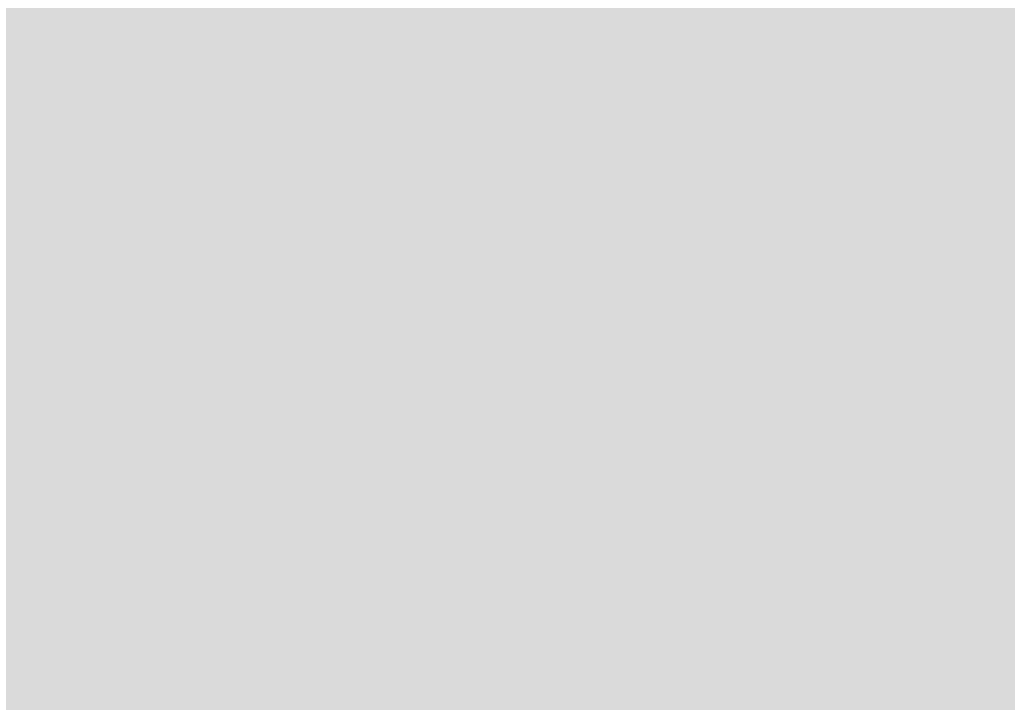
we expected. The perceived distance between two conditions was not great enough to induce a difference in the use of direct and indirect speech.

To sum up, as discussed earlier, inconsistent results from different psychological distance dimensions suggest that the strength of different dimensions may vary, with spatial distance being the weakest dimension. It is also possible that the online communication setting in Experiment 3 reduced perceived spatial distance between speakers and recipients.

This study is not without limitations. First, participants told the story to either an imagined or an anticipated recipient. This is more of a monologue-like setting since the recipient is invisible and there is no interaction between them (Bavelas et al., 2014). Depiction, as argued by Clark (2016), “is to show others what it looks or sounds or feels like.” This definition emphasizes the importance of a visible and interacting recipient. Indeed, it has been shown that people use more direct speech in a dialogue condition than in a monologue condition (Bavelas et al., 2014). Thus, one needs to be cautious when generalizing these results to other settings such as: a face-to-face dialogue condition, a monologue condition, or a written communication condition. Second, we only tested the influence of psychological distance on use of direct and indirect speech. How the use of direct or indirect speech affects the perceived psychological distance was not examined. Actually, existing literature suggests that certain aspects of language such as the level of politeness (Stephan et al., 2010), the voice (passive and active) of a sentence (Chan & Maglio, 2020), and even the type of vowels (Maglio & Feder, 2017) will influence perceived psychological distance. It would be interesting for future studies to test whether reported speech both reflects and regulates psychological distance. Third, in Experiment 3, participants did not differ in the extent to which they use direct speech in a spatially proximal or a spatially distal condition. Possible explanations were discussed. We could not, however, disentangle these two assumptions in the current study. It will be an interesting topic for researcher to further investigate the interaction between psychological distance communication in different settings. To conclude, this study reveals that different psychological distance dimensions may have various effects on people’s preferences of communication methods.

Chapter 6

General Discussion



This dissertation had two main goals. The first goal was to develop a better understanding of direct and indirect speech production and use through empirical research. To achieve this goal, I investigated the utterance level factors that motivated the choice between direct and indirect speech in a narrative task (**Chapter 2**). I also examined the effect of memory representation and deictic shifts on direct and indirect speech production difficulties (**Chapter 3**). The second goal was to explore how people adapt to various communication contexts by flexibly changing their language use. To accomplish this goal, I first investigated how people's preference for direct or indirect speech varied as a function of the psychological distance between speakers and their listeners (**Chapter 4**). I was interested to know more about the effect of contextual factors on communication and language use. Therefore, in **Chapter 5**, I reported the results of a literature review of studies that examined how people adjust communication behaviors in response to different contexts to achieve communication success. In this final chapter, I first summarize and discuss the main findings from the empirical studies and the literature review study. Subsequently, I will discuss the limitations of the studies and suggestions for future research.

THE PRODUCTION OF DIRECT AND INDIRECT SPEECH

In **Chapter 2**, we investigated whether utterance level factors influenced people's preference for direct or indirect speech in a narrative task. Four short movie clips were selected as stimuli to prompt direct and indirect speech production. In the first part of this experiment, the four movie clips were transcribed and segmented into utterances. A group of participants rated the transcribed utterances in terms of the vividness of the voices (a continuous variable), the vividness of facial expressions (a continuous variable), and utterance type (a categorical variable). In the second part, another group of participants watched the short movie clips and produced narratives about the movies they had just watched. The original movie transcripts and participants' narrations were compared and coded according to whether the original utterance was reported in direct or indirect speech. We found that utterances with vivid voices were more likely to be reported in direct speech. In addition, utterances that can be considered to be examples of the Main Clause Phenomenon were more likely to be reported in direct speech. Because direct speech is constructed as a main clause, whereas indirect speech is a subordinate clause. Syntactic structures that are restricted to main clauses or much less acceptable in subordinate clauses (Green, 1976; Mayes, 1990) were reported in direct speech more frequently. Take exclamations as an example, people can easily quote this utterance "*Oh my God!*" in direct

speech. By contrast, this utterance cannot occur in indirect speech. The vividness of facial expressions had no impact on the likelihood of using direct or indirect speech.

This chapter had two major contributions. First, the results suggest that there are utterance-level-related factors underlying the language production system's decision regarding which reporting style to use. This finding is an important addition to the current state of knowledge regarding the use of direct and indirect speech. As illustrated earlier, previous studies have only examined whether communication goals influenced people's preferences for different reporting styles empirically (Wade & Clark, 1993). In this study, we demonstrated that there are also more fine-grained reasons (i.e., utterance-related reasons) to account for the use of direct versus indirect speech. We found that the vividness of non-verbal information and utterance type predicted the use of direct and indirect speech. The finding that non-verbal information plays a role in the language production system when selecting direct or indirect speech, is the second contribution of this chapter. We provide tentative evidence suggesting that decisions regarding the utterance form for reported speech might already happen in the macro-planning stage instead of the micro-planning stage. According to Levelt's language production theory (1993), language production processes consist of two stages: the macro-planning stage and the micro-planning stage. In macro planning, the conceptualizer selects messages that fulfill the speaker's communication intentions. During microplanning, grammatical encoding is completed. It is a process where appropriate lexical concepts and the assembly of a syntactic framework are accomplished. According to Levelt (1993), one would expect that the decision between direct and indirect happens at the grammatical encoding stage because they are almost equivalent in meaning and differ from each other in deictic terms and grammatical structures only.

Levelt's theory cannot, however, explain the production of non-verbal information. Therefore, it has also been argued that the conceptualizer not only selects what information to produce in order to achieve a communication goal but also decides in which modality this information is expressed (de Ruiter, 2000). Together, our results and de Ruiter's theory (2000) indicate that part of a sentence's surface form is already decided upon in the macro-planning stage, at least for the production of reported speech. In sum, the findings of this research reveal important implications for both theories on reported speech and language production.

Chapter 2 was motivated by the observation that people shift between direct and indirect speech at an utterance level. **Chapter 3**, on the other hand, was inspired by findings that people with limited language competence show a preference for direct speech over indirect speech in several tasks. It was, therefore, argued that direct speech is easier to produce than indirect speech. In **Chapter 3**, the effects of deictic shifts and memory representation on reported speech production difficulties

were examined. In Experiment 1, participants first read a short dialogue between two protagonists and memorized the last sentence from the dialogue. They were subsequently prompted to report the last sentence in direct or indirect speech. The results showed that deictic shifts influenced the production difficulties of reported speech. When participants had verbatim memory of the to-be-reported utterances, the speech latencies for direct speech were shorter because the production of indirect speech required a deictic shift. In Experiment 2, the effect of deictic shift on speech latencies was examined where no verbatim memory was available to participants. We adopted a similar methodology as in Experiment 1. Participants first read a short dialogue. Then, half of the participants immediately completed an intervening task aimed at disturbing the verbatim trace. Following this, they were prompted to produce direct or indirect speech. By comparison, the remaining half of the participants completed the language production task immediately after reading the dialogue. We found that the production of direct speech was slower than that of indirect speech when participants had no verbatim memory of the to-be-reported utterances. Taken together, these results indicate that direct and indirect speech production difficulties depend on which type of memory representation is accessed and whether deictic shifts are needed during language production.

Prior studies provide possible reasons (e.g., the availability of non-verbal information, similarity in the surface form with to-be-reported utterances) as to why direct speech might be an easier communication mode than indirect speech. In this chapter, we report the results of an empirical study in which we tested whether and under what circumstances direct speech was easier to produce than indirect speech. Our results suggest that direct speech production benefits from the similarity in surface form between direct speech and to-be-reported utterances only when: (1) people have verbatim memory of the to-be-reported utterances; and (2) indirect speech production requires shifts of deictic terms. When participants do not have verbatim memory of to-be-reported speech, indirect speech production is faster than direct speech. **Chapter 3** contributes to a boarder understanding of factors affecting production difficulties and shows that direct and indirect speech production difficulties vary and clarifies conditions under which direct speech production is easier.

How do contextual factors influence language production?

The question of whether language production is influenced by contextual factors, such as listener's traits, was addressed in **Chapter 4** and **Chapter 5**. We specifically focused on whether the perceived psychological distance between participants and their listeners would influence participants' preference for direct or indirect speech in **Chapter 4**. Subsequently, we investigated the influence of another listener's

trait on language production in **Chapter 5**: the influence of the listener's level of knowledge and speakers' referring expressions.

In **Chapter 4**, we reported the results of our study that tested whether people's preference for direct or indirect speech was affected by how psychologically proximal or distant a listener appeared to participants. Existing findings suggest that when talking with psychologically proximal others, people prefer to communicate more analogically, reflected by the higher frequency of concrete words, pictures, and gestures. By comparison, if a listener is perceived as psychologically distant, the speaker uses more symbolic media, such as abstract words, verbal communication, and fewer gestures (Amit et al., 2013; Wessler & Hansen, 2017). As Clark (2016) has argued, direct speech provides an analogy of depicted scenes, whereas indirect speech provides a symbolic description only. Taken together, we expected people would use direct speech more frequently when communicating with psychologically proximal than distant others.

In this study, participants were asked to complete a narrative task. They were first shown a dialogue-heavy short movie and then asked to retell what had happened in the movie to a listener. Psychological distance was manipulated across three experiments. Experiment 1 examined the relationship between social distance and reported speech. Participants were asked to imagine a scenario in which they needed to produce a narrative either to a good friend (i.e., the socially proximal condition) or someone they met for the first time (i.e., the socially distant condition). Results indicated that participants used significantly more direct speech when talking to a psychologically proximal listener than one who was psychologically distant, supporting our hypothesis. Conversely, they used indirect speech at a higher rate when talking to a psychologically distant listener than a psychologically proximal one. Whether temporal distance would impact people's preference for direct and indirect speech was further investigated in Experiment 2. Participants were asked to perform the same narrative production task as in Experiment 1, with the only difference being that temporal distance between speaker and listener was manipulated as the dependent variable. A similar pattern was obtained from Experiment 2. Temporal closeness resulted in the increased use of direct speech, whereas temporal distance increased the use of indirect speech. We finally explored the influence of spatial distance and the use of direct and indirect speech in Experiment 3. Unlike Experiments 1 and 2, however, no effect of spatial distance on the frequency of direct or indirect speech was observed.

In sum, results from Experiment 1 and Experiment 2 were consistent with previous findings and our predictions. Social and temporal closeness led to increased use of direct speech compared to social and temporal distance. It was somewhat surprising that spatial distance had no influence on the use of direct and indirect speech,

and we propose two explanations for this puzzling finding. First, spatial distance may have a weaker effect compared to social and temporal distance. It has been argued that the three dimensions of psychological distance are connected and have similar effects on language use (Trope & Liberman, 2010). However, even though only rarely reported, several publications found that psychological distance's three dimensions do not always impose the same effect on cognitive activities (Žeželj & Jokić, 2014; Zhang & Wang, 2009). The second explanation is that the design of Experiment 3 might have unintentionally reduced the effect of spatial distance. In Experiment 3, participants were informed that they would be communicating through video messages with someone who was either spatially near or far. This setup might have led participants to believe that the communication would occur via the Internet. Consequently, the perceived distance between participants and their listeners might have been reduced and was therefore not strong enough to induce a difference in the use of direct and indirect speech. To conclude, we showed that different dimensions of psychological distance have varying effects on the use of direct and indirect speech in **Chapter 4**. The findings reported in **Chapter 4** contribute to our understanding of reported speech as well as psychological distance theory (the construal level theory). First, in addition to communication goals, the use of direct and indirect speech is sensitive to the psychological distance between two interlocutors. Second, we found discrepant effects among different psychological distance dimensions. Specifically, no effect was observed for the spatial dimension, unlike for the social and temporal dimensions. This finding indicates that the relationships between different psychological dimensions require reconsideration. Whether these dimensions will always have similar effects on various cognitive activities, as observed repeatedly in numerous prior studies (Trope & Liberman, 2010; Soderberg et al., 2015), remains open to exploration.

Furthermore, we pointed out the potential influence of online communication on people's perceived psychological distance, especially the spatial dimension in **Chapter 4**. It is possible that the online communication setting we created in Experiment 3 (spatial distance) reduced people's perceived spatial distance between themselves and their listeners. This possibility again raised the question of whether the psychological distance theory still holds in various communication settings, such as online communication. Answering this question is essential as online communication has become the most popular way of communicating in countries such as the US (Lieberman & Schroeder, 2020).

Chapter 4 investigated the effect of social factors: psychological distance and the use of direct and indirect speech. While we only looked at psychological distance as a contextual factor in language use in **Chapter 4**, there are more contextual factors, such as the goal of communication or the knowledge state of a listener,

which we did not investigate. In addition, contextual factors have been argued to influence almost every level of language processing, from sounds, and words, to sentences (Abdel Rahman & Melinger, 2009; Saint-Georges et al., 2013), giving rise to the question: ‘How will contextual factors influence other aspects of language planning?’ In addition, we argued that the online communication setup in Experiment 3 of **Chapter 4** could be the reason for the non-significant impact of spatial distance. This result led us to think about how offline and online communication differ. Motivated by these issues, we investigated the effect of another contextual factor in **Chapter 5**: the listener’s knowledge state on the production of referring expressions in both offline and online communication settings by reviewing current literature on this topic. The phenomenon that speakers adjust their expressions according to their listener’s knowledge state is widely known as “*audience design*” or “*recipient design*.” In **Chapter 5**, five aspects of offline audience design were reviewed: (1) audience design and common ground, (2) the time course of audience design, (3) audience design and memory, (4) audience design in healthy older adults and (5) in individuals with cognitive impairment, and audience design in multiparty conversations. Since only limited research has investigated online audience design, all publications on this topic were considered together, resulting in several findings and conclusions. First, audience design requires speakers to assess common ground status (Horton, 2008). While planning referring expressions, speakers only mention information in common ground and try to avoid improperly mentioning privileged ground information (Horton & Keysar, 1996; Wardlow Lane & Ferreira, 2008). Second, there is discrepant evidence regarding the timing of when common ground information is considered during utterance planning. Some studies suggest that speakers consider common ground information at the early stage of language planning (Brennan & Hanna, 2009), whereas other studies argue that speakers only take common ground into consideration at the late stage (Horton & Keysar, 1996). This discrepancy could be due to different tasks and measurements used. Third, common ground assessment sometimes requires the retrieval of relevant information from memory. The ordinary memory hypothesis suggests that common ground information is stored in memory in a partner-specific manner (Horton & Gerrig, 2005). During the interaction, the conversational partner will function as a cue to relevant common ground information. Another series of research focused on the memory components that are essential in the storage and retrieval of common ground information by investigating this topic in individuals with memory impairments (Brown-Schmidt & Duff, 2016). These studies suggest that both declarative and non-declarative pathways can be used. Last, several studies examined how speakers exhibit audience design in a multiparty conversation setting, especially when interlocutors’ knowledge level about the conversational topic varies (Yoon &

Brown-Schmidt, 2014, 2018). These studies show that speakers flexibly adjust their communication behaviors according to interlocutors' combined knowledge level.

Audience design is not limited to face-to-face communication but also frequently occurs in online interactions. For instance, multilingual Internet users' choice of which language to use when posting on social media depends on the language their intended audience speaks (Androutsopoulos, 2014; Hinrichs, 2016). How online audience design is exhibited relies on the characteristics of social media platforms. Specifically, people exhibit audience design verbally on platforms (e.g., Facebook) that only allow verbal communication, whereas people use both verbal and non-verbal channels to exhibit audience design on platforms such as YouTube (Frobenius, 2014). In sum, people consider their audiences in formulating messages in both offline and online communication.

The influence of listeners on a speaker's language use was examined in **Chapters 4 and 5** together. One conclusion that can be drawn is that how people communicate with others depends not only on their own communication intentions but also on their listener's characteristics. Investigating the effect of contextual factors, especially listener's characteristics, on language production not only has implications for developing language production theories but also suggests how efficient and successful communication might be achieved. Take psychological distance as an example. People are more likely to use abstract language when listeners are psychologically distant. Similarly, listeners' processing of abstract information is faster than concrete information when speakers are psychologically distant (Amit et al., 2009). The importance of considering audiences in achieving efficient and successful communication was highlighted in **Chapters 4 and 5**. After all, the ultimate goal of communication is for listeners to understand the information successfully.

Limitations and suggestions for future research

While the reported studies add to the research evidence regarding direct and indirect speech production, there are several limitations that ought to be acknowledged. First, no real listeners were present when we studied direct and indirect speech in narratives in **Chapters 2 and 4**. Rather, participants were asked to talk to either an imagined or anticipated listener. This setting holds a middle place on a continuum from an extreme monologue to a free dialogue (Bavelas et al., 2014). Whether the results from these findings can be generalized to other contexts, such as free dialogues (i.e., speakers and addressees are mutually visible and interact freely) or written contexts, needs further exploration. Nevertheless, this does not mean that our research has little theoretical or practical relevance. As a matter of fact, people often encounter situations in which they communicate with imagined or anticipated audiences. For example, vlogs have become a very popular communication format

on the Internet. When shooting a vlog, vloggers normally speak into a camera and have their imagined audience in mind. In addition, the outbreak of Covid-19 resulted in a significant increase in the use of pre-recorded videos for teaching and research purposes. In addition, University teachers frequently engage in preparing and watching pre-recorded lectures and conference presentations. In both conditions, people communicate with anticipated audiences who are absent from their immediate surroundings. However, it is suggested that future studies examine the use of direct and indirect speech in various settings to gain a better understanding of reported speech production.

Second, in Chapter 3, we compared production difficulties induced by syntactic differences between direct and indirect speech in English only. However, the syntactic distinctions between direct and indirect speech vary from language to language. For example, in Dutch, the transformation from direct to indirect speech involves not only deictic shifts but also involves a change of word order. The verb in indirect speech moves to the end of a sentence. The change of word order is not required in, for example, English or Chinese. Besides, in Dutch and English direct and indirect speech are constructed as main clauses and subordinate clauses, respectively. By comparison, direct and indirect speech share the same sentence structures in Chinese. Additionally, Chinese does not have any verb conjugations, and all verbs have a single form. This means that there is no difference in verb forms between direct and indirect speech in Chinese, whereas changing verb forms is mandatory in English and Dutch. Therefore, researchers should exercise caution when interpreting and generalizing results from one language to another.

Finally, we investigated the use of direct and indirect speech only in a narrative context in this dissertation. Reported speech serves other pragmatic functions in communication as well. For instance, direct speech is perceived as more accurate and reliable in courtroom trials (Philips, 1986). Furthermore, people are observed to use direct speech more frequently if they want to hold the original speakers accountable for the utterance (Hill & Irvine, 1993). To obtain a complete understanding of the distinct functions of direct and indirect speech, more research should be conducted in various settings, such as eyewitness testimony. One important issue to consider is whether direct speech is really more reliable or accurate compared to indirect speech. A close examination of this question has important implications for eyewitness testimony in the courtroom, as incorrect beliefs about the accuracy of eyewitness testimony may contribute to wrongful convictions.

This dissertation began by exploring how utterance-related factors influenced direct and indirect speech use in a narrative task. Then, I identified factors influencing relative production difficulties of direct and indirect speech and also examined how people's communication behaviors flexibly adapt to various contexts. In summary,

this dissertation shows that there are intrinsic characteristics of an utterance that influence how it will be reported. In addition, extrinsic factors (e.g., psychological distance and the level of knowledge) that are related to listeners also influence speakers' language production.

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NEDERLANDSE SAMENVATTING

(Summary in Dutch)

Een van de belangrijke kenmerken van taal is flexibiliteit. Enerzijds hebben mensen verschillende manieren om specifieke informatie aan een bepaalde ontvanger over te brengen; bij het citeren van eerdere uitspraken kan men ofwel directe citaten (directe rede) ofwel indirecte citaten (indirecte rede) gebruiken, afhankelijk van het perspectief dat zij innemen. Anderzijds praten mensen over dezelfde dingen op verschillende manieren, afhankelijk van met wie ze communiceren. Men communiceert bijvoorbeeld op een meer beleefde wijze met personen die meer macht hebben dan met personen die evenveel of minder macht hebben. (Tamaoka, Yamaguchi, Miyaoka, & Kiyama, 2010). In dit proefschrift richtte ik me op factoren die bijdragen aan beslissingen om op verschillende manieren te communiceren. Om deze vraag te onderzoeken nam ik het gebruik van directe en indirecte rede als uitgangspunt. Eerst onderzocht ik hoe linguïstische (**Hoofdstuk 2**) en sociale (**Hoofdstuk 4**) factoren het gebruik van directe en indirecte rede in een narratieve taak beïnvloedden. Vervolgens heb ik in **Hoofdstuk 5** de invloed van sociale factoren op taalproductie in andere contexten verder onderzocht.

Zoals ik zojuist heb beschreven, kan men normaal gesproken op twee manieren rapporteren: directe rede en indirecte rede. Eerdere studies toonden aan dat directe rede vaker voorkomt rond het hoogtepunt van een verhaal (Tannen, 1989). Daarnaast zijn ook communicatiedoelen van invloed op de voorkeur van mensen voor verschillende stijlen van verslaggeving. Individuen gebruiken vaker directe dan indirecte rede wanneer hen gevraagd wordt vooral een interessant verhaal te vertellen waarbij de accuratesse van het verhaal er minder toe doet (Wade & Clark, 1993).

Een relevante maar tot dusver niet onderzochte vraag is: welke factoren kunnen het gebruik van directe en indirecte rede beïnvloeden, oftewel, waarom gebruikt een spreker voor een bepaalde uiting directe of indirecte rede? Deze vraag is in **Hoofdstuk 2** nader onderzocht in een empirische studie waarin deelnemers de opdracht kregen om een filmfragment te bekijken en vervolgens het fragment na te vertellen. Elke deelnemer keek naar vier filmfragmenten en vertelde vier verhalen. Filmtranscripties werden door de participanten beoordeeld op de levendigheid van stemmen, de levendigheid van gezichtsuitdrukkingen en het type uiting. Vervolgens werden de filmtranscripties vergeleken met de verhalen van de deelnemers en gecodeerd of deze uitingen in directe of indirecte rede werden weergegeven. De resultaten suggereerden dat uitingen met een levendigere stem, die beschouwd kunnen worden als voorbeelden van “*Main Clause Phenomena*” vaker in de directe rede werden gerapporteerd dan in de indirecte rede. De levendigheid van gezichtsuitdrukkingen had geen invloed op de manier waarop uitingen werden

gerapporteerd. De resultaten van **Hoofdstuk 2** suggereren dat naast communicatiedoelen ook de intrinsieke eigenschappen van een uiting van invloed zijn op hoe deze gerapporteerd wordt.

In **Hoofdstuk 3** onderzochten we de spraakproductie bij participanten waarbij wij ons concentreerden op moeilijkheden in de productie van directe en indirecte rede. We testten empirisch de “*syntactic view*” die verklaart waarom directe rede gemakkelijker te produceren is dan indirecte rede. Eerdere studies toonden aan dat mensen met beperkte taalvaardigheid een significante voorkeur hebben voor directe rede boven indirecte rede. Dit heeft geleid tot speculaties dat het produceren van directe rede minder veeleisend is dan dat van indirecte rede, omdat directe rede dezelfde oppervlaktestructuren deelt met te rapporteren uitingen. In dit hoofdstuk onderzochten we daarom de invloed van geheugenrepresentatie en deiktische verschuivingen op productieproblemen in directe en indirecte rede. We vonden dat wanneer deelnemers een verbatim geheugen hadden van de te rapporteren uitspraken, de verschillen in productieproblemen tussen directe en indirecte rede werden geïnduceerd door deiktische verschuivingen (Experiment 1). De productie van directe rede was sneller wanneer het produceren van de indirecte rede een deiktische verschuiving vereiste. Aan de andere kant was de productie van directe rede even snel als die van indirecte rede wanneer voor indirecte rede geen deiktische verschuiving nodig was. Wanneer deelnemers geen verbatim geheugen hadden van de te rapporteren spraak, was de productie van directe rede langzamer dan van indirecte rede, omdat directe rede-productie een deiktische verschuiving vereiste (Experiment 2). Kortom, de relatieve productieproblemen bij directe en indirecte rede hangen af van welk type geheugenrepresentatie wordt aangesproken en of er een deiktische verschuiving nodig is tijdens de taalproductie.

Naast linguïstische factoren waren we ook geïnteresseerd in hoe sociale contextuele factoren de taalproductie beïnvloeden. We onderzochten in het bijzonder of en hoe de psychologische afstand tussen sprekers en hun luisteraars van invloed kon zijn op de voorkeur van sprekers voor directe of indirecte rede in een verhalende taak in **Hoofdstuk 4**. Net als in **Hoofdstuk 2** kregen de deelnemers eerst de opdracht een korte film te bekijken en daarna te vertellen wat er in de film was gebeurd. In drie experimenten manipuleerden we de sociale afstand (experiment 1), temporele afstand (experiment 2) en ruimtelijke afstand (experiment 3) tussen de deelnemers en hun ingebeelde/verwachte luisteraar. We vonden dat sociale en temporele afstand een significante invloed hadden op de frequentie van directe of indirecte rede. Deelnemers gebruikten vaker directe rede wanneer zij communiceerden met iemand die als sociaal en temporeel dichtbij werd ervaren dan met iemand die in sociaal en temporeel opzicht veraf stond. Daarentegen zagen we geen invloed van de waargenomen ruimtelijke afstand op de frequentie van directe of in-

directe rede. **Hoofdstuk 4** leverde een waardevolle aanvulling op ons huidige begrip van de factoren die van invloed zijn op het gebruik van directe en indirecte rede. Naast communicatiedoelen en de intrinsieke kenmerken van te melden uitingen, spelen ook sociale factoren zoals psychologische afstand een rol bij deze vorm van spraakgebruik.

De bevindingen uit **Hoofdstuk 4** gaven inzicht in hoe sociale factoren van invloed zijn op het gebruik van directe en indirecte rede in een narratief. Blijkbaar bestaan sociale contextuele factoren uit meer dan alleen psychologische afstand. Deze sociale contextuele factoren beïnvloeden het taalgebruik niet alleen in een narratieve taak, maar ook in andere communicatiesettings. In **Hoofdstuk 5** hebben we een literatuurstudie uitgevoerd om meer inzicht te krijgen in hoe mensen hun taalgebruik aanpassen aan verschillende contexten. We bekeken studies die onderzochten hoe mensen verschillende verwijzende uitdrukkingen gebruiken om te communiceren met luisteraars wier kennisniveau over het gespreksonderwerp varieert. Op basis hiervan konden de volgende conclusies worden getrokken. (1) Mensen houden tijdens de taalproductie rekening met gemeenschappelijkheid. Bij het produceren van verwijzende uitdrukkingen proberen sprekers alleen informatie te vermelden die ook beschikbaar is voor de luisteraars en vermijden het om informatie te vermelden die alleen toegankelijk is voor de sprekers (Horton, 2007). (2) De huidige literatuur laat tegenstrijdig bewijs zien over wanneer sprekers tijdens hun taalplanning rekening houden met het kennisniveau van hun luisteraar. Sommige studies suggereren dat sprekers informatie over gemeenschappelijkheid afwegen in het vroege stadium van taalplanning (Brennan & Hanna, 2009), terwijl andere studies stellen dat sprekers pas in een laat stadium rekening houden met overeenkomsten (Horton & Keysar, 1996). (3) Het beoordelen van gemeenschappelijkheid vereist in sommige gevallen het ophalen van relevante informatie uit het geheugen. “*The ordinary memory hypothesis*” suggereert dat informatie over gemeenschappelijkheid op een partner specifieke manier in het geheugen wordt opgeslagen (Horton & Gerrig, 2005). Tijdens de interactie fungeert de gesprekspartner als een cue voor relevante informatie over gemeenschappelijkheid. Studies toonden verder aan dat zowel declaratieve als niet-declaratieve geheugensystemen kunnen worden gebruikt bij het opslaan en activeren van informatie over gemeenschappelijkheid (Brown-Schmidt & Duff, 2016). (4) Wanneer de kennis van de luisteraars over de gespreksonderwerpen varieert, passen sprekers hun communicatiegedrag flexibel aan naar het gecombineerde kennisniveau van de gesprekspartners (Yoon & Brown-Schmidt, 2014, 2018).

Uit de literatuur betreffende online-communicatie konden we afleiden dat individuen zich aanpassen aan hun doelgroep tijdens online interacties. Zo hangt de keuze van meertalige internetgebruikers over welke taal ze gebruiken bij het posten

op sociale media af van de taal die hun beoogde publiek spreekt (Androutsopoulos, 2014; Hinrichs, 2016). Hoe een online ‘audience design’ wordt tentoongesteld hangt af van de kenmerken van sociale mediaplatforms. Meer specifiek vertonen mensen verbaal ‘audience design’ op platforms (bijvoorbeeld Facebook) die alleen verbale communicatie toestaan, terwijl mensen zowel verbale als non-verbale kanalen gebruiken om ‘audience design’ te vertonen op platforms als YouTube (Frobenius, 2014).

In dit proefschrift hebben we zowel empirisch- als literatuuronderzoek uitgevoerd naar de factoren die de taalproductie van sprekers beïnvloeden. Deze bevindingen suggereren dat zowel intrinsieke kenmerken van de uiting zelf als extrinsieke kenmerken, zoals de psychologische afstand tussen spreker en luisteraar en het kennisniveau van de luisteraar, een rol spelen in taalproductieprocessen. Alle hoofdstukken dragen bij tot ons huidige begrip van de wijze waarop linguïstische en sociale factoren de taalproductie en het taalgebruik beïnvloeden. Deze hoofdstukken geven ook inzicht in hoe sprekers tot succesvolle communicatie kunnen komen door rekening te houden met de kenmerken van hun luisteraars.

PORTFOLIO

About the author

Jianan Li was born on March 9th, 1992, in Jilin, China. She pursued a Bachelor's degree in applied psychology at South China Normal University from 2010 to 2014 and went on to complete her Master's in Psychology at the same institution from 2014 to 2017. In September 2017, Jianan started her Ph.D. research in the Psychology, Education, and Children Studies department at Erasmus University Rotterdam. Her doctoral research focused on investigating how linguistic and social factors impacted communication behaviors of speakers. Beginning in March 2023, Jianan will commence her postdoctoral research work at the Amsterdam Center of Language and Communication, Amsterdam University. Her research will be focused on exploring language development in adolescents.

Publications in thesis

Li, J., Dijkstra, K., & Zwaan, R. A. (2022). The use of direct and indirect speech across psychological distance. *Memory & Cognition*, 1–10.

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Li, J., Dijkstra, K., & Zwaan, R. A. (2022). Audience design in offline and online communication.

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Li, J., Jongerling, J., Dijkstra, K., & Zwaan, R. (2019). *The influence of utterance related factors on the use of direct and indirect speech*. Graduate Research Day, Erasmus University Rotterdam, the Netherlands

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