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Influence of Mood on Language Use in Dyadic Social Interaction

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Abstract

This study investigated how individuals’ mood influences changes in spoken language during dyadic social interaction. Twenty-eight female undergraduate students completed mood assessments, a self-monitoring questionnaire, and viewed a short film clip that induced them into either a positive, negative, or neutral mood. Each dyad engaged in a conversation that was audio-recorded. Participants’ use of affect and positive emotional words was associated with the corresponding usage of their conversational partner, suggesting that speakers mimicked their partners’ language style. Speakers also used higher emotional tone in their first minute of speech after conversing with someone in a positive mood, suggesting participants’ mood influenced the emotional valence of their partners’ language. Self-monitoring was associated with language style matching, however, in the opposite direction that was expected. The overall results of this study offer an original account of how mood influences language styles to shift and transfer to others during face-to-face conversation.
Influence of Mood on Language Use in Dyadic Social Interaction

The majority of our waking hours are consumed communicating in some way (Lee & Hatesohl, 1993). From an early age, we have an innate ability to convey an abundance of information to the world through our body language, word choice, and even through our tone of voice (Pennebaker, Mehl, & Niederhoffer, 2003). Correspondingly, the ability to successfully interpret the social cues of others and shift our behaviour accordingly is essential for promoting social approval and interaction efficiency (Sapey-Triomphe et al., 2017; Stel & Vonk, 2010). However, a person’s mood can have a pervasive influence on cognitive functioning and can undoubtedly contribute to the way they communicate with others (Egidi & Caramazza, 2014; Egidi & Gerrig, 2009; Egidi & Nusbaum, 2012; Sereno Scott, Yao, Thaden, & O’Donnell, 2015). Thus, it is crucial that we understand how various factors, such as mood, influence changes in our language use throughout everyday social interactions.

Various seemingly insignificant aspects of language can have a substantial effect on how we process and comprehend language (Pennebaker, Mehl, & Niederhoffer, 2003). For instance, the emotional valence of the words we use has been shown to interact with language processing and comprehension (Sereno Scott et al., 2015). Numerous studies have examined the processing of written emotional words, semantic categories (Pinheiro et al., 2013), ambiguous sentences (Matovic, Koch, Forgas, 2014), and mood-congruent sentences (Egidi & Caramazza, 2014; Egidi & Gerrig, 2009; Egidi & Nusbaum, 2012). Emotional words (i.e., positive or negative words) are linked with higher arousal and can either convey or arouse an affective state (Sereno Scott et al., 2015). Furthermore, there is a processing advantage for positive valence words over both negative and neutral valence words. That is, participants tend to respond significantly faster to words with positive emotional valence (Sereno Scott et al., 2015).
Complementary conclusions from research on the effect of emotional words on cognitive processing have also been established when examining individuals’ mood (Beukeboom & Semin, 2006; Edigi & Nusbaum, 2012; Pinheiro et al., 2013). Mood can facilitate cognitive processing or can stimulate particular processing strategies (Edigi & Nusbaum, 2012). The cognitive-tuning account (Bless & Fiedler, 1995) claims that cognitive processes are “tuned” to individual situational requirements. Thus, the style of processing can shift and adapt depending on a person’s mood. Functional approaches suggest that mood indexes information about a particular situation, which stimulates different cognitive processes (Beukeboom & Semin, 2006). For instance, a positive mood signals that a situation is benign, so people are more likely to adopt a global or holistic processing style (Beukeboom & Semin, 2006). In contrast, a negative mood indicates unfamiliarity or danger, which would require more careful, systematic processing. Whereas a global processing style is associated with experience and expertise, a systematic processing style is linked with greater attention to relevant contextual information (Soane, Schubert, Lunn, & Pollard, 2015).

Furthermore, a positive mood has also been shown to enhance access to semantic memory (Pinheiro et al., 2013). When people are in a negative mood, they tend to be more sensitive to contextual information and have restricted access to their semantic network. In contrast, a positive mood facilitates the access of a much broader set of semantic features. For example, when presented with the sentence “The Jones’ made so much money that they no longer wanted to live in their small house so they moved to the outskirts of the town to a very fashionable subdivision. There, they bought a huge…” (Pinheiro et al., 2013, p. 581) participants would accept words that were unexpected but shared many semantic features (e.g., “apartment”) when in a positive mood. However, participants in a negative mood were less likely to accept
unexpected words that shared either many (e.g., “apartment”) or few (e.g., “tepee”) semantic features (Pinheiro et al., 2013, p. 581). Thus, the participants’ mood inhibited their semantic network, which in turn, restricted acceptable word choices. Overall, it had been established that mood can facilitate or inhibit peoples’ semantic memory as well as influence the adoption of various processing styles (Beukeboom & Semin, 2006; Edigi & Nusbaum, 2012; Pinheiro et al., 2013; Scott, Yao, Thaden, and O’Donnell, 2005).

The correspondence between people’s mood and the emotional valence of their language can also have a substantial impact on cognitive processing (Egidi & Gerrig, 2009). According to Bower’s (1981) notion of mood congruency, cognitive processing is facilitated when an individual’s mood is congruent with the emotionality of words. Egidi and Gerrig (2009) examined reading latencies for negative and positive story endings when participants were induced into either a positive or negative mood. Consistent with Bower’s notion, reading latencies were slower for negative endings compared to positive story endings. In addition, story endings were rated as less surprising when participants’ mood and valence of the story endings were congruent than when they were mismatched (Egidi & Gerrig, 2009). Despite these findings, there are inconsistencies in the literature regarding the effect of mood congruency. Other researchers have failed to find an effect (Beukeboom & Semin, 2006; Scott et al., 2005; Edigi & Nusbaum, 2012).

The language people use in everyday social interactions can fluctuate considerably depending on their mood (Beukeboom & Semin, 2006). A positive mood induces a global processing style that relies more on cognitive short-cuts, such as past experiences and stereotypes (Beukeboom & Semin, 2006; Förster & Dannenberg, 2010; Matovic et al., 2014). In contrast, a negative mood leads to a more analytic, local, and detail-oriented processing style (Beukeboom
& Semin, 2006). These variations in cognitive processing seem to be linked with corresponding language styles (Beukeboom & Semin, 2006). People in a positive mood tend to use more abstract language and rely on general knowledge, while those in a negative mood use more factual and concrete language (Beukeboom & Semin, 2006). Studies investigating mood effects on abstract language use have primarily used the Linguistic Category Model (LCM) to distinguish between different types of interpersonal predicate types (Semin & Fiedler, 2010). This model discusses four types of predicates that vary in abstraction. Participants in a negative mood tend to use more concrete features, such as descriptive action verbs (i.e., describes one observable action in which the perceptual features are maintained; for example, “A punches B”) and interpretive action verbs/state action verbs (i.e., conceptually describes specific observable events in which the perceptual features of an action are not maintained; for example, “A hurts B”) (Beukeboom & Semin, 2006, pp. 554-555). In opposition, participants in a positive mood use more abstract features, such as state verbs (i.e., portrays an unobservable emotional state; for example, “A hates B”) and adjectives (i.e., describes the subject with no reference to context; for example, “A is aggressive”) (Beukeboom & Semin, 2006, pp. 554-555). Furthermore, participants’ mood ratings have also been shown to positively correlate with linguistic abstraction (Beukeboom & Semin, 2006). Thus, as a mood report becomes more positive or more negative, the number of abstract language features increases or decreases respectively.

In previous literature, there has been a far greater focus on the influences of mood on written language use, and researchers have seldom explored how peoples’ mood affects linguistic aspects of social interaction (Beukeboom & Semin, 2006). Mood has consistently been shown to play a vital role in what language styles are activated. Researchers have theorized that mood effects could be translated to verbal language, and even more broadly to natural
conversations (Beukeboom & Semin, 2006). The idea of language style matching is that conversation partners coordinate various features of communication, such as facial expressions, gestures, and even word use (Niederhoffer & Pennebaker, 2012). This coordination is an automatic process that requires conversational engagement (Canava & Bodie, 2016). That is, both conversationalists are actively engaged and attuned to the content and underlying meaning of what is being conveyed. Previous research has examined style matching of nonverbal behaviour as well as how style matching can be influenced by other factors, such as affect and relationship attachment (Giles & Coupland, 1991; Stel & Vonk, 2010). A positive mood seems to correlate with increased style matching (Bernieri, Reznick, & Rosenthal, 1988). In terms of language style matching, the Linguistic Inquiry and Word Count 2015 (LIWC) program has often been used to examine peoples’ usage of articles, prepositions, verbs, and affect words. Niederhoffer and Pennebaker (2002) used the LIWC to examine various language features of dyad online-interactions. Language style matching was found to be positively correlated with word count and usage of present tense verbs (Niederhoffer & Pennebaker, 2002). For instance, the more words or present tense verbs that the first person used, the more that the following person used.

According to Gile’s Communication Accommodation Theory (CAT), people modify their behaviour in ways that mimic their conversational partner to foster and maintain social approval (Giles & Coupland, 1991). Mimicry has been shown to promote empathy and strengthen interpersonal relationships (Giles & Coupland, 1991; Stel & Vonk, 2010). When people mimic each other’s behaviour during social interaction they tend to rate their interaction as smoother and report more feelings of having bonded with each other (Stel & Vonk, 2010). The emotional contagion theory argues that some people are more susceptible to mimicking emotional
expressions and experiences of others during social interaction (Bhullar, 2012). People in a positive mood seem to be more susceptible to the effects of emotional contagion (Bernieri, Reznick, & Rosenthal, 1988; Bhullar, 2012). In considering these findings, self-monitoring could be associated with emotional contagion and language style matching. Self-monitoring is the extent to which people regulate how they present themselves to the world by shaping their behaviours depending on the social situation (Lennox & Wolfe, 1984). High self-monitors are more likely to shift their behaviour to fit in to a certain environment or social situation (Lennox & Wolfe, 1984). In contrast, low self-monitors tend to adhere to their own beliefs and values, and behave accordingly (Lennox & Wolfe, 1984). It could be theorized that people who are higher in self-monitoring would be more susceptible to emotional contagion and would be more likely to match the language style of a conversation partner. In opposition, people who are lower in self-monitoring may be less susceptible to emotional contagion and language style matching as they are less likely to conform to these social and conversational norms.

In addition, self-monitoring may also be associated with people’s susceptibility to following social norms, especially during social interaction and in conversation. People’s mood can influence whether they follow conversational norms, such as turn taking, maintaining eye contact, and communicating relevant information (Koch, Forgas, & Matovic, 2013). Grice’s (1975) conversational maxims argue that conversations should conform to the maxims of quantity, relevance, quality, and manner to promote “cooperativity.” Concurrent with Bless and Fiedler’s (2006) assimilative/accommodation processing model, people in a negative mood tend to adapt to external constraints, and they are more likely to conform to social norms (Koch, Forgas, & Matovic, 2013). On the other hand, a positive mood has been shown to reduce people’s tendency to conform to social norms (Tan & Forgas, 2010). Furthermore, people in a
negative mood tend to conform to conversational norms more than when in a positive mood (Tan & Forgas, 2010). Specifically, a negative mood is more likely to conform to the maxims of quantity and relevance, indicating that a negative mood influences the greater usage of relevant information and decreases the amount of words used in conversation (Koch, Forgas, & Matovic, 2013). However, research on the effects of mood have been limited to effects on social norms and have not addressed language production (Koch, Forgas, & Matovic, 2013; Tan & Forgas, 2010). Moreover, there is little understanding on how mood interacts with self-monitoring, especially during dyadic conversations. The findings that mood seems to either increase (e.g., positive mood) or decrease (e.g., negative mood) conformity to social norms may extrapolate that mood would have an effect on whether people adhere to their own values or adapt their behaviour in order to fit in.

Conversation partners coordinate various features of communication, such as facial expressions, gestures, and even word use (Niederhoffer & Pennebaker, 2002). The words that a speaker uses prime the listener to respond in a way that is synchronous (Niederhoffer & Pennebaker, 2002). Speakers are receptive to nonverbal communications, such as smiling and frowning, as they inform the speaker about whether the listener understands and accepts what was just said (Niederhoffer & Pennebaker, 2002). The cognitive-tuning account (Bless & Fiedler, 1995) suggests that depending on various factors during social interaction, such as mood or expression, the style of cognitive processing adapts and shifts accordingly. When a speaker’s message is reinforced by a listener’s positive non-verbal cues, the speaker’s language tends to become more ambiguous and abstract (Beukeboom, 2008). However, when a listener cues the speaker with a negative expression, the speaker assumes that the listener has rejected or misunderstood what was just said (Beukeboom, 2008). In this case, speakers tend to use more
concrete and descriptive language (Beukeboom, 2008). Although relatively little research has investigated language use in dyadic conversations, such findings indicate that a listener’s non-verbal reaction influences the speaker’s word choice along abstract-concrete and ambiguous-descriptive dimensions (Beukeboom, 2008). Overall, these findings suggest that the influence of factors such as mood may have a greater impact on face-to-face dyadic conversational language than on solitary or isolated processing of words (Mairesse & Walker, 2010).

The current study investigated how language use, under the manipulation of different moods (positive, negative, neutral), changes during dyadic social interaction. Each dyad watched a short film clip that induced participants into a particular mood. One member of the dyad was induced into either a positive or negative mood (i.e., Primary Speaker), while the other member was induced into a neutral mood (i.e., Secondary Speaker). It was proposed that participants, who have had a positive or negative mood induced would transfer their distinct language style to a communication partner during natural conversation. During the dyadic social interactions, two participants engaged in conversation that was guided by a number of discussion topics. Their speech was recorded and then transcribed to examine participants’ usage of emotional language and predicates. In the study, predicate use was measured using the Linguistic Category Model (LCM), which distinguishes between four different types of interpersonal predicate types that vary in abstraction (Semin & Fiedler, 2010). Each verb and adjective used by participants during the conversations were coded from very concrete to very abstract. It was predicted that participants in a negative mood would use less abstract language (i.e., more description action verbs and interpretive action verbs/state action verbs). In contrast, participants in a positive mood were predicted to use more abstract language (i.e., state verbs and adjectives). Furthermore, it was also hypothesized that the secondary speaker would mimic the language style of the person
who began the conversation.

Emotional language use was measured using the LIWC 2015 program. Specifically, participants’ use of positive and negative emotional words, overall affect, and emotional tone were analyzed. Concurrent with Bower’s (1981) notion of mood congruency, it was hypothesized that participants in a positive mood would use more positive emotional words, affect, and higher emotional tone in their speech. In contrast, participants in a negative mood would use more negative emotional words, less affect, and lower emotional tone. Furthermore, it was also predicted that the first person to speak would transfer their language style to the following speaker. For instance, if the primary speaker was in a positive mood, they were predicted to use more positive emotional words, which in turn, were predicted to influence the usage of positive emotional words of the secondary speaker. On the other hand, if the primary speaker was in a negative mood, their increased usage of negative emotional words would influence the secondary speaker to use more negative emotional words.

Self-monitoring was also examined using the self-monitoring scale (Lennox & Wolfe, 1984). The questionnaire measured the ability to modify self-presentation and sensitivity to expressive behaviour of others using dichotomous questions. It was hypothesized that participants higher in self-monitoring would demonstrate higher levels of language style matching. In contrast, participants who are low in self-monitoring were predicted to show lower levels of language style matching.

Method

Participants

The sample consisted of 28 undergraduate students at Brescia University College, with ages ranging from 17 to 33 years ($M = 19.29, SD = 3.13$). All participants provided information
on their first language (22 English, 2 Chinese, 1 Arabic, 1 Albanian, 1 French, 1 Unidentified), English speaking fluency (96.43% identified as fluent speakers of English), and rated how well they knew their participation partner on a 5-point bipolar scale, ranging from 1 = not at all to 5 = very well ($M = 2.02$, $SD = 1.53$). Participants were recruited via the SONA system to participate in the current study as a part of the Introductory to Psychology course (with the exception of two students). Students in the psychology course were compensated one credit for their participation, while two students received no compensation. As a prerequisite of the study, participants were required to be fluent speakers of English.

**Materials**

The current study consisted of five tasks: a demographic questionnaire, a social monitoring survey, a mood manipulation task, two mood manipulation checks, and a dyadic conversation task. For consistency reasons, the experimenter instructions communicated to participants were scripted (see Appendix A).

**Demographics.** Participants completed a questionnaire on paper composed of seven items (see Appendix B). The questionnaire consisted of language and demographic questions and also inquired about the relationship between each dyad pair.

**Self-monitoring task.** Participants also completed a self-monitoring questionnaire (Lennox & Wolfe, 1984) on paper that was composed of two subscales with 13 items. The questionnaire measured the ability to modify self-presentation and sensitivity to expressive behaviour of others using dichotomous questions (i.e., True/False).

**Mood manipulation.** Short film clips (see Appendix C) were used to induce participants in either a positive, negative or neutral mood. The positive clip was a scene from a television episode of “Friends” (4:30), and the negative clip was a scene from the film “Sophie’s Choice”
An additional control film clip “How It’s Made Balloons” (4:36) was used to induce participants in a neutral mood. This task used a 13-inch and 15-inch MacBook laptop (i.e., one per participant) to present the film clips. The laptops were positioned at opposite ends of the room, and participants sat approximately 20 to 40 inches from the screen. Participants viewed written instructions on the screen and were instructed to press the space bar on the keyboard to begin the task (see Appendix D). The screen remained blank for 30 seconds before the film clip started automatically. Once the video ended, participants were given written instructions to complete the mood manipulation check. During the task, participants used head phones to listen to the film clip. Additionally, the experimenter adjusted the volume and screen brightness prior to the study beginning.

**Mood manipulation check.** Following the film clip, participants completed the first mood manipulation check (see Appendix E). Participants were asked to report on paper how they “feel at this moment” on three questions, each scored on a 7-point bipolar scale ranging from 1 = good to 7 = bad, 1 = sad to 7 = happy, and 1 = positive to 7 = negative. After the final task (i.e., dyadic conversation task), participants completed the mood manipulation check a second time to assess for any mood changes.

**Dyadic conversation task.** Each dyad consisted of two mood-induced participants (Primary Speaker: positive/negatively induced; Secondary Speaker: neutrally induced). Participants were provided a set of neutral discussion questions on paper (see Appendix F) and were asked to engage in dialogue with their conversation partner. The primary speaker spoke first for a minimum of one minute, followed by the secondary speaker who also spoke for one minute. After the dyads’ first minute of speaking, they were encouraged to engage further in conversation through a more natural structure. The researcher prompted the conversation when
necessary (see Appendix G). Each conversation lasted for an average of 9 minutes and 47 seconds. The conversations were timed and audio record using a “voice memo” application.

**Procedure**

The study was conducted in small classrooms at Brescia University College. Each dyad was instructed to read the letter of information and sign an informed consent form prior to beginning the experiment. Participants first completed a social monitoring and demographic questionnaire. Once participants finished the questionnaire, the researcher then gave verbal instructions concerning the next steps and expectations of the remainder of the study. These instructions were communicated prior to the film clip in the hopes of prolonging the mood manipulation as well as eliminating any interference on later task performance.

The researcher disclosed to each dyad that they would first watch a short video clip on separate laptops. Participants were instructed to free their minds of all thoughts and feelings, and to focus on the film they would be watching. In order to do so, participants were seated in front of a blank laptop screen for 30 seconds prior to the film clip beginning. Each participant was randomly assigned to one of the two conditions (i.e., Primary Speaker: Positive/negative mood; Secondary Speaker: Neutral mood) using a block randomization procedure. The primary speaker watched either a positive (“Friends”) or negative (“Sophie’s Choice”) film clip, and the secondary speaker watched a neutral film clip. Participants were instructed to fill out the mood manipulation check immediately after watching the film. The researcher further explained that following the film and manipulation check, dyads would engage in conversation with the help of discussion questions. The primary speaker was instructed to speak first, followed by the secondary speaker. Participants were instructed to give a thorough answer to each question and were encouraged to engage in dialogue with their conversation partner. The dyadic conversation
task continued until the conversation had produced a minimum of four minutes’ worth of speech from each subject. In order to obtain enough speech, the researcher prompted the conversation if needed. Following the conversation task, participants completed a second mood manipulation check.

Overall, the experiment took approximately 25 to 30 minutes. Upon completion of the mood manipulation check, participants were fully debriefed and were given contact information provided they had any further questions.

**Dependent Measures**

Dyadic conversations were audio recorded and fully transcribed. Each speakers’ individual transcription was divided into three separate files: the first minute of speech, following speech, and the full speech. Transcriptions were prepared and edited according to the LIWC program requirements to ensure the accuracy of the analyses.

**Abstractness.** Participants abstract language use during the conversation task was analyzed. Each verb and adjective used in participants’ speech were coded and scored using the Linguistic Category Model (LCM; Semin & Fiedler, 2010) in the following way: descriptive action verbs (very concrete) = 1, interpretive action verbs/state action verbs (concrete) = 2, state verbs (abstract) = 3, and adjectives (very abstract) = 4. Participants received an average score of abstract language use.

**Emotional Valence.** Participants use of emotional words (positive and negative), overall affect, and emotional tone were analysed using the LIWC 2015 program. The LIWC program converted participants’ number of positive and negative emotional words and overall affect used into percentages. Emotional tone was scored on a 100-point scale with higher scores representing more positive emotional tone.
Results

Each Dyad was divided into two mood manipulation conditions: Positive/Negative mood or Neutral mood. Participants in a positive ($N = 6$) or negative mood ($N = 6$) were the primary speakers and those in a neutral mood ($N = 12$) were the secondary speakers. Two dyads were excluded from the analyses due to two participants not meeting the required level of English fluency.

**Mood Manipulation Check**

A one-way multivariate analysis of variance (MANOVA) was conducted to examine the effect of mood manipulation on participants’ reported mood from each of the three mood scales. Using Pillai’s Trace, there was a significant effect of mood manipulation on participants’ reported mood on the three mood scales, $V = 0.85$, $F(6, 40) = 4.94$, $p = .001$, $\eta^2 = .43$. As shown in Figure 1, univariate ANOVAs revealed a significant effect of mood manipulation on the Good-Bad, $F(2, 21) = 27.59$, $p < .001$, $\eta^2 = .72$, Sad-Happy, $F(2, 21) = 24.18$, $p < .001$, $\eta^2 = .70$, and Positive-Negative scales, $F(2, 21) = 31.66$, $p < .001$, $\eta^2 = .75$.

**Mood Manipulation and Language Check**

Independent samples t-tests were conducted to determine whether various language features, during the first minute of speech, differed between primary speakers in a positive and negative mood. The first independent t-test was conducted to evaluate differences in abstract language between the two groups. Figure 2 shows the mean proportion of language abstractness between participants in a positive and negative mood. There was a significant difference between the two mood manipulation groups, $t(10) = 2.91$, $p = .008$, $d = 1.68$. Participants in a positive mood used more abstract language in the first minute than those in a negative mood. Furthermore, additional independent samples t-tests revealed that participants in a positive mood
Figure 1. Mean reported mood scores of participants in a positive, neutral, and negative mood across mood questions. The error bars represent standard error of the mean. Higher scores indicate a more negative mood.

* $p < .05$. 
Figure 2. Mean proportion of usages of the abstractness and affect speech features across participants in a positive and negative mood. The error bars represent standard error of the mean. Higher abstractness scores indicate the use of more abstract language. Higher affect scores indicate the use of more affect.

* $p < .05$. 
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tended to use more affect in their first minute compared to those in a negative mood, however
this effect did not reach statistical significance, $t(10) = 1.66, p = .064$ (see Figure 2). All other
language features were not found to differ significantly between groups.

**Language Style Matching**

**Relationship between conversation partners.** A Pearson correlational analysis was
conducted to examine language style matching between conversation partners (see Table 1).
Specifically, the analysis served to determine which aspects of participants’ spoken language
were associated with their conversation partner’s language. The analysis showed that during the
first minute, the primary speakers’ usage of affect ($M = 6.28, SD = 3.10$) and positive emotion
words ($M = 5.58, SD = 3.20$) significantly correlated with the secondary speakers’ usage of
affect ($M = 5.02, SD = 2.40$), $r(10) = .67, p = .018, r^2 = .45$, and positive emotion words ($M =
3.58, SD = 2.39$), $r(10) = .68, p = .015, r^2 = .46$.

In addition, the correlation between the primary speakers’ language abstractness during
the first minute of speech ($M = 2.61, SD = .32$) and abstractness of the secondary speakers ($M =
2.63, SD = .25$) did not reach significance, $r(10) = .53, p = .076, r^2 = .28$. However, the
association was statistically significant throughout the entire conversation, $r(10) = .61, p = .036,
$ r^2 = .37$.

**Difference between secondary speakers.** A 2(Mood of Primary Speaker: Positive,
Negative) x 2(Conversation Time: First Minute of Speech, Following Speech) mixed ANOVAs
was conducted to examine the effect of Conversation Time and Mood of Primary Speaker on
various spoken language features. Spoken language features of the secondary speakers were
Table 1

*Correlation Summary of Language Style Matching Measures in the First Minute and Full Conversation*

<table>
<thead>
<tr>
<th></th>
<th>Secondary Speaker</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Minute</td>
<td>Full Conversation</td>
<td></td>
</tr>
<tr>
<td>Primary Speaker</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>Emotional Tone</td>
<td>.36</td>
<td>.006</td>
</tr>
<tr>
<td>2</td>
<td>Affect</td>
<td>.67*</td>
<td>.</td>
</tr>
<tr>
<td>3</td>
<td>Positive Emotion</td>
<td>.68*</td>
<td>.06</td>
</tr>
<tr>
<td>4</td>
<td>Negative Emotion</td>
<td>.20</td>
<td>-.21</td>
</tr>
<tr>
<td>5</td>
<td>Abstractness</td>
<td>.53</td>
<td>61*</td>
</tr>
</tbody>
</table>

*Note.* Bivariate correlations between dependent variables of the Primary and Secondary Speakers in the full conversation.

*p < .05.*
measured during the first minute of conversation as well as in the following portion of conversation.

There was no effect of Mood of Primary Speaker or of Conversation Time on any language measures \( (p's > .05) \). However, there was a significant Mood of Primary Speaker x Time interaction for tone, \( F(1,10) = 5.47, p = .041, \eta^2_p = .35 \), as shown in Figure 3.

A univariate ANOVA further revealed a significant simple main effect of primary speakers’ mood on the secondary speakers’ emotional tone for the first minute of conversation, \( F(1,10) = 5.06, p = .048, \eta^2_p = .34 \), but not for the following speech, \( F(1,10) = 1.091, p = .321, \eta^2_p = .10 \). The secondary speaker used a significantly higher emotional tone during the first minute of conversing with a primary speaker in a positive mood \( (M = 83.38, SD = 24.01) \) than with a speaker in a negative mood \( (M = 49.14, SD = 28.53) \).

In addition, there was also a significant Mood of Primary Speaker x Time interaction for abstractness, \( F(1,10) = 4.98, p = .050, \eta^2_p = .33 \) (see Figure 4). Simple main effects analyses found that the simple main effect of primary speakers’ mood on the secondary speakers’ language abstractness did not reach statistical significance for both the first minute of conversation, \( F(1,10) = 4.41, p = .062, \eta^2_p = .31 \), and following speech, \( F(1,10) = .58, p = .464, \eta^2_p = .06 \). None of the other interactions were significant.

**Self-Monitoring**

The relationship between speakers’ individual self-monitoring and language style matching was also explored using a Pearson correlation. Language style matching scores were derived from the absolute difference scores between the primary and secondary speakers’ spoken language features during the first minute and following speech (see Table 2). The correlation revealed that the secondary speakers’ self-monitoring was not associated with speakers’
**Figure 3.** Mean proportion of emotional tone in the first minute and following speech across the primary speakers in a positive and negative mood. The error bars represent standard error of the mean. Higher scores indicate more positive emotional tone, whereas lower scores indicate more negative emotional tone.

* $p < .05$. 
Figure 4. Mean proportion of language abstractness in the first minute and following speech across primary speakers in a positive and negative mood. The error bars represent standard error of the mean. Higher scores indicate the use of more abstract language.

* $p < .05$. 
Table 2

*Correlation Summary of Language Style Matching and Self-Monitoring (SM) Measures in the First Minute and Following Speech*

<table>
<thead>
<tr>
<th></th>
<th>First Minute</th>
<th></th>
<th>Following Speech</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SM of Primary Speaker</td>
<td>SM of Secondary Speaker</td>
<td>SM of Primary Speaker</td>
</tr>
<tr>
<td>Tone (Abs. Diff.)</td>
<td>.02</td>
<td>.45</td>
<td>.77**</td>
</tr>
<tr>
<td>Affect (Abs. Diff.)</td>
<td>-.10</td>
<td>.07</td>
<td>.67*</td>
</tr>
<tr>
<td>Positive Emotion Words</td>
<td>-.27</td>
<td>.12</td>
<td>.72**</td>
</tr>
<tr>
<td>Negative Emotion Words</td>
<td>-.11</td>
<td>.22</td>
<td>.35</td>
</tr>
<tr>
<td>Abstractness (Abs. Diff.)</td>
<td>.22</td>
<td>.12</td>
<td>.19</td>
</tr>
</tbody>
</table>

*Note. Bivariate correlations between dyad absolute difference scores of dependent variables and primary and secondary self-monitoring scores.*

*p < .05, **p < .01.*
difference in any of language variables during the first minute. However, there were significant positive correlations between language style matching during the following speech and both primary and secondary speakers’ self-monitoring.

**Discussion**

The purpose of the current study was to investigate how individuals’ mood influences the language they use during dyadic conversation. Additionally, this study explored the relationship between language style matching and participants’ self-monitoring.

First, it was proposed that primary speakers in a negative mood would use less abstract language than speakers in a positive mood. Congruent with this hypothesis, the study found that speakers in a negative mood used significantly less abstract language during their first minute of speaking compared with participants in a positive mood. Second, it was hypothesized that primary speakers in a positive mood would use more affect, positive emotional words, and have higher emotional tone in their first minute of speech compared to participants in a negative mood. Although the current results did not provide support for this hypothesis, the findings were in the expected direction.

Furthermore, the study also predicted that the secondary speaker would match the language style of their conversation partner. This effect would be most salient during the secondary speakers’ first minute of speech as the first minute was more structured. For instance, as the conversation continues, the secondary speakers’ language could similarly be influencing the primary speakers’ language. The study established that during the first minute, the secondary speakers’ usage of affect and positive emotional words significantly correlated with the corresponding features of the primary speakers. However, the association between primary and secondary speakers’ language abstractness was only significant during the entire conversation.
Overall, the findings indicate that style matching of some language features occurred between speakers during conversation. It cannot be determined, however, that the secondary speakers’ use of language abstractness was influenced uniquely by that of the primary speakers.

Additionally, the study examined the difference between secondary speakers who spoke with an individual in either a positive or negative mood. It was predicted that if their partner was in a positive mood, the secondary speaker would use more affect, positive emotional words, abstractness, and higher emotional tone than when partnered with someone in a negative mood. Secondary speakers used a significantly higher emotional tone during the first minute of conversing with a speaker in a positive mood than with a speaker in a negative mood. Furthermore, the difference in language abstractness between secondary speakers was in the expected direction, however, it did not reach statistical significance ($p = .062$).

Contrary to the final hypothesis, self-monitoring was found to be significantly associated with language style matching in the opposite direction than what was expected. It was proposed that the difference between language measures of the primary and secondary speakers during the first minute of speech would be negatively correlated with the secondary speakers’ self-monitoring. Thus, speakers higher in self-monitoring should have demonstrated greater language style matching (i.e., less difference between speakers’ language measures). However, the study found that the higher the secondary speakers’ self-monitoring, the greater the difference in negative emotional words between speakers. In addition, the primary speakers’ self-monitoring positively correlated with speakers’ difference in emotion tone, affect, and positive emotion words. These associations were not expected as the primary speakers spoke first in the conversation. Accordingly, their self-monitoring could have been related to language style
matching during the following speech, but the finding was not anticipated during the first minutes of conversation. The reasons as to why these results were found is unknown.

Mood plays a substantial role in the style of cognitive processing during reading comprehension and autobiographical recollection. While a negative mood primes more analytic and detail-oriented processing, a positive mood leads to a global-processing style and a greater reliance on past experiences or stereotypes during language processing. Similar to the current study, Beukeboom and Semin (2006) asked participants in either a positive or negative mood to describe autobiographical events. They found that when people were in a positive mood, they used more abstract language, which is homogeneous with a global-processing style. In contrast, people in a negative mood processed autobiographical events with higher attention to detail and used more concrete language in their description. The present study also examined the presence of abstract language between participants in a positive and negative mood, but with spoken language rather than the production of written material. Congruent with the past findings by Beukeboom and Semin (2006) and Semin and Fiedler (2010), speakers in a positive mood used significantly more abstract language than speakers in a negative mood in their first minute of talking. These finding suggest that a positive mood facilitated a more global-processing style, while a negative mood led to the usage of a more analytic and detail-oriented processing style.

Paradoxically, the current findings did not support Bower’s (1981) notion of mood congruency. According to this theory, the affective valence of people’s language should correspond to the mood they are in. For instance, individuals in a positive mood should recall more positive personal experiences that induces higher emotional valence and positive emotional words in their language (Drače & Desrichard, 2013). In contrast, a negative mood should lead to more negative recollections as well as language that is lower in emotional valence and consists
of more negative emotional words. Although speakers in a positive mood tended to use more affect and positive emotional words in their speech than speakers in a negative mood, the differences did not reach statistical significance. Despite this outcome, it is still anticipated that with a greater sample size the effect of mood-congruent recollection and language could be established.

Language style matching is an area in research that has seldom been investigated. According to Gile’s (1991) *Communication Accommodation Theory*, people are intrinsically motivated to mimic the demeanours of others to promote social approval. Niederhoffer and Pennebaker (2002) found that even in online interactions dyads would demonstrate language style matching. Furthermore, style matching was positively associated with various LIWC measures, such as word count and present tense verbs (Niederhoffer and Pennebaker, 2002). The current study also utilized the LIWC in analyzing participants’ speech to determine whether language style matching was occurring. Similar to the findings on other language measures (Niederhoffer and Pennebaker, 2002), language style matching of affect and positive emotional words in the first minute of speech was significantly correlated between conversation partners. Thus, the more affect and positive emotion words the primary speaker used, the more that was used by the secondary speaker. This particular finding indicates that people do mimic each other’s language during social interaction.

Additionally, in order to further support this conclusion, the present study sought to determine whether there was a difference in language between secondary speakers who conversed with someone in either a positive or negative mood. For instance, if style matching was occurring within dyads, then a secondary speaker partnered with someone in a positive mood should demonstrate a significantly different language style than when partnered with
speakers in a negative mood. Consistent with this theory, secondary speakers demonstrate significantly higher emotional tone in the first minute of conversation when speaking with someone in a positive mood than when with a negative mood. However, the difference in language abstractness was not significant, but was in the expected direction. Nevertheless, it is predicted that with a greater sample size we would find such an effect of language abstractness. Although mood has rarely been linked with style matching in past literature, this finding provides some support for Bower’s (1981) notion of mood congruency. The results suggest that exposure to the affective valence of another’s language facilitates mood-congruent language in the conversation partner.

The Emotional Contagion Theory claims that certain individuals are more susceptible to mimicking the demeanors of others in social interaction (Bhullar, 2012). The current study explored a novel theory that self-monitoring could be associated with emotional contagion and language style matching. In congruence with previous findings, it was proposed that high self-monitors would be more susceptible to language style matching as they are more likely to shift their behaviour in response to different social situations. In contrast, low self-monitors tend to be more individualistic by adhering to their own beliefs and values. Thus, low self-monitors were predicted to be less susceptible to language style matching. However, the current results did not provided support to these past findings on self-monitoring. Although a significant correlation was found between language style matching and the secondary speaker’s self-monitoring, it was in the opposite direction as expected. Considering the small sample size, future research should further explore these results and attempt to replicate them.

There were a few limitations in the current study that could be addressed with further research. One of the notable issues was the small sample size as it reduced the statistical power
of the study and could have increased the margin of error. Furthermore, a small sample size increases the probability of a Type II error occurring. As previously mentioned, it is expected that with a larger sample size, we would see more significant results among the correlational analyses and t-tests. Another limitation of the study was the effect of the neutral video manipulation on participants’ reported mood. Although the difference in mood was significantly different between participants in a negative and neutral mood, the difference between the positive and neutral moods were not significant. This finding could be due to the small sample size or because participants found the neutral video to be a more positive or interesting experience than anticipated. Consequently, we cannot attribute language correlations between primary speakers in a positive mood and secondary speakers to be entirely due to language style matching. Given these findings, future research should better control the neutral condition to eliminate underlying factors as well as to increase the reliability of the results.

In conclusion, the current study contributed to the existing research by exploring the influence of mood on spoken language. Spoken language is an area with limited exploration as previous research has typically analyzed people’s written language. The present study also offered significant novel findings that serve as an extension to research. Language style matching and self-monitoring have not previously been linked with mood and spoken language in face-to-face dyadic conversation. This study concludes that the style of language we use in everyday social interaction can be dependent on the mood we are in. In addition, people mimic both the emotional valence and level of abstractness of their conversation partners’ language during social interaction. Self-monitoring was also found to be associated with language style matching, however, not in the expected direction. Future research should address the limitations of the current study to determine whether high self-monitors are more susceptible to language style
matching. Lastly, this study serves as an emergence of this new development in research on mood and social interaction. The current findings can be used in the future to develop a stronger understanding of how various factors can influence the shifting of language styles during face-to-face social interaction.
References


Appendix A

Experimenter Script

[Read after completion of Social monitoring questionnaire]

“Next, you will each watch a short video clip on different computer screens. The screens will be blank for 30 seconds before the video starts. During this time, I ask that you clear your mind of all thoughts and feelings, and to focus all of your attention on the video you will be watching. I will tell you when 30 seconds has passed and ask you to press play on the video.

After watching the video, please fill out the questionnaire that will be at your computer station and remain seated until both of you have finished.

During the next task, you will engage in conversation with each other. A number of conversation prompts will be provided on paper to help you. You both will read each question and can begin conversing when ready. I ask that you provide as much information and detail as possible when answering the questions. [Participant A] will answer each question first, followed by [Participant B]. Both of you should speak for approximately one minute. Once both of you have spoken for about a minute, you are then encouraged to engage in conversation further by commenting or asking questions about what your partner had to say. If there are gaps or stoppages in your conversation, I may prompt you with additional questions. Otherwise, please continue with your conversation until I notify you when the task is over. Lastly, you will complete a short questionnaire on paper after the conversation task.

Throughout the study, I will repeat these instructions and will be helping to guide you through the session so that you know what to do next. Now before we begin the first task, do you have any questions?” (Answer any questions)
Appendix B

Demographic Questionnaire

Age: __________
To which gender identity do you most identify? ______________

Year:
___ First Year
___ Second Year
___ Third Year
___ Fourth Year

Is English your first language? (Please circle)
Yes    No (please specify): __________

Are you a fluent speaker of English? (Please circle)
Yes    No

How well do you know the other participant? (Please circle)
1  2  3  4  5
Not at all Very Little Somewhat Fairly Well Very Well
Appendix C

Mood Manipulation Video Clips

Positive Video: Friends – The Routine (4:30)
https://www.youtube.com/watch?v=XYRue0GUIsg

Negative Video: Sophie’s Choice (4:36)
https://www.youtube.com/watch?v=DZ9bht5H2p4

Neutral Video: How It’s Made Balloons (4:36)
https://www.youtube.com/watch?v=e7pYoA9gEqc
Appendix D

Mood Manipulation Task

Slide One: Written Instructions

THANK YOU FOR PARTICIPATING!

PARTICIPANT B

YOU WILL FIRST WATCH A SHORT VIDEO CLIP. THE SCREEN WILL BE BLANK FOR 30 SECONDS BEFORE THE VIDEO STARTS. PLEASE DO NOT PRESS ANY BUTTONS, AS THE VIDEO WILL AUTOMATICALLY START AFTER THE ALLOTTED TIME.

PRESS THE SPACE BAR TO BEGIN

Slide Two: Blank Screen (30 seconds)

Slide Three: Film Clip

Slide Four: Next Steps

PLEASE COMPLETE THE QUESTIONNAIRE AND REMAIN SEATED UNTIL PROMPTED BY THE RESEARCHER. THANK YOU.
Appendix E

Mood Manipulation Check

On the scales below, please indicate how you are feeling at this moment. Circle the number that best represents your current mood.

- Numbers “1” and “7” indicate a very strong feeling.
- Numbers “2” and “6” indicate a strong feeling.
- Numbers “3” and “5” indicate a fairly weak feeling.
- Number “4” indicates a neutral feeling.

<table>
<thead>
<tr>
<th></th>
<th>Very Strong</th>
<th>Strong</th>
<th>Fairly Weak</th>
<th>Neutral</th>
<th>Fairly Weak</th>
<th>Strong</th>
<th>Very Strong</th>
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<tr>
<td>Good</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>Sad</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>7</td>
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<tr>
<td>Positive</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
Appendix F

Dyadic Conversation Questions

1. Using as much information and detail as possible, describe to your partner your university experience so far (i.e., program, residence experience, orientation week, classes, reasons for choosing Brescia, etc.).

   • **Participant A** speaks first for a **minimum of one minute**.
   • **Participant B** speaks second for a **minimum of one minute**.

   You are encouraged to engage in discussion with each other.

2. Using as much information and detail as possible, describe to your partner your first job and/or volunteer experience (i.e., job title, location, job position, job satisfaction, length of employment, age, etc.).

   • **Participant A** speaks first for a **minimum of one minute**.
   • **Participant B** speaks second for a **minimum of one minute**.

   You are encouraged to engage in discussion with each other.

3. Using as much information and detail as possible, describe to your partner your favourite food and/or beverage (i.e., where can you get/buy it, why it is your favourite, who do you share it with, best time to consume, etc.).

   • **Participant A** speaks first for a **minimum of one minute**.
   • **Participant B** speaks second for a **minimum of one minute**.

   You are encouraged to engage in discussion with each other.
Appendix G

Experimenter Prompts: Dyadic Conversation Task

Question One Prompts

- Can you please describe the reasons why you chose to study at Brescia.
- What advice would you give a Grade 12 student who is choosing a University/College?

Question Two Prompts

- What skills have you learned from your job and/or volunteer experience and how have these skills helped you in other pursuits?
- Would you recommend this job to a friend? Why or why not?

Question Three Prompts

- Describe your favourite fast-food restaurant and what you would order.
- Describe your ideal dinner date with a celebrity or role model.