

Is friendship quality reflected in memory narratives?

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Abstract

The purpose of this study was to explore the link between friendship quality and content and structure of autobiographical narratives about friends. Gender differences were investigated as well. A total of 93 Italian undergraduates (51 males and 42 females) were asked to recall memories about their friends. Then, they were requested to write in detail one of their recalled memories. The *Network of Relationships Inventory* was used to measure the participants' friendship dimensions. The results showed that males and females express their memories differently depending on the degree to which their friendship relationships are positive or negative. Authors interpret these results in terms of a mirror metaphor because linguistic characteristics of narratives about friends reflect qualitative features of their friendships.

Keywords

Autobiographical memories, friendship dimensions, friendship narratives, gender differences, language, text analysis

Memories of the events of our lives are more than a reflection of the various experiences that we have had, and they also are important contributors to our identity and our understanding of our lives. McAdams (2006; McAdams et al., 2006), one of the architects of the life story model of identity, proposes that people integrate memories into a

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personal life story, which provides them with a sense of coherence and gives meaning to their lives. Other proponents of a life story model of identity agree that an individual's life history is constructed through the selection and organization of memories that are meaningful and that this constructed life history is a core building block of identity (Bohanek, Marin, Fivush, & Duke, 2006; Conway, 2005; Conway & Holmes, 2004; Habermas & Bluck, 2000).

An increasing body of evidence suggests that the quality of one's relationships strongly influences memory making but heretofore almost all of this research has focused on parent-child relationships, particularly when children are young. In this study, we are extending this body of research to include the quality of friendship relationships.

A range of characteristics of parent-child interaction has been associated with the number and quality of children's autobiographical narratives. For example, the style of parent-child memory talk with preschoolers has been shown to differ systematically between parents (Fivush, Haden, & Reese, 2006; Nelson & Fivush, 2004; Peterson & McCabe, 2004), which in turn influences children's memory making. Likewise, parent-child attachment quality influences the content and affective quality of children's memory reports (Fivush et al., 2006; McCabe, Peterson, & Connors, 2006; Thompson, 2000). Overall, when there is a positive and affectively rich parent-child relationship, parents and children talk about the past more frequently, and these conversations are embedded in positive communicative interactions (Jackson, Bjistra, Oostra, & Bosma, 1998). Indeed, in Nelson and Fivush's (2004) influential model of autobiographical memory development, a number of aspects of parent-child relationships are posited to influence children's memory.

Recently, research has expanded to encompass the influence of parent-child relationship quality on the memories of adults. For example, the warmth and involvement of parents is related to how readily adults can access memories of their early life, specifically the years prior to school entry as well as the affective tone of those memories (Peterson & Nguyen, 2010; Peterson, Smorti, & Tani, 2008).

It is not only memories from the early period of one's life that are associated with the quality of parent-child relationships but memories from later periods of life as well, that is, school entry up to university years (Tani, Bonechi, Peterson, & Smorti, 2010). In fact, Peterson, Bonechi, Smorti, and Tani (2010) concluded that the number and affective tone of adults' memories of their parents across childhood can serve as "a reflective mirror for developmental changes in parent-child relationships" (Peterson, Bonechi, Smorti, & Tani, 2010, p. 601).

Parents are not the only important social influences on children's development, of course. As they get older, friends assume increasing importance in the lives of children. Indeed, both Peterson et al. (2010) and Tani, Bonechi, Peterson, and Smorti (2010) emphasized friendship and its potential role in influencing memory. For example, Italian adults recalled increasing numbers of memories that included friends as they got older, and memories about friends outnumbered memories about parents from middle/junior high school onward. Yet little research has looked at the relationship between the quality of friendships between individuals and memory. This is the primary purpose of this study.

Definition and characteristics of friendships

According to developmental theorists, friendship is one of the most common types of interpersonal relationship and can be defined as entirely voluntary as well as horizontal (i.e., between equals), in contrast to parent–child relationships that are obligatory and vertical (Hartup, 1979; Rubin, Bukowski, & Parker, 1998). More specifically, friendships are characterized by interdependence because they are based on frequent bidirectional social interactions between two persons maintained over an extended period of time (Kelley et al., 1983). This mutual interdependence is reflected in the reciprocal influence that the individuals exert on each other in terms of thoughts, behaviors, and feelings (Laursen, 2005). The reciprocity is therefore one of the main aspects that distinguish friendship from other social relationships in which the attraction between two partners may not be mutual (Hartup & Stevens, 1999).

Over the past number of years, scholars have tried to identify specific components of friendships, both positive and negative ones (Bagwell & Schmidt, 2011, for a review). A particularly important contribution in this field was made by Bukowski, Hoza, and Boivin (1994), who identified five main dimensions for understanding the nature of these relationships and assessing their quality. The first dimension, *companionship*, is defined as the amount of time that friends spend together to share common tasks and activities. The second, *help*, describes the level of support that friends offer each other to overcome difficulty or to protect each other against other peers. The third dimension, *security*, refers to the sense of confidence that friends feel toward each other and the idea that the relationship will transcend specific problems. The fourth dimension, *closeness*, encompasses both the child's feelings toward the partner and his or her perceptions of the partner's feelings. Finally, the fifth dimension, *conflict*, is the frequency of disagreements and arguments among friends.

However, the most comprehensive classification is that provided by Furman and Buhrmester (1992, 2009) who identified further dimensions for understanding the nature of friendship relationships and assessing their quality. They are *companionship* and *instrumental Aid* defined as guidance and assistance; *intimacy* defined as the strength of the bond of mutual affection and attachment; *nurturance* defined as protection and care; *affection* that refers to feelings of mutual love and liking; *admiration* that refers to respect and approval that friends feel for each other; *reliable alliance* defined as counting on the relationship to last; *satisfaction* which defines the global satisfaction of the relationship, and *emotional support*. In addition, there are some negative characteristics, which are *conflict* that refers to how much friends get upset with or mad at each other; *antagonism* understood as competition; *punishment* that refers to how much friends punish each other and, finally, *reliable power* that defines the imbalance of power between the partners in the relationship.

However, these characteristics do not remain stable over time but change according to the role and relevance that friendship relationships assume within individuals' social network across the life span. In particular, as children get older, friends assume increasing importance in their lives and, during adolescence, the psychosocial salience and influence of friends tend gradually to surpass that of parents (Allen & Land, 1999; Guarnieri & Tani, 2011a). In this period, not only do friends become an increasingly

important source and foundation for feelings of self-esteem (Keefe & Berndt, 1996; Allen & Land, 1999; Thorne & Michaelieu, 1996; Way & Greene, 2006) but the nature and features of the relationships with friends also change significantly. As adolescents proceed to more autonomy, time spent with friends and peers increases as well as activities shared with them. In female friendships, relationships with friends become more close and intense and both intimacy and self-disclosure increase. Moreover, youth increasingly turn to friends to get necessary emotional support and to become less dependent on their parents (Crosnoe & Needham, 2004; Freeman & Brown, 2001). In the transition from adolescence to adulthood, friends satisfy the need for social integration (Barry, Madsen, Nelson, Carroll, & Badger, 2009). Therefore, emerging adults may explore interests that are similar to their friends in order to fit in with their peers. So, their friendship relationships become less likely to be conflictual and competitive (McLean & Thorne, 2003) and friends serve as an important source of support toward achieving independence for young adults (Guarnieri & Tani, 2011a). Overall, in this period of life, friendship is a flexible and even hardy type of relationship, capable of resisting the long-distance and the relational transformations and of having tremendous potential for resiliency (Becker, Johnson, Craig, Gilchrist, Haigh, & Lane, 2009; Weiner & Hannum, 2013).

Despite the focus on friendship of these studies, the issue of the influence that specific features of friendship relationships can have on memories of friends has not yet been addressed. This is the primary focus of this study.

Gender differences in friendships

Developmental theorists have suggested that gender exercises a pervasive influence over friendship. According to these perspectives, girls are socialized to be more “relationship oriented” and spend more time in social interaction in comparison to boys (Belenky, Clinchy, Goldberg, & Tarule, 1986), and such socialization strongly influences friendship relationships in both childhood and adulthood. Furthermore, females report more intimate and exclusive friendships (Giordano, 2003; Johnson, 2004) and disclose more feelings and personal information than do males (Camarena, Sarigiani, & Petersen, 1990). Whereas males’ friendships are focused on sharing activities and interests and require the establishment of a dominance hierarchy (which can often lead to competition—Bird, 2003), females’ friendships tend to emphasize intimacy, affection, and supportiveness for mutual need satisfaction (Brown & Klute, 2003; Furman & Buhrmester, 1992). A recent meta-analysis (Hall, 2011) showed that also friendship expectations were higher for females than for males in three of four categories considered, for example, symmetrical reciprocity (e.g., loyalty and genuineness), communion (e.g., self-disclosure and intimacy), and solidarity (e.g., mutual activities and companionship). On the contrary, agency (e.g., physical fitness and status) was higher in males. For these reasons, females are also more selective in choosing their friends because they look for people who share more personality traits and who are also altruistic and able to disclose emotions and feelings (Tani, Guarnieri, & Bonechi, 2008; Tani, Rossi, & Smorti, 2005). Conversely, males search for friends who are interested in sharing adventurous activities (Tani, 2000a).

The nature of these differences can be explained in terms of social role theory. According to this theory, males and females tend to behave in ways that are consistent with socially expected gender roles (Eagly, Wood, & Diekmann, 2000). Specifically, at an early age, boys learn to avoid behaviors considered “feminine” such as sensitivity, nurturance, and emotional expressiveness (Levant, 1995; Maccoby, 1998). In contrast, girls learn behaviors based on social support, care and nurturance for others, emotional disclosure, and communion (Eagly & Koenig, 2006). These role expectations exert continuing influence into adulthood.

Given the relevance of gender differences in friendships, we can expect that females and males have different memories of their friendship experiences.

Narratives, the language of memories

Prior research in our laboratory on memories and quality of relationships has used a memory fluency task (Peterson et al. 2008; Tani et al., 2010). Because such a task requires individuals to provide as many memories about targeted events as they can in a limited amount of time, it assesses how readily accessible such memories are. However, a richer analysis of memories can be done if participants provide a detailed memory account. Thus, the main purpose of this study was to investigate the relationship between friendship quality and autobiographical memories about friends through a narrative recalling task. Narratives of personal memories about friendships allow one to better evaluate qualitative aspects of narrated experiences because of a wider and more detailed use of language.

A considerable body of research on narratives has shown that linguistic expression can transmit the meaning of recalled events to the narrator (Fivush, 2011; Nelson, 1996). One way it can do so is by means of the anaphoric presence of narrative characters, which is expressed by pronouns and, in particular, the first person singular and plural pronouns “I” and “We.” In the present investigation, we focus on participants’ use of *I* and *We* in their narratives about friendship because these pronouns can reflect the closeness and communality that may typify a friendship relationship.

The type of narrated relationship is important. Sillars, Wesley, McIntosh, and Pomegranate (1997), studying transcripts of 120 married couples discussing marital issues, showed that *I* and *you* words correlate negatively with marital satisfaction. Also, traditional/interdependent couples used proportionately fewer *I* and *you* words than did autonomous couples. Cegala (1989), seeking to identify linguistic correlates of engagement/detachment in communication, found that dyads with high involvement in interaction were characterized by smaller first person ratios than were dyads with low involvement. They concluded that *We* seemed to be an indicator of a couple’s relationship quality and stability (see also Williams, Atkins, & Christiansen, 2007).

Although the literature is mixed in terms of whether adult women can recall more autobiographical memories than men, when gender differences are found, it is typically for memories involving relationships, affiliation, and family (Pillemer, Wink, DiDonato, & Sanborn, 2003). Peterson et al. (2010) found that in a memory fluency task, women recalled more memories of friendship relationships than men did. This raises the possibility that in friendship narratives women might use *We* more than *I* pronouns than do

men, expressing in such a way their sense of affiliation. It may also be that the relationship between pronoun use and relationship quality is different for females versus males. For females, affiliation, intimacy, and affection are valued characteristics of their friendship relationships, and such relationship qualities may be associated with relatively less use of *I* and greater use of *We*. In contrast, as described above, friendships for males are more likely to be focused on shared activities and interests and are also more likely to involve a dominance hierarchy. Thus, relationships between personal pronouns and friendship qualities may be different for males than for females.

Emotion words may also play an important role in personal narratives about friends, particularly, the type of affect or emotion that a narrator describes in a friendship experience. Emotion words capture the primary emotions experienced by narrated characters during the described social interaction, and they also define the narrative's emotional tone as positive or negative. A number of studies have shown that the emotion words that are used in narrative are indicators of the emotional tone of the experiences; for example, emotional experiences in romantic relationships (Slatcher & Pennebaker, 2006), mother-child experiences (Fivush, Sales, & Bohanek, 2008), maltreatment in women (Holmer et al., 2007), and positive versus negative experiences (Bohanek, Fivush, & Walker, 2005; McAdams et al., 2004). Thus, it is possible that the use of emotion words, or more specifically, their emotional tone, may be related to the quality of the friendship relationship that exists between the individuals whose joint experiences are being narrated.

The current research

To our knowledge, no studies have yet been conducted on the influence of friendship relationships on autobiographical narratives. Nevertheless, several investigations have demonstrated that the quality of parent-child relationships, such as attachment, involvement, and positive interaction, influence the number and emotional tone of autobiographical memories as well as the quality of memory narratives of their children during infancy, adolescence, and adulthood. Furthermore, other studies have shown that positive relationships with parents also influence the memories of other important social partners, such as friends. Starting from this theoretical point of view, we argue that the quality of relationships with friends can influence the content and the structure of the stories individuals recall about these relationships. Specifically, in this study, we explore the link between the quality of friend relationships and several variables related to the lexical and linguistic dimensions of autobiographical narratives about friends, namely, the number of words, affective tone, and references to singular and plural first person words. Because several studies have highlighted significant differences related to the variable of gender, we also investigate gender differences in the relationship between friendship and narratives.

Hypotheses

Prior research has shown that the quality of individuals' relationships with their parents is reflected in their memories about parents. In the current research, we predict that the

quality of individuals' relationships with their friends will also be reflected in their memories about their friends. More specifically, we predict that when requested to narrate an episode with a friend, participants who have positive friendship relationships will write narratives that are longer, more detailed, and richer in terms of positive emotions, while those who have poorer friendship relationships will write shorter stories that are more likely to be characterized by negative emotions. We also hypothesize that associations between friendship qualities and narrative properties will be different between males and females. More specifically, on the basis of several prior studies showing that in females friendships are characterized by more intimate involvement and are focused on self-disclosure, supportiveness, and intimacy, we predict that females' narratives will be longer than males' narratives as well as more focused on emotion, which will also be characterized by a more positive tone. As well, females' narratives about friends in which the friendship relationship includes greater intimacy and affection will be characterized by relatively less use of *I* and greater use of *We* than in narratives about friends with whom friendship quality is not as positive. The de-emphasis on *I* reflects greater sharing and the communal aspects of their friendship relations. In contrast, because males' friendships are less characterized by intimacy and sharing and also are more likely to have dominance hierarchy overtones, more positive friendship quality would not be related to less use of *I* and greater use of *We*.

Method

Participants

A total of 93 university students from the University of Florence (51 males and 42 females) were recruited for this study. Students were 18 to 28 years old ($M = 21.4$ years; $SD = 1.6$); males' mean age was 21.7 years ($SD = 2.3$) and females' mean age was 20.4 years ($SD = 1.3$).

The majority of these participants came from Central Italy (89.7%), with the remainder from Southern (5.6%) or Northern (4.7%) Italy. All participants came from families of middle or high socioeconomic level with more than 62.3% of their fathers and 69.8% of their mothers having a high school diploma or university degree. As well, 63.4% of the participants had at least one sibling and 79.0% currently lived at home with their parents.

Instruments

Quality of friends' relationships. The quality of relationships with best friends was measured using the friends' form of the Network of Relationships Inventory (NRI; Furman, 1996), which was adapted to an Italian sample by Guarnieri and Tani (2011b). The original scale is composed of 45 items and assesses 15 dimensions (companionship, instrumental, intimacy, nurturance, affection, admiration, reliable alliance, satisfaction, support, conflict, antagonism, criticism, dominance, punishment, and relative power). Subsequently, starting from these dimensions it is possible to derive two global scores of *social support* and *negative interactions*. The social support measure consists of the average of

the companionship, instrumental, intimacy, nurturance, affection, admiration, reliable alliance, satisfaction, and support scores. The negative interactions measure is the average of the conflict, antagonism, criticism, dominance, and punishment scores. Separate scores are calculated for *relative power*.

In the Italian adaptation, some items (in particular the items included in criticism and dominance dimensions) were eliminated because these compromised all factor solutions in the Italian sample. So, the final version of the NRI contains 39 items, which load on 13 dimensions. Finally, a confirmatory factor analysis essentially supported the original structure, $\chi^2(\text{Scaled}) = 1,304.19$; $df = 481$, $\chi^2/df = 2.71$; $CFI_{\text{Robust}} = .91$; $TLI = .90$; $RMSEA = .05$; $SRMR = .06$. In particular, positive relationship qualities are *companionship* (e.g., “How much free time do you spend with your friends?”), *instrumental aid* (“How often does your friend help you when you need to get something done?”), *intimacy* (“How much do you talk about everything with your partner?”), *nurturance* (“How much do you protect and look out for your friend?”), *affection* (“How much does your friend really care about you?”), *admiration* (“How much does your friend treat you like you’re admired and respected?”), *reliable alliance* (“How sure are you that this relationship will last no matter what?”), *satisfaction* (“How satisfied are you with your relationship with your friend?”), and *support* (“When you are feeling down or upset, how often do you depend on your partner to cheer things up?”). Negative relationship qualities are *conflict* (e.g., “How much do you and your partner get upset with or mad at each other?”), *antagonism* (“How much do you and your partner get on each other’s nerves?”), *punishment* (“How much does your friend punish you?”), and *reliable power* (“Who tells the partner what to do more often, you or your partner?”). The internal consistencies of all dimensions were generally good. In terms of reliability, the coefficient α value was .78 for *companionship*, .71 for *instrumental aid*, .78 for *intimacy*, .76 for *nurturance*, .87 for *affection*, .79 for *admiration*, .91 for *reliable alliance*, .93 for *satisfaction*, .70 for *support*, .83 for *conflict*, .87 for *antagonism*, .75 for *punishment*, and .73 for *relative power*.

Participants rated each of these qualities for their relationships with their best friend using a 5-point Likert scale that ranged from 1 (*little or none*) to 5 (*the most*). Each of the 13 relationship qualities was measured across 3 items, and the mean response to those 3 items was derived for each relationship quality. Thus the score for each relationship quality ranged from 1 to 5.

Narratives about friends

Participants were told about the goals of this research project on memory and were asked to recall memories that included their best friends from adolescence on. In this task, as well as in Furman’s questionnaire, it was clarified in the instructions given to participants that they were not to choose as friends individuals with whom they had been, or were, romantically involved, or family members, according to Becker, Johnson, Craig, Gilchrist, Haigh, and Lane’s (2009) suggested procedure, but we did not restrict participants’ choice to same-sex best friends. To facilitate this memory task, a timed recall session was used. They were given a sheet of paper with separate lines labeled for Memory 1, Memory 2, Memory 3, and so on. Participants were asked to recall as many

memories as they could and write a short sentence or two summary of each memory on the different lines. They were given 3 min to do this task (timed by the researcher). This time-limited recall task was used because considerable research has argued that the memories that are more readily accessible are those that are meaningful not only at the time of retrieval but also at the time the events occurred. Moreover, as Conway and his colleagues (e.g., Conway & Holmes, 2004; Conway & Pleydell-Pearce, 2000) have further argued, the most accessible memories from a particular period of one's life are best measured by providing subjects with a limited amount of retrieval time.

Participants were then requested to choose a significant memory episode concerning themselves and their best friends from their recalled memories and to describe it (in writing) in detail. This detailed memory task allows one to assess the narrative properties of a significant memory about best friends. They were given 15 min to do this narrative task (timed by the researcher).

Data coding

All narratives about friends produced by the participants were transcribed and analyzed using the Language Inquiry and Word Count (LIWC) procedure (Pennebaker, Booth, & Francis, 2001) for a lexical analysis of the text in order to quantify linguistic dimensions of these narratives. The LIWC program processes text files one word at a time, matching the base form of words to an extensive dictionary of over 2,290 word stems and provides the percentage of words in several linguistic, emotional, and cognitive categories, regardless of any information on the content of the events that are reported. A frequency count of the total instances of target words from each category is provided, and this count is then divided by the total number of words in the text to control for individual differences in verbosity. Thus, scores reflect a percentage of word matches in each category. The LIWC dictionary has been demonstrated to be reliable and exhaustive in its counts, categorizing approximately 85% of specific words used in a wide corpus of narratives and has been utilized by several narrative researchers (e.g., Fivush, Edwards, & Mennuti-Washburn, 2003; Pennebaker et al, 2001; Smith, Anderson-Hanley, Langrock, & Compas, 2005). In this study, we used an Italian version of this dictionary that was elaborated and used on an Italian sample by Smorti, Pananti, and Rizzo (2010). Given the social and emotional aspects of friendship assessed by NRI for this study, the following five specific categories were examined: (1) overall word count; (2) the overall category of positive emotion (e.g. "happy," "love," and "pride"); (3) the overall category of negative emotion (e.g. "hate," "afraid," and "sad"); (4) the overall category of singular first person words ("I"); and (5) the overall category of plural first person words ("We").

Procedure

Participants were recruited in class during University courses at the University of Florence. The research was conducted in accordance with the guidelines for the ethical treatment of human participants of the American Psychological Association. Prior

Table 1. Means and standard deviations for number of words, positive and negative emotion words, as well “I” and “We,” separated by gender.

LIWC variables	Males		Females		<i>F</i>	<i>p</i>	η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
No. of words	144.14	89.43	280.83	100.13	48.29	.001	.35
Positive emotions	.86	1.09	.79	.85	.098	<i>n.s.</i>	–
Negative emotions	1.73	1.36	1.74	1.35	.001	<i>n.s.</i>	–
<i>I</i>	3.58	1.67	3.60	1.78	.959	<i>n.s.</i>	–
<i>We</i>	1.11	1.27	1.28	1.17	.507	<i>n.s.</i>	–

Note. LIWC = Language Inquiry and Word Count.

permission was obtained from the University Dean and President as well as each course professor. Participants provided their individual consent and could withdraw at any time.

Results

The focus of our research is the relationship between autobiographical narrative characteristics and friendship quality. Because we predicted that these relationships would differ depending upon gender, we first present analyses of gender differences in each domain and subsequently present analyses of how they interact.

Gender differences in autobiographical narratives

Almost all participants wrote narratives on same gender friends (only seven participants referred in their memories to opposite gender friends). Participants wrote narratives of different lengths concerning a variety of experiences with their best friends. Some of these memories involved trips with their best friend in a foreign country, a birthday party, a new year's eve spent with best friends, and winning a prize for a competition together with a group of friends. Other memories involved experiences of being abandoned by one's boyfriend/girlfriend, betrayed or disappointed by friends, or guilt at having betrayed the confidence of one's friends. Thus, memories differed widely in terms of described emotions and degree of introspection.

Means and standard deviations for the word count, percentages of positive and negative emotion words, as well as percentages of first person singular (*I*) and plural (*We*) words are shown in Table 1, separated by gender. For all analyses on LIWC variables, one-way analyses of variance (ANOVAs) were calculated for the data, with gender as the between-subject variable. The *F* values and significance levels (*ps*) are also found in Table 1. One-way ANOVAs on the word counts of autobiographical narratives for women versus men showed that females wrote longer narratives than did males (*Ms* = 280.83 vs. 144.14 for women and men, respectively; Table 1). With regard to percentages of positive and negative emotions as well as instances of *I* and *We*, no significant gender differences emerged.

Table 2. Means and standard deviations for dimensions of the quality of friendship separated by gender.

Friendship quality	Males		Females		<i>F</i>	<i>p</i>	η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Companionship	4.13	.59	4.09	.59	.081	<i>ns</i>	–
Instrumental aid	3.24	.74	3.54	.67	4.13	.05	.04
Intimacy	3.76	.94	4.23	.78	6.55	.01	.07
Nurturance	3.93	.78	4.16	.62	2.43	<i>ns</i>	–
Affection	4.27	.68	4.5	.65	2.89	<i>ns</i>	–
Admiration	3.73	.51	4.07	.57	9.24	.03	.09
Reliable alliance	4.32	.64	4.06	.74	2.98	<i>ns</i>	–
Satisfaction	4.31	.64	4.23	.72	.318	<i>ns</i>	–
Support	3.46	.83	3.97	.73	9.94	.02	.10
Conflict	2.31	.67	2.40	.75	.320	<i>ns</i>	–
Antagonism	2.05	.63	2.21	.67	1.34	<i>ns</i>	–
Punishment	1.70	.44	1.76	.48	.427	<i>ns</i>	–
Relative power	2.78	.47	2.96	.51	3.02	<i>ns</i>	–
Social support	3.96	.51	4.11	.55	1.80	<i>ns</i>	–
Negative interaction	2.02	.45	2.12	.57	.952	<i>ns</i>	–

Gender differences in quality of friendships

Means and standard deviations of the quality dimensions of friendship are shown in Table 2 separated by gender. One-way ANOVAs were calculated for the data from each dimension of friendship, with gender as the between-subjects variable. The *F* values and significance levels (*ps*) are also found in Table 2. One-way ANOVAs showed significant differences among males and females in four dimensions of friendship. Specifically, women displayed higher scores than men did in instrumental aid (*Ms* = 3.54 vs. 3.24 for women and men, respectively), intimacy (*Ms* = 4.23 vs. 3.76 for women and men, respectively), admiration (*Ms* = 4.07 vs. 3.73 for women and men, respectively), and finally, in support (*Ms* = 3.97 vs. 3.46 for women and men, respectively). In contrast, there were no significant differences between males and females in companionship, nurturance, affection, reliable alliance, satisfaction, conflict, antagonism, punishment, or relative power. There were also no gender differences in either of the global measures, that is, social support or negative interactions.

Narratives about friends and quality of friendship

To examine the association between quality of friendship and the linguistic categories of autobiographical narratives about friends, we first computed correlations (Spearman's ρ) between the LIWC variables and the friendship dimensions, separated by gender. These correlations are shown in Table 3. In males, there were significant correlations between affection and positive emotion words ($\rho = .291$). Specifically, males who perceived more affection in their relationships used more positive emotion words in their narratives. There were also significant correlations between relative power and the frequency

Table 3. Correlations between the dimensions of friendship quality and the LIWC variables separated by gender.

Friendship quality	LIWC variables				
	Words	Positive emotions	Negative emotions	I	We
Males (n = 51)					
Companionship	-.174	.074	.138	.360**	.155
Instrumental aid	.187	.190	.232	.427**	-.170
Intimacy	.247	.049	.169	.444**	-.097
Nurturance	.254	.212	-.032	.227	-.072
Affection	.246	.291*	-.179	.149	.043
Admiration	.120	.153	.204	.362**	-.128
Reliable alliance	.124	.233	-.215	.086	.148
Satisfaction	.100	.139	-.140	.222	.094
Support	.240	.108	.194	.452**	-.046
Conflict	-.088	-.108	-.123	-.109	.206
Antagonism	-.156	-.084	-.027	-.053	.162
Punishment	.103	-.047	.211	.094	-.187
Relative power	-.053	-.173	.290*	.387**	.034
Social support	.204	.222	.035	.392**	-.015
Negative interaction	-.082	-.107	-.005	-.048	.116
Females (n = 42)					
Companionship	.059	.044	.036	-.333*	.174
Instrumental aid	.081	-.187	.042	-.301+	.064
Intimacy	.174	-.013	-.029	-.425**	.201
Nurturance	.181	-.199	.121	-.300+	.303+
Affection	.130	-.103	-.047	-.406**	.359*
Admiration	.212	-.141	.006	-.406**	.263
Reliable alliance	.032	-.088	.041	-.362*	.356*
Satisfaction	.078	-.089	-.067	-.347*	.260
Support	.095	-.079	-.012	-.260	.038
Conflict	-.334*	.119	-.038	.393*	-.248
Antagonism	-.241	.083	-.049	.212	-.147
Punishment	.023	-.022	.094	-.097	-.142
Relative power	.178	.182	.425**	.058	-.147
Social support	.141	-.116	.014	-.443**	.305*
Negative interactions	-.242	.081	-.008	.332*	-.315*

Note. For the convenience of readers, significant (or marginally significant) correlations are in represented in boldface. LIWC = Language Inquiry and Word Count.

+ $p < .10$; * $p < .05$; ** $p < .01$.

of negative emotion words ($\rho = .290$). That is, males whose friendships are characterized by higher levels of dominance and imbalance of power articulated more negative emotions in their narratives. Finally, the first person word *I* was related to the macro dimension of social support ($\rho = .392$), and specifically, to companionship ($\rho = .360$), instrumental aid ($\rho = .427$), intimacy ($\rho = .444$), admiration ($\rho = .362$), support ($\rho = .452$), and relative power ($\rho = .387$). That is, males whose friendships are characterized by high levels of social support such as companionship, instrumental aid, intimacy,

support, as well as negative dimensions such relative power, use *more* first person singular words (*I*) in their autobiographical narratives. However, there were no significant correlations between the number of words and the frequency of first plural person words (*We*) in their autobiographical narratives and any of the quality dimensions of friendship.

The pattern was different for females. For them, there was a significant and negative correlation between conflict and the number of words ($\rho = -.334$) they used in their autobiographical narratives, that is, women who perceived more conflict and disagreement in their relationships with friends wrote shorter narratives. Instead, the macro dimension of social support ($\rho = -.443$), and in particular, companionship ($\rho = -.333$), intimacy ($\rho = -.425$), affection ($\rho = -.406$), admiration ($\rho = -.406$), reliable alliance ($\rho = -.362$), and satisfaction ($\rho = -.347$) were negatively related to the use of first person singular words (*I*) in their autobiographical narratives. Moreover, the macro category of negative interactions ($\rho = .332$), and specifically, conflict ($\rho = .393$) were positively related to the use of first person singular words (*I*) in their autobiographical narratives. Unlike the findings for males, females who perceived their relationships with friends as characterized by higher levels of social support, such as companionship, intimacy, affection, admiration, reliable alliance, and satisfaction, used proportionately fewer singular first person words (*I*) when writing stories about friends. In contrast, higher levels of negative interactions, such as conflict, in their relationships was associated with the use of more first person singular words (*I*). In addition, affection ($\rho = .359$), reliable alliance ($\rho = .356$), and the macro category of negative interactions ($\rho = -.315$) were related to use of *We*. Specifically, those whose friendships were characterized by affection and reliable alliance recalled stories about friends who were more likely to contain first person plural words (*We*). As well, those whose friendships were characterized by higher levels of negative interactions recalled stories about friends that were less likely to contain first person plural words (*We*). Finally, similar to the findings for males, the use of negative emotion words was related to the dimension of relative power ($\rho = .425$), that is, women whose friendships were characterized by higher levels of dominance and an imbalance of power described more negative emotions in their narratives.

To explore in more detail the moderating role of gender in the linguistic properties of autobiographical narratives about friends, we used a series of hierarchical regression analyses, following procedures recommended by Aiken and West (1991) for establishing moderation. To determine whether the participant's gender moderated the relationship between friendship quality and linguistic categories of autobiographical narratives, we conducted separate regression models predicting (a) number of words, (b) positive emotions, (c) negative emotions, (d) *I*, and, finally, (e) *We*. For these analyses, only the two macro categories of friendship quality were used as independent variables, that is, social support and negative interactions, as well as the category of relative power. To avoid the problem of multicollinearity, we followed Aiken and West's (1991) guidelines and mean centered the scores of independent variables.

In each of the analyses, we entered the score of the two macro dimensions of friendship quality as well as relative power separately in Step 1, the moderating variable of gender in Step 2, and, finally, the product term of the friendship quality macro

Table 4. Moderation analysis of friendship quality and “I” and “We” by gender.

	β	t	p	R^2	ΔR^2
“I”					
Social support	.397	2.93	<i>ns</i>	.00	–
Gender	.014	.149	<i>ns</i>	.00	.00
Social Support \times Gender	–.584	–4.33	.000	.17	.17
Negative interactions					
Gender	–.004	–.039	<i>ns</i>	.02	.00
Negative Interaction \times Gender	.350	2.43	.02	.08	.06
“We”					
Negative interactions					
Gender	.07	.687	<i>ns</i>	.00	.00
Negative Interaction \times Gender	–.320	–.320	.03	.05	.05

dimensions and gender (i.e., Social Support \times Gender, Negative interaction \times Gender, and Relative Power \times Gender) in Step 3. One can infer that gender moderated the relationships between quality of friendship and narratives of memories if the regression coefficients for the product terms in these analyses were significant. In order to examine the significance of each slope, simple slope analyses were conducted utilizing *post hoc* regressions (Aiken & West, 1991).

Only significant results of these analyses are reported in Table 4. Moreover, significant interactions between the predictor and moderating variables are represented graphically (see Figures 1, to 3).

As shown in Table 4, there was a significant Social Support \times Gender interaction in predicting the use of *I*, $B = -.58$, $p < .001$. Social support was positively associated with the use of first person singular words (*I*) in males, and it was negatively associated with the use of *I* in females. In other words, males who had higher levels of social support in their relationships utilized more first person singular words in their stories about friends. In contrast, females who had higher levels of social support in their relationships utilized fewer first person singular words in their stories about friends. This relationship is graphically displayed in Figure 1. Post hoc analyses indicated that the relationship between social support and *I* was significant both for males, $\beta = .39$, $t(49) = 2.98$, $p = .004$, and females, $\beta = -.44$, $t(40) = 1.94$, $p = .003$.

There was also a significant interaction between negative interactions and gender in predicting the use of *I*, $B = .35$, $p = .02$. The moderating variable of gender acts as a *buffer* moderator on the relationship between negative interactions and the use of first person singular words (*I*). In fact, negative interactions were significantly positively associated with the use of first person singular words (*I*) only for females but not males. In other words, females who had higher levels of negative interactions in their relationships utilized more first person singular words in their stories about friends. This relationship is graphically displayed in Figure 2. Post hoc analyses indicated that the relationship between negative interactions and *I* was significant only for females, $\beta = .39$, $t(40) = 2.70$, $p = .01$. In contrast, the relationship was nonsignificant for males, $\beta = -.11$, $t(49) = -.77$, *ns*.

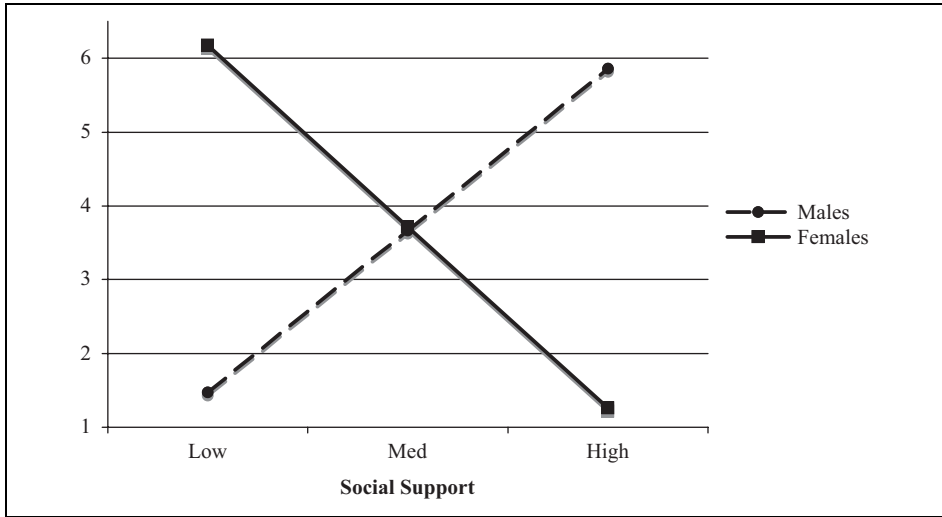


Figure 1. Interaction between social support and gender in the prediction of the use of first person singular words (“I”).

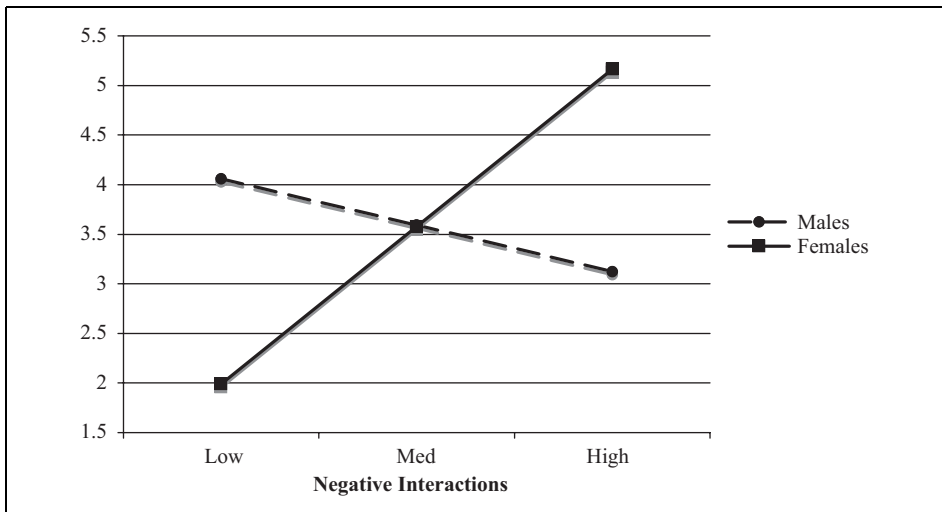


Figure 2. Interaction between negative interactions and gender in the prediction of the use of first person singular words (“I”).

Finally, there was a significant interaction between negative interactions and gender in predicting the use of *We*, $B = -.32, p = .03$. Negative interactions were significant and negatively associated with the use of first person plural words (*We*) only for females but not males. In other words, females who had higher levels of negative interactions in their relationships utilized fewer first person plural words in their stories about friends.

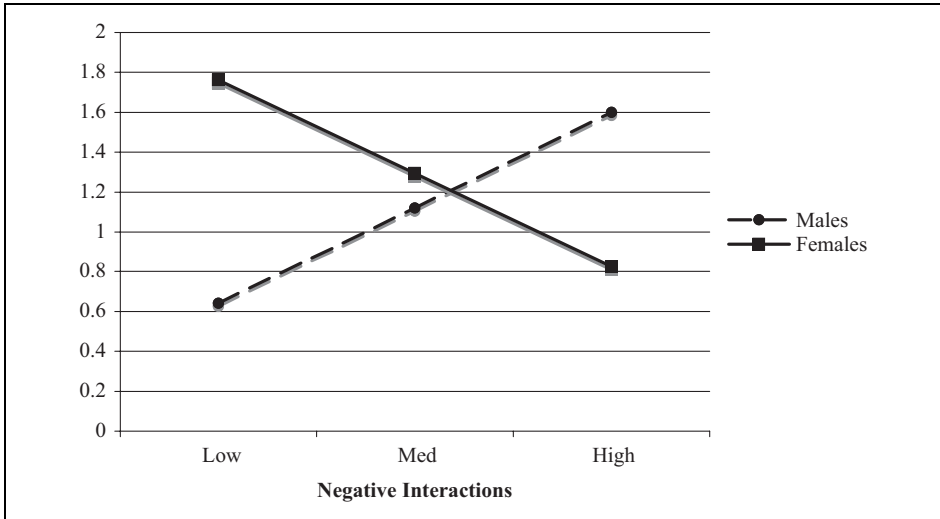


Figure 3. Interaction between negative interactions and gender in the prediction of the use of first person plural words (“We”).

This relationship is graphically displayed in Figure 3. Post hoc analyses indicated that the relationship between negative interactions and *We* was significant only for females, $\beta = -.27$, $t(40) = -1.74$, $p < .05$. In contrast, the relationship was non-significant for males, $\beta = -.16$, $t(49) = 1.38$, *ns*.

No significant interactions were found between social support and the use of the first person plural words (*We*). Nor were there any significant regressions for number of words, emotion words, or the friendship dimension of relative power.

Discussion

Memories are more than recollections of past events. Rather, they both contribute to and reflect an individual’s sense of personal identity and understanding of one’s life. They help people construct a life story that gives them a sense of coherence and meaning for their lives. Furthermore, the quality of individuals’ significant relationships with one of their crucial social partners, namely, parents, not only can influence memory making (e.g. Fivush et al., 2006; Nelson & Fivush, 2004) but also is reflected by the memories that people tell (Peterson & Nguyen, 2010; Peterson et al., 2008, 2010; Tani et al., 2010). Friends, too, are crucial social partners, and this study extends prior research by showing that our memories of friends also seem to reflect the quality of our relationships with these important social partners in at least some ways.

The main focus of this study was to analyze the relationship between quality of friendship and the memory narratives about best friends that people recalled. We had predicted that the quality of individuals’ relationships with their best friends would be reflected in their memory narratives about their friends and that the associations between friendship qualities and narrative properties would be different between males and

females. One of the ways in which we had expected the association between relationship quality and narrative properties to be manifested was that when requested to narrate an episode about their best friend, participants who had positive friendship relationships would write narratives that were longer and richer in terms of positive emotions, while those who had poorer friendship relationships would write shorter stories that were more likely to be characterized by negative emotions and that this was likely to be different for females and males.

However, our results showed no gender differences (except for the length of narratives—longer in females) in memory narratives. Males and females used emotions words as well as the first person pronouns *I* and *We* to the same extent. As to friendship quality, no differences were found in the two global scores of social support and negative interaction, nor in relative power, although females scored higher in the social support scales of instrumental aid, intimacy, admiration, and support. Correlational analyses showed that the length of men's narratives was unrelated to the quality of their friendship relationships; in contrast, women who had friendship relationships that were more characterized by conflict had shorter narratives about friends, although the other properties of friendship quality were unrelated to narrative length. In terms of emotion, males who had friendships that were characterized by higher levels of affection had a greater number of positive emotion terms, but the number of positive emotion terms was unrelated to friendship quality for women. In terms of negative emotion words, both men and women whose friendships were characterized by an imbalance in relative power had more negative emotion words in them. These findings were found when correlational analyses were conducted, but the moderation analyses did not show significant interactions between gender and these aspects of narratives. Therefore, our findings did not support our hypotheses about gender interactions for length of narrative and use of emotions words.

In terms of the second narrative aspect that was investigated, there were robust associations between relationship quality and narrative properties in the predicted directions. We had predicted that when females' friendship relationships were more positive, their narratives would be characterized by relatively less use of *I* and greater use of *We* than when friendship quality was not as positive. Because of the different nature of men's friendship relationships, we did not expect parallel associations between relationship quality and use of personal pronouns in males' narratives.

These hypotheses were strongly confirmed. In females, friendship relationships that were characterized by positive qualities (companionship, intimacy, affection, admiration, reliable alliance, and satisfaction) were negatively correlated with *I* use. That is, the narratives of women who experienced higher quality friendship relationships contained relatively fewer references to the self alone (*I*). As well, greater use of *We* was found in the narratives of females who had friendships characterized by positive relationships (admiration and reliable alliance). Only a negative property of relationship quality (namely, conflict) was positively associated with greater use of *I*. These correlational findings were supported by the results of moderation analyses. Specifically, gender moderated the relationship between quality of friendship and the use of the first person singular (*I*) and plural (*We*) words. In fact, in females, the higher the degree of social support in the friendship relationship, the fewer *Is* were present in their narratives.

Similarly, the greater the degree of negative interactions in the friendship relationship, the more the pronoun *I* was used. In contrast to the findings for females' memory narratives, males with more positive friendship relationships had narratives with more, not fewer, references to *I*.

In terms of the use of the communal first person pronoun *We*, gender moderated only the relationship with negative interactions. Specifically, in females more affection and social support in the friendship relationship was associated with more references to *We* in their memory narratives. In males, this relationship was not significant.

These findings supported the results of our previous studies that have consistently demonstrated that the quality of social relationships strongly influences the autobiographical memories that people recall of these relationships (Peterson et al., 2008, 2010; Tani et al., 2010). Regarding friendship, a consistent literature has shown that gender significantly influences the qualitative features of friendships. In particular, females' friendships are described as communal and person oriented because they are characterized by more intimate involvement and are focused on self-disclosure, supportiveness, and the exchange of confidences and emotions that empathize intimacy (Fonzi & Tani, 2000; Markiewicz, Devine, & Kausilas, 2000; Tani, 2000a, 2000b). Because females' friendships are characterized by greater intimacy and affection, narratives about friends by those women in our sample who perceived higher level of social support are characterized by relatively less use of *I* and greater use of *We*, thus expressing their sense of affiliation. On the other hand, those women who perceived higher levels of negative interchanges in their friendships wrote narratives that included more words linked to *I* and fewer words linked to *We*. Males' friendships, instead, are less characterized by intimacy and sharing and are more likely to have dominance hierarchy features (Bird, 2003; Markiewicz et al., 2000; Winstead, Derlega, & Rose, 1997). This difference in friendships is reflected in their different use of *I* and *We*, that is, more positive friendship quality was not related to less use of *I* and greater use of *We*.

Summing up, our data support and enrich what is known about gender differences. The way in which females and males experience their friendship relationships can also be observed in the way in which they recall those experiences. It can be speculated that narrative's language (e.g., the use of pronouns) has the function of reproducing in the present the sense of past experience. In turn, this reproduction can help women, although not men, to face present friendship relationships by having an attitude of *We* toward positive relationships and an attitude of *I* toward negative ones.

There are a number of limitations with this research. First of all, we have assumed that participants' friendship relationships remained consistent over a long period of time and that, therefore, questionnaires about current friendship relationships, filled out by 21-year-olds, reflect the nature of friendship relationships that occurred 6 or 7 years earlier. However, we cannot be sure that the quality of friendship relationship actually did remain the same across this period of time. Indeed, a study by Becker and colleagues (2009) highlighted that significant transformation within friendships occur over time and suggested that it may be more accurate to conceptualize friendships as flexible across age. A second limitation is that the sample size is relatively limited, and it included only Italian young adults. Considerable research has suggested that autobiographical memory

is influenced by culture, and thus an important direction for the future is to extend this research to other cultural groups.

In conclusion, in our previous research using a very different task (a memory fluency task), we have shown that memory can be considered a distant mirror because it reflects the dynamic changes that take place in the close relationships people have across their life span with parents and friends (Peterson et al., 2010; Tani et al., 2010). The results of this study confirm and extend these findings. In this study, males and females were not different in narrating memories of friendship in general (i.e., in their use of emotion words and first person pronouns), but they appear different when their particular way of experiencing friendships is considered, that is, they express their memories differently depending on the degree to which their friendship relationships are positive or negative. In this sense, this study also shows that memory acts as a mirror because the linguistic characteristics of narratives by which people express their autobiographical memories about significant social partners (specifically friends) reflect the qualitative features of their friendships.

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