

ÖYKÜ ÇİFTÇİ

EMOTION WORD USE AND PERCEIVED RESPONSIVENESS

Bilkent University 2019

THE ROLE OF EMOTION WORD USE IN PERCEIVED RESPONSIVENESS
DURING GETTING ACQUAINTED INTERACTIONS

A Master's Thesis

by

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Ankara
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To my beautiful sister who is the joy of my life...

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The Graduate School of Economics and Social Sciences
of
İhsan Doğramacı Bilkent University

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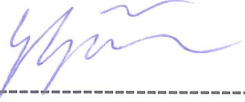
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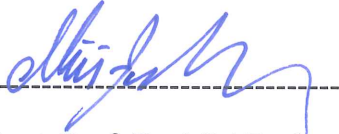
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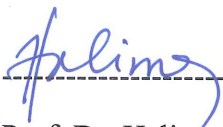
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ABSTRACT

THE ROLE OF EMOTION WORD USE IN PERCEIVED RESPONSIVENESS DURING GETTING ACQUAINTED INTERACTIONS

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Past research has showed that perceived responsiveness (i.e., the extent to which people think that their relationship partners understand, care for, and appreciate them) is positively associated with individual and relational well-being. However, predictors of responsiveness were not extensively investigated. Researchers predominantly investigated stable individual differences as predictors of responsiveness and ignored dynamic factors such as language use and time. In addition, perceived responsiveness was mostly studied in the context of close relationships even though responsiveness is an important construct for less intimate relationships. To fill these gaps, the current study examined the role of emotion word use in perceived responsiveness during getting acquainted interactions. Female participants ($N = 200$) were instructed to engage in three 15-minute interactions in

pairs, in which they took turns in reading aloud and answering given sets of questions. These interactions were video-recorded and transcribed into text files to capture participants' emotion word use via a computerized text analysis program. After each interaction, participants reported their interaction partner's responsiveness. Results of multilevel analyses revealed that participants who used a greater number of positive emotion words during interactions also perceived their interaction partner as more responsive. In addition, as time went by, participants perceived their partner as more responsive. However, negative emotion word usage did not significantly predict perceived responsiveness of the interaction partner. These findings contribute to the responsiveness literature by revealing that dynamic interpersonal factors such as emotion word use during a live interaction and time play a role in perceived responsiveness of newly acquainted individuals.

Keywords: Emotions, Interpersonal Relationships, Language Analysis, Multilevel Analysis, Perceived Responsiveness

ÖZET

DUYGU BELİRTEN KELİMELEK KULLANMANIN TANİŞMA ETKİLEŞİMİ SIRASINDAKİ ALGILANAN DUYARLILIK ÜZERİNDEKİ ROLÜ

Çiftçi, Öykü

Yüksek Lisans, Psikoloji Bölümü

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Geçmişte yapılan araştırmalar, algılanan duyarlılığın (yani, insanların tanıdığı kişilerin kendilerini ne kadar anladıklarına, kendilerine ne kadar değer verdiklerine ve kendilerini ne kadar takdir ettiklerine dair düşüncelerinin) bireysel ve ilişkisel esenliği olumlu yönde yordadığını göstermiştir. Fakat, algılanan duyarlılığı yordayan faktörler kapsamlı bir şekilde araştırılmamıştır. Literatürdeki mevcut çalışmalarda araştırmacılar genellikle algılanan duyarlılığın yordayıcı faktörleri olarak kalıcı bireysel farklılıkları araştırmış ve dil kullanımı, zaman gibi dinamik faktörleri göz ardı etmişlerdir. Ek olarak, algılanan duyarlılık daha az samimi olan ilişkiler için de önemli olmasına rağmen çoğunlukla yakın ilişkiler bağlamında incelenmiştir. Mevcut çalışma, literatürdeki bu boşlukları doldurmak amacıyla duygu belirten kelimelerin kullanımının algılanan duyarlılıktaki rolünü incelemiştir. Çalışma

yöntemi olarak kadın katılımcılar ($N = 200$) üç adet 15'er dakikalık etkileşimlerde bulundular. Etkileşimler sırasında, onlara verilen soru kartlarını sırayla sesli bir biçimde okudular ve ardından her ikisi de okunan sorulara cevap verdiler. Her etkileşimden sonra, katılımcılar etkileşim partnerlerini ne kadar duyarlı algıladıklarını rapor ettiler. Deney sırasında etkileşimlerin video kayıtlarını aldık ve sonrasında bu kayıtları yazılı metin dosyaları haline getirdik. Yazılı dosyaları bilgisayar ortamında metin analizi programı ile analiz ettik ve böylece katılımcıların duygu kelime kullanımlarını elde ettik. Çok düzeyli analizlerin sonuçları, etkileşimler sırasında daha yüksek oranda pozitif duygu kelimesi kullanan katılımcıların, etkileşim partnerlerini daha duyarlı olarak algıladıklarını ortaya koydu. Ayrıca, zaman geçtikçe katılımcıların etkileşim partnerlerini daha duyarlı olarak algıladıkları görüldü. Fakat, sonuçlar olumsuz duygu kelimesi kullanımının algılanan partner duyarlılığını anlamlı bir şekilde yordamadığını gösterdi. Bu bulgular, yüz yüze etkileşim sırasında duygu belirten kelimelerin kullanımı ve zaman gibi kişilerarası dinamik faktörlerin yeni tanışan kişilerin algıladığı duyarlılık üzerinde rolü olduğunu göstermiştir ve böylece duyarlılık literatürüne katkıda bulunmuştur.

Anahtar Kelimeler: Algılanan Duyarlılık, Çok Düzeyli Model, Dil Analizi, Duygular, Kişilerarası İlişkiler

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CHAPTER 1

INTRODUCTION

Responsiveness (i.e. feelings of being understood, cared for and appreciated by one's partner; Reis & Gable, 2015) has been identified as a core construct in relationship science that is associated with both personal and interpersonal well-being (Selcuk, Karagobek, & Gunaydin, 2018). Compared to the extensive literature on the association between perceived responsiveness and individual and relational outcomes, factors predicting responsiveness have not been extensively investigated. Past studies mostly identified stable individual differences as predictors of responsiveness while ignoring that responsiveness by its nature is an interpersonal process and hence dynamic interpersonal factors such as language use and time may have a role in responsiveness. People's verbal expressions and the specific words they use may disclose important information on their psychological states, their current social environment, and their relationships (Pennebaker, Mehl, & Niederhoffer, 2003). Past research demonstrated that usage of words may convey information about an individual's gender, age, social status, psychological well-being, honesty, and cultural background (see Pennebaker, 2011 for an extensive review). However, even though language is an inherently interpersonal phenomenon, examining the link between language use and close relationship outcomes is a relatively new research area. There is a body of work revealing that linguistic patterns are associated with relationship processes such as relationship quality,

closeness, and perceived support (Fitzsimons & Kay, 2004; Rains, 2016). These studies predominantly focused on pronoun use or linguistic synchrony among people while ignoring verbal emotional expressions. The current study aims to fill these gaps and contribute to the literature on both language analysis and relationship research by examining how emotion word use of newly acquainted individuals predicts their perceived responsiveness during face-to-face interactions.

1.1 Perceived Responsiveness

Responsiveness refers to the process in which people come to believe that their relationship partners understand, care and validate core features of the self (Reis, Clark, & Holmes, 2004; Selcuk et al., 2018). That is, responsiveness has three main components: 1) *understanding*, which refers to accurately comprehending the partner's core qualities (e.g. traits, needs, feelings, etc.), 2) *caring*, which refers to displaying concern for the partner's well-being and providing help when in need, and 3) *validating*, which refers to respecting or appreciating partner's core characteristics such as abilities, traits, and values (Reis, 2014; Reis & Gable, 2015). It is proposed that responsiveness has the potential to organize distinct processes and themes of the relationship literature into a cohesive theoretical whole (Reis & Clark, 2013) and is recognized as a central, organizing construct to understand how intimacy develops in interpersonal relationships (Reis et al., 2004; Reis, 2007).

Past research has shown that relationships that are characterized by responsiveness would promote both personal and interpersonal well-being. For example, responsiveness is associated with greater eudaimonic well-being (i.e., leading a meaningful life, self-actualization and personal goal achievement) and hedonic well-being (i.e., experiencing pleasure compared to pain in life, subjective feelings of

happiness, positive affect) (Selcuk, Gunaydin, Ong, & Almedia, 2016; Otto et al., 2015). Moreover, responsiveness predicts important relationship outcomes such as high trust and intimacy among interaction partners (Laurenceau, Berrett, & Pietromonaco, 1998; Reis & Shaver, 1988), enhanced romantic relationship quality, and closeness (Debrot, Cook, Perrez, & Horn, 2012; Otto, Laurenceau, Siegel, & Belcher, 2015), high satisfaction, investment and commitment between romantic partners (Segal & Fraley, 2016), and high attachment security (Shaver & Mikulincer, 2002).

Even though past work mostly examined responsiveness within the context of romantic relationships, responsiveness has the potential to be an organizing construct for other (less intimate) types of interpersonal relationships (Selcuk et al., 2018). Indeed, higher perceived responsiveness is associated with positive relational outcomes, and predict greater intimacy and closeness in less intimate dyads such as physician-patient dyads and roommates (Canevello & Crocker, 2010; Reis et al., 2008). For example, Reis et al. (2010) revealed that a stranger's enthusiastic and responsive reactions towards a person's shared good news promotes trust and a prosocial orientation (i.e. willingness to be nice, to sacrifice and to show conformity). Although this work shows that responsive interactions among complete strangers predict positive relational outcomes, it is not clear how responsiveness among strangers develops over time, and which factors contribute to responsiveness.

1.1.1 Predictors of Responsiveness

Predictive role of responsiveness in interpersonal and individual outcomes are widely studied, whereas factors predicting responsiveness have not been thoroughly uncovered. There are a limited number of studies that reveal predictors of

responsiveness with individual differences in attachment as a leading predictor.

Attachment security and responsiveness are two close relationship phenomena that have been frequently investigated together. Attachment security is shown to inhibit people's ability to be responsive and provide caregiving towards their partners (Collins & Feeney, 2000; Feeney & Collins, 2001). In addition to disrupting people's ability to be responsive, attachment insecurity also alters people's perceived responsiveness. Insecurely attached people were shown to perceive their partner as less responsive, in addition to behaving less responsive when discussing a positive life experience (Shallcross, Howland, Bemis, Simpson, & Frazier, 2011). That is, attachment insecurity predicts lower responsiveness either by interfering with the extent to which people are responsive towards their partner or by shaping people's perceived responsiveness in a negative way.

Studies also showed that other individual differences predict perceived responsiveness and related constructs. For example, individuals with greater rejection sensitivity and lower self-esteem perceived their interaction partners as less supportive (Downey, Freitas, Michaelis, & Khouri, 1998; Murray, Holmes, & Griffin, 2000). Big-Five personality traits were also associated with responsiveness; people who are high on extraversion, conscientiousness and openness are more likely to provide and perceive greater support (Williamson, & O'Hara, 2017). Another study that directly looks at the relationship between perceived responsiveness and personality traits in getting acquainted interactions showed that participants who reported themselves as more agreeable and conscientious also perceived their interaction partner as more responsive (Ciftci, Gunaydin, Selcuk, Urganci, & Yalcintas, 2018).

To sum, there are a limited number of studies that explore possible predictors of responsiveness. Further, even though responsiveness by its nature is an interpersonal process and grounded in the interactions between people (Reis & Gable, 2015), past work predominantly studied stable individual differences as predictors of responsiveness rather than dynamic factors that may unfold during face-to-face interactions. Language use may be one of these dynamic factors that predict perceived responsiveness during interpersonal interactions.

1.2 Interpersonal Relationships and Language Use

Studying words that people use as a sign of their cognition and affect is neither a new nor surprising research practice because language is a straightforward way of expressing emotions and thoughts. Research on people's linguistic patterns has increased lately, especially with the current technological progress in language analysis. There has been a number of studies that examined linguistic patterns of individuals, dyads or groups that revealed associations between language use and interpersonal outcomes.

One line of work focused on people's natural use of pronouns as an indicator of relationship quality. An example is a study examining how subtle variations on language would affect people's relationship quality and perception of closeness (Fitzsimons & Kay, 2004). This study showed that when people were exposed to or used the pronoun "we" (instead of expressions like "you and I"), their perception of closeness and relationship quality was higher for their own friendships, an observed relationship, and a novel interaction with a stranger. Past work also showed that greater use of the pronoun "we" (compared to pronoun "you") is associated with lesser distress, and greater closeness and commitment (Agnew, Van Lange, Rusbult,

& Langston, 1998; Williams-Baucom, Atkins, Sevier, Eldridge, & Christensen, 2010).

In addition to examining pronoun use, researchers have also studied linguistic patterns of dyads in the form of language style matching (LSM). LSM refers to the extent to which speakers match to one another in their function word use (Gonzales, Hancock, & Pennebaker, 2010). Studies have shown that higher linguistic match among romantic and non-romantic dyads is associated with positive relationship outcomes such as greater motivation to initiate a relationship, and lower likelihood of break-up (Ireland et al., 2011), greater perceived support (Rains, 2016), greater emotional recovery following distress (Cannava & Bodie, 2017), and greater perceived partner responsiveness (Bowen, Winczewski, & Collins, 2017).

Although there are a limited number of studies that investigated the association between linguistic patterns and relationship outcomes, past work shows that language is a strong predictor of commitment, support, and relationship quality. In these studies, researchers predominantly focused on pronoun use and language style matching, while they mostly ignored the role of emotion word use in interpersonal relationship outcomes. Studying emotion word use in interpersonal interactions is important from a theoretical standpoint. When Reis and Shaver (1998) introduced the intimacy model, they particularly drew attention to emotional expressions of the perceiver in the form of self-disclosure. Greater self-disclosure promotes greater responsiveness because it provides a context for the partner to be responsive (Laurenceau, Berrett, & Pietromonaco, 1998). Further, the intimacy model suggests that self-disclosure is more conducive to intimacy when it consists of greater emotional expression. Reis and Shaver (1988) argued that emotional expressions that convey more personal meaning to the disclosed subject potentially elicit higher

understanding and responsiveness. That is, greater emotional expression is expected to promote greater responsiveness. However, although the importance of emotional expression is emphasized since the early introduction of the intimacy model, to our knowledge there is no study that systematically measured and examined emotional expressions while studying responsiveness. Emotional expression and in turn responsive (or nonresponsive) reactions may occur in the form of both verbal and non-verbal behaviors (Reis & Gable, 2015). Thus, directly examining verbal patterns of dyads and focusing on emotion word use would tap a fundamental, yet understudied component of the intimacy model.

There is indirect evidence suggesting that emotional word use might contribute to relational outcomes. One study showed that expressing positive emotions to a greater extent and expressing negative emotions to a lesser extent were associated with greater satisfaction and stability in close relationships (Gottman, Coan, Carrere, & Swanson, 1998). However, this study measured emotional expressiveness by asking coders to categorize emotions that couples showed during the video-recorded interactions into one of the three emotion categories (i.e. negative, positive or neutral). Thus, they did not directly count and measure emotion word use. To our knowledge, there is only one study that directly studied the role of emotion word use in interpersonal outcomes. This study examined couples' natural language use in their instant messages by counting their positive and negative emotion use with a computerized text analysis program (Slatcher, Vazire, & Pennebaker, 2008). Results showed that greater positive emotion word use was positively associated with relationship satisfaction and stability. However, negative emotion word use was not significantly associated with stability or satisfaction. Overall, studies that

investigated the relationship between emotion word use and relational outcomes are either indirect or did not measure perceived responsiveness as a relational outcome.

1.3 The Present Study

Past work examining possible predictors of perceived responsiveness predominantly focused on the stable, individual difference factors and mostly neglected dynamic interpersonal interactions that are at the essence of earlier theoretical models of responsiveness. In the present research, we aimed to zero in on one important aspect of these dynamic interpersonal interactions by investigating whether positive and negative emotion word use would predict perceived responsiveness during dyadic getting acquainted interactions. We also aimed to examine the role of time and self-disclosure in predicting perceived responsiveness.

Towards these aims, we recruited two hundred female participants. We paired up two complete strangers as dyads and asked them to interact with each other in a face-to-face lab setting. Dyads engaged in three 15-minute interactions by taking turns in reading aloud and answering the given set of questions. Pairing up complete strangers as dyads and asking them to engage in three consecutive interactions enabled us to examine perceived responsiveness over time within a less intimate relationship context. The given set of questions varied in their degree of self-disclosure. We used a procedure in which we encouraged participants to disclose information to their interaction partner at varying levels, allowing us to see whether high self-disclosure (compared to low self-disclosure) would lead to greater responsiveness. Dyads were randomly assigned to one of two conditions: to either high self-disclosure (Fast Friends) or low self-disclosure (Small Talk). After each 15-minute of interaction, participants completed a measure assessing perceived

responsiveness of their interaction partner. We video-recorded dyadic interactions and transcribed these videos into text files. Positive and negative word use of participants were then calculated with a computerized text analysis program.



CHAPTER 2

METHOD

2.1 Participants

Two hundred female participants were recruited for the study in exchange for either course credit or money. To be eligible to participate, participants had to be native Turkish speakers and older than 18 years of age. Participants' age ranged from 18 to 31 years ($M = 20.27$, $SD = 1.68$). We recruited participants primarily via posters hung across the Bilkent University campus or via e-mail announcements in the university's student information system.

Institutional Review Board at Bilkent University approved the protocol of the study prior to the data collection. All participants signed informed consent forms to indicate their voluntary participation.

2.2 Procedure

2.2.1 Scheduling and Forming the Pairs

For the dyadic interaction phase of the study, we wanted to pair up participants who were complete strangers. To achieve this, prior to participants came to the laboratory, we asked them background questions (i.e. year of university, department, club memberships) via e-mail. Then, we formed the pairs according to their answers to the questions such that participants who were in different departments, clubs, etc.

were paired to decrease the likelihood of prior acquaintance. Also, when participants arrived at the laboratory, we asked them whether they already knew each other and if so rescheduled their session to pair them with another participant.

2.2.2 Interaction Phase

When participants arrived at the laboratory, we first gave them stickers that had their participant ID written on it. These stickers with unique participant numbers allowed us to accurately match participants' responses for perceived responsiveness with their interaction data. After they wore the stickers on their chests, participants read and signed the consent forms.

Then, we asked participants to engage in three 15-minute face-to-face lab setting interactions as dyads. These interactions were video-recorded by Noldus MPEG Recorder with three cameras (for the set-up of face-to-face interactions see Appendix A). During the interactions, we instructed participants to take turns in reading aloud and answering the provided set of questions (Aron, Melinat, Aron, Vallone, & Bator, 1997). We randomly assigned the dyads to one of two conditions. In the Fast Friends condition, the dyads took turns and answered the given questions that became gradually personal, intimate and high in self-disclosure (e.g. *"When did you last cry in front of another person? By yourself?"*). In the Small Talk condition, the dyads took turns and answered the given questions that were non-personal, and low in self-disclosure (e.g. *"When was the last time you walked for more than an hour? Describe where you went and what you saw."*). The complete set of questions in Turkish may be found in Urgancı (2017).

As the dyads completed each 15-minutes of interaction, research assistants escorted the participants into separate rooms. Participants were asked to complete some

social-cognitive tasks on Matlab and surveys on Qualtrics that included a measure of perceived responsiveness. Other measurements within the surveys and the social-cognitive tasks are not relevant for the purposes of the current study and will not be discussed further. At the end of the third survey, participants answered demographic questions and suspicion probes.

2.3. Materials

2.3.1 Perceived Responsiveness

Perceived responsiveness was measured by three items that were adapted from past work (Selcuk, Gunaydin, Ong, Almeida, 2016). Participants were asked to rate how much their interaction partner understood, cared for and appreciated them based on the interaction that they just completed (i.e. *“How much did your interaction partner really care about you?”*, *“How much did your interaction partner understand the way you feel about things?”*, *“How much did your interaction partner appreciate you?”*). Participants responded to the items on a 7-point scale (1 = *Strongly Disagree*, 7 = *Strongly Agree*). We computed perceived responsiveness scores by taking the mean of the three items for each member of the dyad. Cronbach’s alphas of the three items for the Interaction 1, Interaction 2 and Interaction 3 were .87, .90 and .92 respectively.

Table 1. Means and standard deviations of perceived responsiveness, positive emotion word and negative emotion use across time and conditions.

	Fast Friend						Small Talk					
	Time 1		Time 2		Time 3		Time 1		Time 2		Time 3	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Perceived Responsiveness	5.45	1.09	5.87	1.01	6.10	1.01	5.43	1.25	5.52	1.23	5.86	1.05
Positive Emotion Word	3.10	.77	5.79	1.40	4.29	1.09	4.50	1.05	3.14	.97	3.77	.82
Negative Emotion Word	1.46	.65	1.91	.74	3.40	1.86	1.49	.58	1.12	.47	1.42	.50

2.3.2 Transcription

We transcribed video-recorded interactions of dyads into text files to capture participants' positive and negative emotion word use. A group of trained undergraduate research assistants ($N = 8$) manually transcribed the interactions and then they cross-checked each other's files to avoid any misspellings and errors.

We wanted to capture each participant's emotion word use individually, at different time points. So first, we segmented each dyad's interaction text files as Interaction 1, Interaction 2, and Interaction 3. Then for each interaction, we aggregated the text files by the speaker (i.e. as person 1 and person 2). Therefore, every dyad had six separate text files to be analyzed. We then used a computerized text analysis program named the Linguistic Inquiry and Word Count (LIWC) to capture the percentage of each word category within the text files (Pennebaker, Booth, Boyd & Francis, 2015). LIWC scans the given text and counts the number of words that match to its

dictionary categories. Then, the program outputs the percentage of each category's occurrence within the given text file.

2.3.3 Creating the Turkish Dictionary for LIWC

Dictionaries are an essential part of the LIWC software to recognize, match and analyze the data. LIWC does not include a default Turkish dictionary within its package. However, the program allows users to create, import, and use their own external dictionaries. To analyze our data from a Turkish sample, we created our own positive emotion and negative emotion dictionary categories in the Bilkent University Social Psychology Laboratory in collaboration with the Language Lab at the University of Texas at Austin, where the LIWC originated.

While building the dictionary we directly translated the word categories in the default English dictionary of LIWC into Turkish. We were particularly cautious to include Turkish positive and negative emotion words that were commonly used in people's daily life. In addition, we considered the unique structure of Turkish as we built the dictionary. Turkish is an agglutinating language; that is, when word stems get one or more morphemes added, meaning of the words change and get more complex. As we added positive/negative emotion words into the Turkish dictionary, we made sure that the program would recognize the word stems, even when the stems had morphemes and suffixes attached to them within the text files. We achieved this by adding asterisks (*) to the end of the words that we wish to be recognized as the word stem within our custom dictionary (for further details about creating and using custom dictionaries for LIWC2015, see Pennebaker, Booth, Boyd, and Francis, 2015).

To evaluate the effectiveness of the Turkish dictionary, we adopted a method frequently used in past work to evaluate translated LIWC dictionaries across cultures (e.g. Dutch LIWC dictionary, van Wissen & Boot, 2018; German LIWC dictionary, Meier, Boyd, Pennebaker, Mehl, Martin, Wolf & Horn, 2018). Specifically, we first created a corpus of texts ($N = 111$) both in Turkish and in English. This corpus included novels, short stories, movie subtitles, official government reports, articles from magazines (for the complete list, see Appendix B). In addition, we wanted to include our transcriptions of verbal interactions ($N = 200$) in the corpus. We translated the Turkish transcriptions into English with Google Translate, which is a common practice for creating corpus for evaluating custom dictionaries (J. Pennebaker, personal communication, August 2018).

We processed the Turkish text files with our translated custom dictionary and processed the English equivalent of these files with the default English dictionary with LIWC. Then, we calculated Pearson correlations between the corresponding dictionary category outputs (e.g. positive emotion words in Turkish text files with the positive emotion words in English text files). Results of our analyses revealed a high correlation between the original English dictionary and the translated Turkish dictionary (see Table 2 & Table 3), speaking to the validity of the Turkish dictionary.

2.3.3.1 Turkish Positive and Negative Emotion Categories. The positive emotion category consisted of 439 words; e.g. *happy (mutlu)*, *hope (umut)*, *laugh (gülmek)*, *awesome (şahane)*.

The negative emotion category had three sub-categories: anxiety, anger and sadness. Anxiety consisted of 115 words; e.g. *panic (panik)*, *anxiety (anksiyete, kaygı)*, *uneasy (tedirgin)*. Anger consisted of 260 words; e.g. *hate (nefret)*, *kill*

(öldürmek), cruel (zalim). Sadness consisted of 409 words; e.g. cry (ağlamak), sorrow (keder), grief (yas).

Table 2. *Correlations between English and Turkish LIWC Emotion Word Categories based on 111 documents.*

Word Category	English		Turkish		<i>r</i>
	Mean	SD	Mean	SD	
Positive Emotion	2.50	1.04	2.39	.89	.742*
Negative Emotion	1.55	.90	2.69	1.43	.883*
Anxiety	.31	.22	.52	.33	.825*
Anger	.41	.27	.87	.60	.796*
Sadness	.34	.23	1.44	.76	.819*

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

Table 3. *Correlations between English and Turkish LIWC Emotion Word categories based on 200 transcriptions.*

Word Category	English		Turkish		<i>r</i>
	Mean	SD	Mean	SD	
Positive Emotion	3.54	.68	4.10	.78	.817*
Negative Emotion	1.40	.48	1.81	.63	.848*
Anxiety	.20	.13	.32	.18	.607*
Anger	.23	.14	.35	.22	.666*
Sadness	.31	.16	1.21	.46	.779*

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

2.4 Data Analytic Strategy

Because participants were embedded within the dyads and dyads were embedded within the conditions in our design, we conducted multilevel modeling. We used the Hierarchical Linear and Nonlinear Modeling software package (HLM; Raubenbush & Bryk, 2002).

First, we aimed to see whether for a given participant (perceiver), own emotion word use (positive and negative) would predict own perceived responsiveness.¹ In addition to positive and negative emotion word use, we aimed to investigate the role of condition and time in perceived responsiveness.

We conducted sequential models to test the possible interaction effects between variables. As a first step, we tested the possible three-way interaction between perceiver positive emotion $\times$ time $\times$ condition, in addition to testing all main effects (*positive emotion, time, condition*) and two-way interactions. When the three-way interaction was not significant ($p = 0.593$), we dropped this interaction from the model and tested all possible two-way interactions (perceiver positive emotion $\times$ time, perceiver positive emotion $\times$ condition and time $\times$ condition) and main effects. As the two-way interactions were not significant (all $ps > 0.391$), we dropped them from the model, which led us to the final main effects model, where we tested the main effects of perceiver positive emotion, time, and condition. Similar main effects model was conducted to test effects of perceiver's negative emotion, time and condition on perceived responsiveness.

¹ We also looked at associations between interaction partner's positive and negative emotion word use and perceived responsiveness. However, as these associations were not statistically meaningful, we only focused on the perceiver's positive and negative word use in our data analyses.

We reached to the main effects model for negative emotion by conducting the same procedure. We followed the same sequence of analyses for perceiver negative emotion, time and condition as the predictors within the interaction and main effect models. As a first step, we tested the possible three-way interaction between perceiver negative emotion $\times$ time $\times$ condition, in addition to testing all main effects (*negative emotion, time, condition*) and two-way interactions. As the possible three-way and two-way interactions were not significant (all $ps > 0.129$); they were eliminated from the models.

The following model examined whether time, condition and perceiver's positive emotion word use predicted perceived responsiveness.

Level 1:

$$\text{Perceived Responsiveness}_{ti} = \pi_{0i} + \pi_{1i} (\text{Time})_{ti} + \pi_{2i} (\text{Perceiver Positive Emotion})_{ti} + e_{ti}$$

Level 2:

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{Condition})_i + r_{0i}$$

$$\pi_{1i} = \beta_{10}$$

$$\pi_{2i} = \beta_{20}$$

Mixed Model:

$$\text{Perceived Responsiveness}_{ti} = \beta_{00} + \beta_{01} (\text{Condition})_i + \beta_{10} (\text{Time})_{ti} + \beta_{20} (\text{Perceiver Positive Emotion})_{ti} + r_{0i} + e_{ti}$$

In the above model, the outcome variable was perceived responsiveness. Predictors were time and perceiver's positive emotion at Level 1. Time was centered around the first interaction (0 = Time 1, 1 = Time 2, 2 = Time 3). Perceiver's positive emotion was also centered around the grand mean. Condition was the only Level 2 predictor (0 = Small Talk, 1 = Fast Friends).

β_{01} coefficient represented the relationship between perceived responsiveness and condition; β_{10} showed perceived responsiveness's change over time and β_{20} showed the association between perceived responsiveness and perceiver's positive emotion.



CHAPTER 3

RESULTS

Results of the model with perceiver's positive emotion word use, time and condition as the main predictors showed that perceivers' positive emotion use significantly predicted their perceived responsiveness ($\beta_{20} = 0.061$, $SE = 0.027$, $p = 0.025$, 95% CI = [0.008, 0.113]). That is, participants who used a greater number of positive emotion words during the interactions also perceived their interaction partner as more responsive. In addition, perceived responsiveness showed a significant increase over time ($\beta_{10} = 0.258$, $SE = 0.030$, $p < 0.001$, 95% CI = [0.199, 0.316]). However, condition was not significantly associated with perceived responsiveness ($\beta_{01} = 0.166$, $SE = 0.153$, $p = 0.280$, 95% CI = [-0.133, 0.465]). The role of perceivers' positive emotion word use on perceived responsiveness remained significant after running an additional model in which we controlled for the effect of negative emotion word use ($p = 0.026$).

Results of the model with perceived responsiveness as the outcome and perceivers' negative emotion word use, time and condition as the main predictors showed that perceived responsiveness significantly increased over time ($\beta_{10} = 0.254$, $SE = 0.042$, $p < 0.001$, 95% CI = [0.171, 0.336]). However, neither negative emotion word use² nor condition predicted perceived responsiveness (see Table 4).

² We also tested effects of negative emotion word sub-categories (anxiety, anger, sadness) on perceived responsiveness independently, and they were not significant (all $ps > .595$).

Table 4. *Multilevel models predicting responsiveness from perceivers' emotion word use.*

<i>Predictors</i>	<i>Coefficient</i>	<i>SE</i>	<i>p</i>	<i>95% Confidence Interval (CI)</i>
<i>Perceiver Positive Emotion</i>				
Intercept, π_0				
Intercept, β_{00}	5.366	0.131	<0.001	[5.109, 5.622]
Condition, β_{01}	0.166	0.153	0.280	[-0.133, 0.465]
Time Slope, π_1				
Intercept, β_{10}	0.258	0.030	<0.001	[0.199, 0.316]
Perceiver Positive Emotion Slope, π_2				
Intercept, β_{20}	0.061	0.027	0.025	[0.008, 0.113]
<i>Perceiver Negative Emotion</i>				
Intercept, π_0				
Intercept, β_{00}	5.364	0.141	<0.001	[5.087, 5.640]
Condition, β_{01}	0.180	0.163	0.273	[-0.139, 0.499]
Time Slope, π_1				
Intercept, β_{10}	0.254	0.042	<0.001	[0.171, 0.336]
Perceiver Negative Emotion Slope, π_2				
Intercept, β_{20}	0.025	0.049	0.610	[-0.071, 0.121]

CHAPTER 4

DISCUSSION

The aim of the current study was investigating how positive and negative emotion word use of interaction partners, time, and self-disclosure would predict perceived responsiveness during dyadic getting acquainted interactions. Results showed that participants who used a greater number of positive emotion words during interactions also perceived their interaction partner as more responsive whereas negative emotion word use did not predict perceived responsiveness. These results are in line with past findings that revealed an association between positive emotion word use and better relational functioning (Slatcher et al., 2008).

Given that negative experiences are often highly impactful for individuals and sharing these negative emotions with an interaction partner may elicit support and intimacy (Graham, Huang, Clark, & Helgeson, 2008; Kashdan, Volkmann, Breen, & Han, 2007; Lambert et al., 2012), one might expect that negative emotion word use would also be associated with lower perceived responsiveness. However, compared to negative experiences, positive experiences and emotions not only occur more often, but also are expressed more frequently (Gable & Reis, 2010; Gable, Reis, Impett, & Asher, 2004). There is a large body of work showing that capitalization (i.e. sharing positive events and news with others, Gable & Reis, 2010; Langstone, 1994) is associated with both personal and interpersonal well-being. In other words,

expressing positive emotions and talking about positive news, events, memories, etc. benefit both individuals and their relationships. Past research has shown that sharing positive experiences is associated with greater intimacy, closeness, commitment, and relationship stability (Gable & Reis, 2010). Moreover, when couples discussed both negative and positive events, being responsive to positive events was found to be more important for relationship well-being than being responsive to negative events (Gable, Gonzaga, & Strachman, 2006). Similar to the findings on capitalization, past studies showed that expressing various positive emotions such as gratitude and admiration have a strong connection with personal and relational well-being (Algoe, Gable, & Maisel, 2010; Algoe & Haidt, 2009). Results of the present study overlap with the notion that sharing positive experiences and thus expressing positive emotions predict better relational outcomes—in our case in the form of greater perceived responsiveness. In addition, the present study expands past findings on capitalization by showing that expressing positive emotions are important for newly acquainted dyads while forming new relationships. Expressing positive emotions may thus be a foundation to satisfying acquaintanceships by fostering responsiveness.

While evaluating the present results, one should note that we measured linguistic patterns of complete strangers during getting acquainted interactions. When a person meets with a stranger for the first time, they would be more likely to represent themselves in a more positive light and thus experience smoother and more positive interactions. In addition, one would likely expect similar motivations from their interaction partner and pay more attention to positive than negative cues (Gunaydin, Selcuk, & Zayas, 2017). Although speculative, this might be one reason why in the present study positive emotion word use plays a bigger role in predicting perceived

responsiveness. As a future direction, emotion word use of more established dyads or close friends may be examined to see if there is indeed a difference between new vs. established acquaintanceships in how emotion word use predicts perceived responsiveness.

Although perceivers' positive emotion word use had a role in perceived responsiveness, partners' emotion word use did not predict perceived responsiveness. These results may support the idea that responsiveness is mostly rooted in the perceiver's motivated interpretations rather than partner's enacted behaviors. From early theorizing (Reis & Shaver, 1988) to contemporary models of responsiveness (Reis & Clark, 2013) researchers have always stressed that both perceiver and partner had a unique and significant contribution to perceptions of responsiveness. Although there is a common understanding that responsiveness is a dynamic and dyadic process, researchers still debate whether perceived responsiveness is mostly rooted in perceiver's own motivated interpretations or in the partner's enacted behaviors. On a theoretical level, researchers generally put emphasis on a perceiver's interpretations of responsiveness, rather than partner's actual behaviors, in predicting relational outcomes (Reis & Gable, 2015; Lemay, Clark, & Feeney, 2007). However, there is also empirical evidence indicating that partner's enacted responsive behaviors significantly shape actor's perceived responsiveness (Feeney & Thrush, 2010; Gable, Gonzaga, & Strachman, 2006; Gable, Gosnell, Maisel, & Strachman, 2012). Results of the present study supports the stance that a perceiver's motivated interpretations make greater contributions to perceived responsiveness.

An alternative interpretation of these results is that perceivers' greater positive emotion word use is a reflection of their current positive mood, which may in turn alter their perceptions of responsiveness. That is, participants who used greater

positive emotion words may simply be projecting their positive mood into how they perceive interactions and their interaction partner, boosting their perceived responsiveness. Past work that tracked down individuals' emotional states by analyzing their linguistic patterns via LIWC (Back, Küfner, & Egloff, 2010; Golder & Macy, 2011) assumed that linguistic patterns are direct reflections of positive and negative emotions. However, more recent research showed that LIWC is not able to detect fluctuations in individuals' momentary positive experiences (Sun, Schwartz, Son, Kern, & Vazire, 2019). Considering the mixed evidence regarding the ability of computerized text analysis in detecting momentary moods, future studies should assess both self-reported mood and linguistic patterns reflecting emotional states to directly examine which of these factors is a stronger predictor of perceived responsiveness.

In the present study, we used emotion word use as a predictor of perceived responsiveness. Alternatively, direction of the relationship may be the other way around and perceived responsiveness may affect positive emotion word use. That is, participants who perceived their interaction partner as more responsive might feel greater positive affect, which in turn might increase the use of positive emotion words. In the present study, we did not measure participants' baseline perceived responsiveness. Therefore, we were not able to test the alternative direction of the relationship between perceived responsiveness and emotion word use. Future studies are needed to disentangle the direction of the relationship between positive emotion word use and perceived responsiveness.

Results also revealed that perceived responsiveness showed a significant increase over time. In other words, as strangers spent time together and became acquainted with each other, they also perceived their interaction partner as more responsive.

Similar to the present findings, one study showed that perceived responsiveness between roommate dyads increased over time (i.e. over weeks and across a semester) (Canevello & Crocker, 2010). This study argued that individuals projected their own responsiveness to their interaction partner, which in turn increased perceived responsiveness of the interaction partner. However, projection of responsiveness does not necessarily explain why perceivers themselves increasingly become more responsive towards their partners in the first place. The reason why people become more responsive, and in turn perceive their partner as more responsive, may be explained by other features of interpersonal relationships that also change over time. As two people spend time together they may gather more information about each other; show more vulnerability; feel greater trust, commitment, and empathy; form expectations on how the other person will act and may feel a heightened sense of responsibility to reciprocate their feelings, behaviors etc. So, although the finding that perceived responsiveness increases over time seems simple and straightforward, the mechanism explaining this temporal pattern remains to be uncovered by future studies.

One of the aims of the present study was examining the role of self-disclosure in perceived responsiveness. In the literature, self-disclosure is associated with greater perceived responsiveness and intimacy (Laurenceau, Berrett, & Pietromonaco, 1998). However, results of the present study revealed no significant association between self-disclosure and perceived responsiveness during getting-acquainted interactions. The reason why there was no significant association between perceived responsiveness and self-disclosure may simply be due to ineffectiveness of the self-disclosure manipulation. To investigate this speculation, we ran additional analyses to test the effectiveness of this manipulation. We examined the role of time and

condition in predicting positive and negative emotion word use of participants. Results of multilevel modeling analyses showed that both positive and negative word usage increased over time in the Fast Friends condition but not the Small Talk condition (see Appendix C). In other words, in the high self-disclosure condition participants disclosed greater positive and negative emotions to their interaction partner. These results demonstrate that in the present study, self-disclosure manipulation was working efficiently. However, greater self-disclosure did not elicit greater responsiveness, which may be related to the nature and aim of the manipulation itself. When Aron et al. (1997) introduced the Fast Friends procedure their motivation was building a new relationship and creating temporary feelings of closeness in a controlled laboratory setting. So, in the present study as participants disclosed personal information to one another, their intimacy as a newly acquainted pair might have increased. However, this may not necessarily mean that momentarily created intimacy and closeness would translate into responsive reactions from interaction partners. In other words, in the present study intimacy and responsiveness might not be uniformly related with self-disclosure.

Although the self-disclosure manipulation employed identical instructions for all dyads, there was heterogeneity in 1) to what extent participants engaged in self-disclosure, 2) how many questions dyads read and answered, 3) to what extent participants elaborated their answers to the given questions. In other words, some participants might have engaged in more detailed self-disclosure whilst others might have given little detail in their answers or answer a lower number of questions. This possible discrepancy in participants' self-disclosure level may have made it harder for us to detect role of self-disclosure in perceived responsiveness.

A limitation of the present study pertains to the nature of computerized language analysis. Although LIWC is a solid program to detect and measure the rate of emotion words within a conversation, it is not able to distinguish the context and tone of speech. As an example, LIWC is not able to detect sarcasm, thus it might have misidentified positive words that were used to convey something negative or vice versa. In addition, computerized programs are not able to detect and control the context of the conversations in which participants used positive and negative emotion words. For example, in certain times, participants might be discussing a negative life event such as death of a loved one. In such cases, use of greater positive emotion word use might be inappropriate and thus may not elicit responsive reactions. Consequently, it might be harder for us to detect the role of emotion word use in perceived responsiveness precisely. To overcome these limitations, future studies may supplement text analysis with human coders to assess emotional expression to be able to detect nuances of language and the context of conversations.

In the present work, we found a high correlation between original English LIWC dictionary categories and our custom Turkish dictionary categories. Although this high correlation shows that Turkish dictionary is working effectively, this does not mean that LIWC is perfectly able to recognize and analyze Turkish texts.

Computerized text analysis techniques dominantly originated from English speaking countries. Further, these programs work best with English text samples or with texts in languages that belong to same language family with English (e.g. German, Spanish). Turkish belongs to a different language family than English and hence have a completely different structure. We tried to prevent possible problems that may rise due the structural discrepancies between Turkish and English which may reflect into the performance of the LIWC emotion dictionary. For example, we compensated

for the extensive agglutination of Turkish by making the LIWC recognize word stems that have multiple morphemes added. However, there may still be some positive/ negative emotion words (especially verbs) that were overlooked by the LIWC due to the extensive agglutination in Turkish. This is another limitation of the present study that may have made it harder for us to precisely detect the role of emotion word use in perceived responsiveness.

Despite these limitations, the present work has important contributions to both language analysis and relationship literature. For the purposes of the present study, we created and tested the effectiveness of the LIWC Turkish dictionary for emotion words, which will foster future language studies in Turkish samples. More importantly, the current study reveals that dynamic interpersonal factors such as language use and time during face-to-face interactions plays a role in perceived responsiveness of newly acquainted individuals.

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APPENDICES

APPENDIX A – INTERACTION SESSIONS



During the lab sessions, participants were seated face-to-face and were asked to interact with each other by taking turns in reading aloud and answering the provided set of questions. After each session, participants were escorted to different rooms to answer survey questions about their interaction partner based on the previous interaction.

APPENDIX B – CORPUS OF ENGLISH AND TURKISH TEXTS

		Word Count English	Word Count Turkish
Article	Fine Art Journals	9947	7864
Abstracts	Psychology Journals	2283	2034
Magazine	BBC	9816	7484
Articles & News	National Geographic	3482	1843
Movie Subtitles	Batman Begins (2005)	9116	6965
	Beauty and the Beast (2017)	7459	3894
	Before Sunset (2004)	13078	7318
	Brave (2012)	4900	3367
Novels	The Bastard of Istanbul	118512	95303
	My Name is Red	186060	124044
	Memoirs of a Geisha	191848	136912
	The Spy	30859	24551
	East of Eden	227707	170975
	The Body	21424	78473
	Essays (Montaigne)	515127	49882
	Journey to the East	20867	19142
	Fight Club	49111	40457
	Ham on Rye	83698	55441
	Of Mide and Men	29732	20735
	The Grapes of Wrath	181245	142615
	Four Past Midnight	296667	75117
	Giovanni's Room	55329	41579
	Invisible Monsters	57462	46458
	The Name of the Rose	185845	154215

The Sinner	91813	73926
Harry Potter Part Two	89662	69199
Harry Potter Part Three	112421	86485
Harry Potter Part Four	198414	152590
Harry Potter Part Five	264217	204709
Harry Potter Part Six	173758	134863
Harry Potter Part Seven	199722	152595
The Pearl	26263	22393
Paper Towns	84546	63419
Dark Tower Part One	82108	46709
Dark Tower Part Two	130964	106284
Dark Tower Part Three	180380	136050
Dark Tower Part Four	263697	200884
Dark Tower Part Five	248141	181375
Dark Tower Part Six	129211	97171
Dark Tower Part Seven	280340	205475
The Winner Stands Alone	119239	84863
Jonathan Livingston Seagull	7548	6429
The Chrysanthemums	4257	16533
Narziss and Goldmund	98159	140903
Snuff	47811	37614
By the River Piedra I sat		
Down and Wept	39564	29412
Kafka on the Shore	176459	145121
Sapiens	143298	111685
The Ralay Game	21808	15537
Silent House	121032	80670
Siddharta	44034	27882
The Alchemist	41682	28197
Lord of the Flies	62678	53921

	Mist	51469	51332
	Black Milk	79606	47682
	Devil Wears Prada	142037	117320
	Choke	70035	54528
	The Girl on the Train	102289	68309
	The Three Musketeers	239791	152164
	The Old Man and The Sea	27609	45577
	The Zahir	86140	62464
Official Documents & Reports	United Nations	1782	1384
	Republic of Turkey, Prime Ministry	1350	1153
	Republic of Turkey, Ministry of Foreign Affairs	4931	5083
	Republic of Turkey, Ministry of Economy	201529	191312
	Republic of Turkey, Council of Judges and Prosecutors	5429	2874
	Republic of Turkey, Ministry of Culture and Tourism	483	354
	Bilkent University	1466	1255
University E-mails	METU	482	397
Poems		2932	1913
Quran		145289	115772
Short Stories		42432	27960

APPENDIX C – SUPPLEMENTARY ANALYSES

There was a significant interaction of condition and time in predicting participants' positive emotion word use ($\beta = 0.963$, $SE = 0.076$, $p < 0.001$, 95% CI = [0.813, 1.112]; see Figure 1).

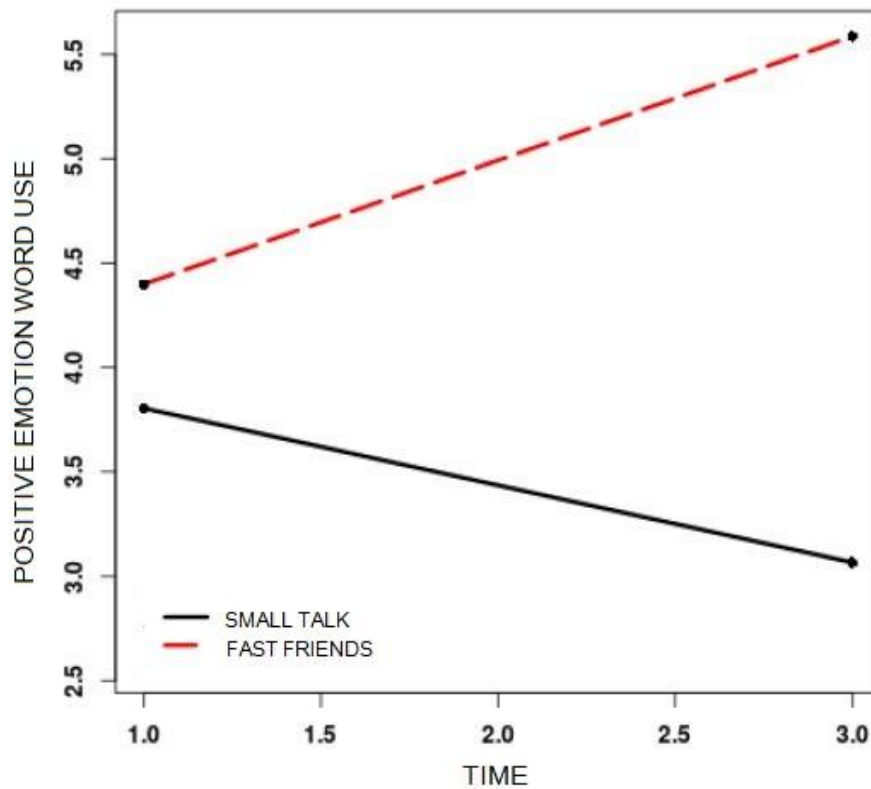


Figure 1. *Interaction between time and self-disclosure in predicting participants' positive emotion word usage.*

Similarly, there was a significant interaction of condition and time in predicting participants' negative emotion word use ($\beta = 1.001$, $SE = 0.061$, $p < 0.001$, 95% CI = [0.880, 1.121]; see Figure 2).

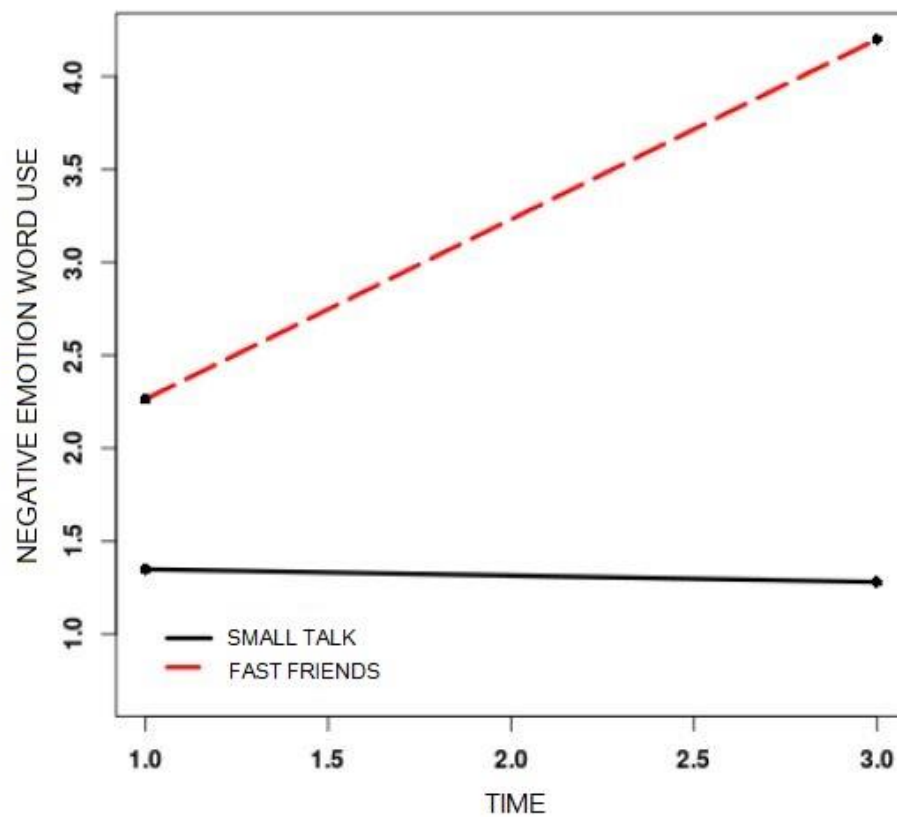


Figure 2. *Interaction between time and self-disclosure in predicting participants' negative emotion word usage.*