

Narrate, ergo sum:

Is Storytelling Ability Related to the Sense of Meaning in Life?

Mario Mikulincer¹

Ron Shachar²

¹Baruch Ivcher School of Psychology, Interdisciplinary Center (IDC) Herzliya, Israel 46150
mario@idc.ac.il

²Corresponding author. Arison School of Business, Interdisciplinary Center (IDC) Herzliya,
Israel 46150
ronshachar@idc.ac.il
+972544811038

Abstract

Having a sense of meaning has been shown to play a critical role in peoples' lives – e.g. it improves physical health and subjective well-being. This study demonstrates that an overlooked personality trait – storytelling ability – is associated with this critical construct (meaning in life). Using three independent samples, we find that the relationship between storytelling ability and meaning is stable and strong and holds across two different cultures (US, Israel) and four different measures of meaning. Furthermore, this association holds even when we controlled for important and relevant personality characteristics, such as the big five personality traits and self-esteem.

This finding might be explained by storytelling's power to make sense of the world: externally (stories have been used for centuries to make sense of the external world) and internally (stories connect events and experiences that occurred in different points in time and hence makes sense of peoples' internal world). Making sense of the world was shown to play an important role in the sense of meaning, and thus it might be responsible for the association between storytelling and meaning.

The data also reveal that the impact of storytelling on meaning is the highest among introverts and lowest among extraverts. Thus, storytelling might substitute another personality trait – extraversion – in meaning construction. Extraversion represents people's urge to express themselves and storytelling ability stands for their talent in doing so via stories. It turns out that anyone of these two variables is enough to stimulate the sense of meaning.

Meaning in life has been studied extensively and from multiple angles (e.g., Frankl, 1963; Steger et al., 2006; Baumeister & Vohs, 2002). The focus of previous studies was on the benefits from having a meaningful life, the definition of meaning (i.e., the meaning of meaning), what leads to a meaningful life, how common is meaning in humans, and how to measure it (e.g., Boyle et al. 2009, Heintzleman & King, 2014, Martela et al. 2016). Less attention was given to individual-difference factors that might contribute to a sense of meaning in life. In the current study, we attempted to fill in this empirical gap by focusing on an understudied individual-difference factor – a person's storytelling ability – and examining its association with the sense of meaning in life. This focus is based on existing theories that emphasize the critical role that narrative thinking plays in the construction of subjective meaning (e.g. Baumeister & Vohs, 2002; Bruner, 1991; McAdams, 1993), and then people who are more capable of organizing the stream of their experiences in coherent narratives might enjoy of a solid sense of personal meaning and perhaps have a more meaningful life. Furthermore, by examining the contribution of storytelling ability to the sense of meaning in life, we might also shed light on the narrative basis of this personal sense.

The role of narrative in psychology received prominence because of Bruner's work (1991). In his earlier work, Bruner shed a light on narrative thinking as an important process both for the individual and for social interaction and emphasized the critical role it plays in the construction of subjective meaning. He suggested that although there are two modes of thinking - - scientific thinking and narrative thinking, people construct reality and have a sense of what is happening to them and what they are experiencing at a given moment through narrative thinking. The role of stories in constructing our knowledge and understanding of reality comes across also in Schank and Abelson (1977, 1995) who argue that stories are the fundamental constituents of

human memory, knowledge, and social communication. These ideas are closely related to our main hypothesis that stories are fundamental to the sense of meaning in life because they make us to construe an organized and coherent picture of reality and one's subjective experience.

Telling and writing stories can make sense not only of external events but also of painful and traumatic experiences, as demonstrated by Pennebaker and colleagues (e.g., Pennebaker 1990, 1997; Pennebaker & Beall, 1986) in their extensive work on expressive writing. In these studies, findings indicated that encouraging traumatized people to write a story of their personal experiences can improve healing and fasten recovery from post-traumatic responses.

These theoretical frameworks and studies do not only highlight the role of narrative construction and storytelling in psychology, but also hint about a possible connection between stories and meaning through the making-sense-of-the-world route. Additional hints about this possible connection are also found in the work of Baumeister and Vohs (2002), who pointed out that people's lives are meaningful if they satisfy four needs (purpose, values, sense of efficacy, self-worth). About the purpose need, they wrote “the essence of this need is that present events draw meaning from their connection with future events” (p. 610). In other words, having a purpose (and thus meaning) requires that one can connect in a meaningful way present and future events. Obviously, everyone can connect present and future events. However, it is possible that individuals with better storytelling ability can make such connections in a more coherent and meaningful way. This is due to the basic nature of storytelling – connecting events. In other words, since a story is a major way in which humans connect past, present and future, this seems to suggest that storytelling might play an important role in strengthening the sense of purpose and contributing to a meaningful life (see also Routledge et al., 2011, for related ideas about the importance of connecting past to present for the sense of meaning).

Connecting past, present and future is made, at least partially, in order to make sense of the world around us. This is closely related to the approach taken by Karlsson, Loewenstein, and McCafferty (2004). They focus on four interpretations of meaning and one of them is “meaning as an act of making sense of one’s life” (p. 61). Since stories and storytelling are major ways in which humans make sense of their lives, this seems to suggest another way that storytelling and the sense of meaning in life are related. Actually, Karlsson et al. (2004) spent most of their discussion of “making sense” on storytelling and made exactly this argument: “How do people make sense of the events of their lives? In part, they make up stories...” (p. 68), and later they added: “In virtually all cultures and historical periods, people have communicated their experiences and understanding of the world by telling stories” (p. 68). In other words, although the nature of the world is chaotic and unstable, people who can connect their life events and make sense of the confusing world around them can have a greater sense of meaning in life. Since stories are doing exactly that (connecting events and making sense of the world), it seems likely that people with better storytelling ability will experience higher sense of meaning in life.

Some preliminary and indirect evidence in support of this notion appears in Kray et al.'s study (2010). In four experiments, they showed that counterfactual thinking is causally related to the drive to create meaning in life. Counterfactual thinking is a process in which people are imagining alternatives scenarios for their past. Clearly, such a process forces people to connect this imaginary past with their present life and construct an alternative storyline of their biography. Indeed, this was the logic of the authors, who stated “we define meaning as the emergence of a personal narrative identity characterized by connectedness, purpose, and growth” (Kray et al., 2010, p. 106). In other words, they viewed narrative construction and meaning making as two closely related processes.

Another important piece of evidence can be found in the work of Dan McAdams (1993, 2001) on narrative identity. McAdams introduced this concept when he presented a new theory of personality that included three levels (i) dispositional traits (e.g. big five), (ii) characteristic adaptations (e.g. values), and (iii) life stories (i.e. narrative identity). The concept of narrative identity is the most explicit about the relationship between stories and meaning and accordingly it is the closest to our work. According to McAdams (1993, 2001), a person's identity result from incorporating her life events into a comprehensive story of the self, which then leads to a sense of meaning and purpose in life. Furthermore, the role of a story in connecting past, present and future is explicit in his approach in which each person "... reconstruct the personal past, perceive the present, and anticipate the future in terms of an internalized and evolving self-story, an integrative narrative of self that provides modern life with some modicum of psychological unity and purpose" (McAdams 2001, p. 101).

While McAdams showed how life stories are related to a meaningful life, we aim to examine the contribution of individual variations in storytelling ability to the sense of meaning of life. To the best of our knowledge, such an individual-difference construct -- storytelling ability - - hardly received any scholarly attention. There are very few exceptions, such as Donahue and Green (2016), who showed that men's storytelling ability makes them attractive to women. In light of the important role that stories and narrative construction received in psychological thinking, it is quite surprising that individual variations in storytelling ability had been ignored and no systematic study was conducted on the contribution of this individual-difference factor on the sense of meaning. We hope that our findings about the potential contribution of a person's storytelling ability to the sense of meaning in life will encourage further research on this individual-difference factor.

To examine our main hypothesis, we first developed a brief, 8-item “storytelling ability” scale, tapping participants’ appraisal of others’ responses to their storytelling (e.g., “My family members love hearing my stories;” “My stories usually excite my listeners”) and self-evaluation of their own storytelling ability (e.g., “My storytelling ability is better than the average;” “My storytelling ability is significantly better than the rest of the population”). We then examined basic psychometric properties of this new scale and its association with the sense of meaning in life in both American and Israeli samples. Since the sense of meaning is both multidimensional and manifold, we attempted to capture this complex concept in a comprehensive way by assessing four related constructs: presence of meaning in life, high level of construal, self-concept clarity, and sense of coherence. Presence of meaning is the most immediate and direct construct tapping sense of meaning in life. With regard to construal level, previous studies (Vallacher & Wegner, 1987) showed that high level of construal implies that people tend to construe events more in terms of “why” than in terms of “how”, therefore making easier for people to make sense of the meaning of these events (see also Hicks and King 2007). The third construct, self-concept clarity, deals with people’s sense of having a clear image of their goals, plans and identity (Campbell et al., 1996). Both goals and plans can be closely related to purpose and facilitate meaning making. Furthermore, Schlegel et al. (2009) demonstrated that when the true self-concept (a construct related to self-concept clarity) is more accessible, the sense of meaning is stronger. Finally, the fourth construct, sense of coherence, deals with a person’s appraisal of the world and their life as comprehensive, manageable and meaningful (Antonovsky 1989). We hypothesized that higher scores on our storytelling ability scale will be related to higher presence of meaning, higher level of construal of events (focusing on “whys”), higher clarity of goals, plans, and identity, and higher sense of coherence of the world and one’s life.

In examining the association between storytelling ability and the different facets of the sense of meaning in life, we attempted to control for other potentially related individual-difference factors and examine the unique contribution of storytelling ability beyond these "third-variable" factors. Specifically, we focused on two individual-difference factors: (i) The five core personality traits of neuroticism, extraversion, openness, agreeableness, and conscientiousness (Judge et al. 1999), and (ii) global self-esteem. It is possible that scores in our storytelling ability scale are associated with these individual factors, and then one should control for this association before examining the contribution of storytelling ability to the sense of meaning in life. For example, it is possible that people with high self-esteem would tend to over-report any personal ability, including their storytelling ability. Moreover, it is possible that storytelling ability are also shaped by core personality traits. To date, unfortunately, there is no evidence on these potential associations. We will explore them in the current study and examine the unique contribution storytelling ability to the different facets of the sense of meaning while taking into account these potential associations.

Method

Participants and Procedure

The study was conducted in three independent samples. Sample A consisted of 171 Israeli undergraduates, 99 women and 72 men, ranging in age from 20 to 50 ($Mdn = 23$), who took part in the study for course credit. Sample B consisted of 148 American adults, 55 women and 93 men, ranging in age from 18 to 50 ($Mdn = 35$), who were recruited through Amazon's Mechanical Turk (www.mturk.com) and paid for participating. Sample C consisted of 252 American adults, 100 women and 152 men, ranging in age from 18 to 50 ($Mdn = 25$), who were recruited through the Prolific online crowdsourcing platform (<https://prolific.ac>) and paid for

participating. The observed power for detecting small-to-moderate effects (4% of explained variance; Faul, Erdfelder, Buchner, & Lang, 2009) was 83% in Sample A, 78% in Sample B, and 94% in Sample C.

In the three samples, participants were invited to participate in an online study concerning personality and social attitudes, signed an informed consent, and completed self-report scales tapping storytelling ability, proneness to tell stories, sense of meaning, the big five high-order personality traits, and self-esteem. Israeli participants in Sample A completed Hebrew versions of the scales, whereas American participants in Samples B and C completed English versions of the scales. The order of the scales was randomized across participants (see all the scales in the supplementary materials file).

Storytelling Ability Measures

In order to assess the main study variable, we constructed a 8-item scale tapping participants' self-perception of their storytelling ability. The scale included items tapping perceived others' responses to storytelling (e.g., “My family members love hearing my stories;” “My stories usually excite my listeners”) and self-evaluation of storytelling ability (e.g., “My storytelling ability is better than the average;” “My storytelling ability is significantly better than the rest of the population”). Participants rated the extent to which they agree with each item on a 7-point scale, ranging from 1 (*not at all*) to 7 (very much). We will report findings from psychometric analyses of this measure in the Results section.

Beyond assessing self-reports of storytelling ability, we also asked participants to rate the proneness to tell stories by completing five items that were specially constructed for the current study (e.g., “Usually after reading a book, I tell others about it;” “Usually after watching a TV show, I tell others about it;” “When I tell others about my day, I do so in literary fashion and not

mundanely”). Participants rated the extent to which they agree with each item on a 7-point scale, ranging from 1 (*not at all*) to 7 (very much). Cronbach α for the five items was high in the three samples (see Table 1). We therefore computed a readiness to tell stories score for each participant by averaging the five items (see *Ms* and *SDs* in Table 1).

Table 1

Descriptive Statistics and Cronbach Alphas for the total scores of the Study Variables in Each of the Samples

	Sample A			Sample B			Sample C		
	M	SD	α	M	SD	A	M	SD	α
Storytelling ability	4.85	1.09	.90	4.40	1.35	.95	4.14	1.17	.91
Proneness to tell stories	5.08	1.04	.75	4.24	1.23	.85	4.41	1.13	.78
Presence of meaning	4.51	1.29	.86	4.79	1.59	.93	4.40	1.40	.89
Search for meaning	4.65	1.20	.76	4.32	1.71	.95	4.76	1.15	.85
Level of construal	2.34	1.44	.73	2.02	1.45	.71	2.08	1.38	.67
BFI Neuroticism	2.59	0.79	.86	2.55	0.99	.91	3.05	0.75	.83
BFI Extraversion	3.50	0.68	.85	2.97	0.95	.88	2.94	0.72	.81
BFI Openness	3.60	0.56	.83	3.46	0.65	.80	3.55	0.54	.75
BFI Conscientiousness	3.96	0.53	.75	3.98	0.79	.90	3.41	0.63	.81
BFI Agreeableness	3.95	0.57	.75	3.73	0.74	.83	3.59	0.55	.71
Self-Esteem	3.43	0.45	.78	3.11	0.75	.93	2.83	0.61	.90
Self-concept clarity	3.49	0.78	.87	3.64	0.96	.91			
Sense of coherence	4.85	1.09	.79	4.43	1.31	.88			

Notes: Self-concept clarity and sense of coherence were assessed only in Samples A and B.

Sense of Meaning Measures

We assessed participants' sense of meaning with four scales – the 10-item Meaning in Life Questionnaire (MLQ, Steger, Frazier, Oishi, & Kaler, 2006), a 4-item Level of Construal scale (Vasquez and Buehler's (2007), the 12-item Self-Concept Clarity Scale (SCC; Campbell et al., 1996), and a 9-item version of the Sense of Coherence scale (SOC, Antonovsky, 1989). In Samples A and B, participants completed the four scales. In Sample C, participants completed only the MLQ and the 4-item Level of Construal scale.

The MLQ (Steger et al., 2006) is designed to measure two dimensions of meaning in life: (1) Presence of Meaning (5 items, e.g., “I understand my life’s meaning”), and (2) Search for Meaning (5 items, e.g., “I am looking for something that makes my life feel meaningful”). Participants answered each item on a 7-point scale ranging from 1 (*absolutely untrue*) to 7 (*absolutely true*). Cronbach α s for the two subscales were high in the three samples (see Table 1). We therefore computed two scores for each participant by averaging items on each of the subscales (see *Ms* and *SDs* in Table 1).

The 4-item Level of construal scale was constructed specially for the current study based on Vasquez and Buehler's (2007) procedure. Participants were asked to focus on important tasks they perform at their studies (Sample A) or workplace (Samples B and C) and to complete four items tapping their construal of the meaning and implications of these tasks. Each construal item asked participants to consider an aspect of their tasks (e.g., performing well at studies/workplace, investing energy and time in performing well at studies/workplace) and to choose one of two sentences that best describe themselves. One sentence reflected low-level construal of meaning (e.g., “Is important to receive positive feedback and better grade/conditions”), and the another sentence reflected high-level construal of meaning (e.g., “Is important to know the abilities and skills I have”). Cronbach α was acceptable for the four items (see Table 1). We then computed for each participant a total score by counting the number of high-construal level sentences he or she chose (see *Ms* and *SDs* in Table 1).

The Self-Concept clarity scale (SCC) is designed to assess participants' sense of having a clear image of their goals, plans, and identity (Campbell et al., 1996). Participants indicated how strongly they agreed with each item on a 5-point scale, ranging from 1 (*really disagree*) to 5 (*really agree*). Example items include “I rarely have the feeling that different aspects of my

personality conflict with each other” and “In general I have a clear image of who and what I am”. Cronbach α s were high for the 15 SCC items in both Samples A and B (see Table 1). We then computed for each participant a self-concept clarity score by averaging the 15 items (see *Ms* and *SDs* in Table 1).

The Sense of Coherence scale (SOC, Antonovsky, 1989) is designed to assess participants' sense of comprehensibility, manageability, and meaningfulness of their life. Participants rated each item on a 7- point scale, with high scores indicating higher sense of coherence. For example, answers to the item “Doing the things you do every day is” range from 1 (*a source of pain and boredom*) to 7 (*a source of deep pleasure and satisfaction*). The original SOC scale included 29 items. For the current study, we selected nine items directly dealing with participants' sense of purpose, meaning, self-direction, planning, and clarity of intentions and actions. Cronbach α s were high for these nine items in both Samples A and B (see Table 1). We then computed for each participant a sense of coherence score by averaging the nine items (see *Ms* and *SDs* in Table 1).

Pearson correlations revealed that all the bivariate associations between presence of meaning, level of construal, self-concept clarity, and sense of coherence were positive and significant, ranging from .37 to .68 (all $ps < .001$, average $r = .52$) in Sample A, and from .34 to .63 (all $ps < .001$, average $r = .46$) in Sample B. In Sample C, the association between presence of meaning and level of construal was .39 ($p < .001$). These significant positive associations indicate that these four scores tapped a common theme of purpose, direction, and meaning in life. In contrast, search for meaning was inversely associated with these four scores, r s ranging from -.13 to -.25 in Sample A, from -.09 to -.33 in Sample B, and from -.02 to -.13 in Sample C. This

finding implies that search for meaning tapped something different from the other four scores and then people scoring high on this variable cannot be viewed as holding a sense of meaning.

Personality measures

In order to test the unique contribution of storytelling ability to sense of purpose beyond the contribution of well-researched high-order personality constructs (a test of incremental validity), participants in the three samples completed two scales: The 44-item Big Five Inventory (BFI, John, Donahue, & Kentle, 1992), and the 10-item Rosenberg Self-Esteem scale (Rosenberg, 1979). These scales are the most frequently used measures to assess the big-five high-order personality traits of neuroticism, extraversion, openness, conscientiousness, and agreeableness and a person's global sense of self-worth.

In the BFI, participants rated the self-descriptiveness of each item on a 5-point scale, ranging from 1 (*not at all*) to 5 (*very much*). In the three samples, Cronbach α s for the big five traits scales were high (see Table 1). We therefore computed five scores for each participant by averaging items on each of the big five traits scales (see *Ms* and *SDs* in Table 1). In the Rosenberg Self-Esteem Scale, ratings were done on a 4-point scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). In the three samples, Cronbach α was high for the 10 items and we then computed a total score for each participant by averaging these items (see Cronbach α and descriptive statistics in Table 1).

Results

Psychometric Properties of the Storytelling Ability Scale

Table 2 presents descriptive statistics of the eight items of the Storytelling Ability scale in each sample, along with their loadings in the first unrotated factor and corrected item-total correlations. As can be seen in the Table, all the eight items were normally distributed (adequate

kurtosis and skewness) in each of the three samples. The Kaiser-Meyer-Olkin measure of sampling adequacy proved to be extremely good for the eight items in the three samples (KMOs ranging between 0.96 to 0.98; Hutcheson & Sofroniou, 1999) and Bartlett's test of sphericity proved to be highly significant in the three samples (all $ps < .001$).

Table 2

Descriptive Statistics and Structural Coefficients for Storytelling Ability Items in Each of the Three Samples

Item	M	SD	Kurtosis	Skewness	PC1	r_{it}
Sample A						
1	4.32	1.65	-0.63	-0.06	.70	.61
2	5.11	1.32	-0.07	-0.59	.84	.77
3	5.67	1.20	0.40	-0.85	.65	.56
4	4.70	1.43	-0.14	-0.33	.74	.66
5	5.51	1.18	0.08	-0.61	.77	.70
6	4.80	1.29	-0.34	-0.13	.73	.64
7	4.53	1.54	-0.40	-0.27	.87	.81
8	4.17	1.65	-0.61	-0.09	.86	.79
Sample B						
1	4.34	1.62	-0.61	-0.54	.76	.70
2	4.23	1.55	-0.39	-0.32	.84	.79
3	4.44	1.58	-0.29	-0.56	.80	.74
4	4.39	1.58	-0.57	-0.39	.93	.80
5	4.89	1.47	0.50	-0.92	.89	.85
6	4.35	1.51	-0.44	-0.36	.83	.78
7	4.47	1.69	-0.65	-0.48	.90	.75
8	4.09	1.66	-0.64	-0.28	.88	.83
Sample C						
1	4.06	1.66	-0.88	-0.16	.70	.61
2	4.32	1.46	-0.38	-0.34	.80	.73
3	4.18	1.49	-0.29	-0.37	.80	.72
4	4.22	1.44	0.04	-0.54	.87	.82
5	4.47	1.41	0.07	-0.54	.79	.72
6	4.38	1.37	0.10	-0.46	.80	.72
7	3.97	1.55	-0.58	-0.28	.80	.74
8	3.47	1.57	-0.72	0.06	.73	.65

Notes: PC1 = Item loading on first unrotated principal component; r_{it} = Corrected item-total correlation

In an examination of the internal consistency of the scale, Cronbach α for the eight items was high in the three samples (see Table 1, average $\alpha = .92$). Moreover, the corrected item-total

correlations were high in the three samples (see Table 2), with r s ranging from .56 to .85 (average $r = .73$). In addition, all the items were highly inter-correlated in the three samples, with r s ranging from .36 to .89 in Sample A (average $r = .56$), from .56 to .85 in Sample B (average $r = .68$), and from .39 to .77 in Sample C (average $r = .56$). The alphas, item-total correlations, and inter-item correlations indicate high internal consistency, and there was very little variability in these statistics across the three samples. These findings support the unidimensionality of the Hebrew and English versions of the scale across Israeli and American samples.

This unidimensionality was further supported by a parallel analysis (Horn, 1965), which was conducted to identify the number of to-be extracted factors. This analysis was run in SPSS (v. 20) utilizing the rawpar.sps script developed by O'Connor (2000). This procedure generates eigenvalues from the raw data along with eigenvalues representing the 95th percentile based on the Monte Carlo simulation. This analysis indicated that only one factor was above the 95th percentile estimates created by the Monte Carlo simulation in all the three samples.

Principal component analyses also found that only the first extracted factor had eigenvalue larger than 1 in each of the three samples and explained between 60.1% and 72.9% of the variance. Additional factors accounted for only marginal percentages of the variance (lower than 6%). In each sample, all the eight items loaded greater than .40 on the first factor, with a minimum item loading of .65 (see Table 2). On this basis, we computed a total storytelling ability score for each participant by averaging the 8 items (see *M*s and *SD*s in Table 1).

Confirmatory factor analyses (CFA) further validated the unidimensional structure of the storytelling ability scale in the three samples. The CFAs were estimated using MPlus 6.1 (Muthén & Muthén, 1998-2010) Structural Equation Modeling (SEM) software. Goodness of fit was examined by the Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Root Mean

Square Error of Approximation (RMSEA) scores. The model had adequate fit to the observed data in the three samples, $\chi^2(16) = 19.66$, $p = .236$, CFI = .992, TLI = .995, RMSEA = .037 for Sample A; $\chi^2(16) = 34.97$, $p = .004$, CFI = .982, TLI = .969, RMSEA = .090 for Sample B; and $\chi^2(16) = 31.15$, $p = .013$, CFI = .988, TLI = .978, RMSEA = .061 for Sample C.

In an examination of the temporal stability of the storytelling ability scale, a subsample of 47 Israeli undergraduates from Sample A completed the scale two times at a one-month interval. The total storytelling ability score demonstrated high test-retest reliability over one month, $r = .57$, $p < .001$, therefore supporting the temporal stability of the scale.

In an examination of the extent to which the new measure is a reliable self-report scale that taps a behavioral tendency (storytelling ability) that can be observed by close others, another subsample of 51 Israeli undergraduates from Sample A nominated a friend who knew them very well and we asked this person to provide a global rating of participant's storytelling ability. Friends' global ratings were done on a 10-point scale ranging from 1 (*extremely poor ability*) to 10 (*extremely high ability*). Findings indicated that participants' total storytelling ability score was significantly correlated with their friend's evaluation, $r = .40$, $p = .004$. This finding supports the validity of the self-report scale as a measure of storytelling ability than can be observed and evaluated by close others.

The Contribution of Storytelling Ability to the Sense of Meaning

In examining the hypothesized link between storytelling ability and sense of meaning, we conducted Pearson correlations between our measure of perceived storytelling ability and the four measures tapping sense of meaning (presence of meaning, level of construal, self-concept clarity, and sense of coherence). However, since the perceived storytelling ability score was strongly associated with participants' proneness to tell stories (r s of .52, .60. and .62 in Samples

A, B, and C, respectively, all $ps < .001$), we conducted multiple regressions examining the unique contribution of perceived storytelling ability to the sense of meaning measures beyond the contribution of proneness to tell stories. In these regressions, we simultaneously entered storytelling ability and proneness to tell stories as predictors of each sense of meaning measure. These correlations and regressions were conducted separately for each sample. Although search for meaning seemed to tap a different construct from sense of meaning we still conducted correlations and regressions on this variable as a test of discriminant validity for the hypothesized link between perceived storytelling ability and sense of meaning in life.

As can be seen in Table 3, the total storytelling ability score had significant positive associations with presence of meaning, level of construal, self-concept clarity, and sense of coherence in all the three samples. Moreover, this score made a significant unique contribution to these four measures in all the three samples beyond the contribution of proneness to tell stories (see β s in Table 3). In line with our hypothesis, participants who scored higher on perceived storytelling ability reported higher presence of meaning, level of construal, self-concept clarity and sense of coherence in both Israeli and American samples regardless their proneness to tell stories.

Findings also indicated that although proneness to tell stories was significantly associated with the four sense of meaning measures in all the three samples, its unique contribution to these measures became no longer significant when controlling for the contribution of storytelling ability (with one exception – level of construal in Sample A, see β s in Table 3). Moreover, neither perceived storytelling ability nor proneness to tell stories were significantly associated with search for meaning (see Table 3), contributing to the discriminant validity of the storytelling-meaning link.

Table 3

Pearson Correlations and Standardized Regression Coefficients for Meaning-Related Variables as a Function of Storytelling Variables in Each of the Samples

	Sample A		Sample B		Sample C	
	Pearson r	β	Pearson r	β	Pearson r	β
<u>Presence of meaning</u>						
Storytelling ability	.49***	.48***	.49***	.46***	.55***	.64***
Proneness to tell stories	.26***	.02	.33***	.06	.35***	-.01
F (R ²)	26.08*** (.236)		23.42*** (.244)		56.07*** (.315)	
<u>Search for meaning</u>						
Storytelling ability	.06	.02	-.02	-.09	.07	.02
Proneness to tell stories	.08	.07	.06	.11	.10	.08
F (R ²)	0.56 (.007)		0.66 (.009)		1.14 (.009)	
<u>Level of Construal</u>						
Storytelling ability	.32***	.22**	.35***	.39***	.35***	.41***
Proneness to tell stories	.30***	.18*	.16*	-.07	.21***	-.01
F (R ²)	11.89*** (.124)		10.35*** (.125)		17.02*** (.121)	
<u>Self-concept clarity</u>						
Storytelling ability	.40***	.44***	.51***	.43***		
Proneness to tell stories	.16*	-.06	.20*	-.12		
F (R ²)	16.74*** (.166)		27.44*** (.275)			
<u>Sense of coherence</u>						
Storytelling ability	.47***	.40***	.54***	.52***		
Proneness to tell stories	.35***	.14	.34***	.02		
F (R ²)	26.36*** (.239)		29.28*** (.287)			

Notes: * $p < .05$; ** $p < .01$; *** $p < .001$. Self-concept clarity and sense of coherence were assessed only in Samples A and B.

Unique Contribution of Storytelling Ability to Sense of Meaning Beyond Global

Personality Factors

In this section, we examined the unique contribution of our measure of perceived storytelling ability to sense of meaning measures beyond the contribution of global personality factors. This examination seems to be critical, because Pearson correlations revealed that, with few exceptions, all the global personality factors assessed in the current study -- the five core

personality traits (neuroticism, extraversion, openness, conscientiousness, and agreeableness)

and global self-esteem – were significantly associated with both storytelling ability and sense of meaning measures in each of the three samples (see Table 4).

	Storytelling ability	Presence Meaning	Search for Meaning	Level of Construal	Self-Clarity	Sense of Coherence
<u>Sample A</u>						
Neuroticism	-.17*	-.39***	.15	-.24**	-.52***	-.40***
Extraversion	.51***	.28***	.01	.31***	.31***	.36***
Openness	.39***	.31***	.01	.23**	.18*	.21**
Conscientiousness	.23**	.39***	-.04	.30***	.51***	.49***
Agreeableness	.09	.17*	.03	.13	.24**	.18*
Self-Esteem	.28***	.42***	-.25**	.26***	.52***	.40***
<u>Sample B</u>						
Neuroticism	-.32***	-.48***	.22**	-.32***	-.47***	-.55***
Extraversion	.46***	.55***	-.09	.27**	.35***	.49***
Openness	.38***	.22**	.12	.26**	.19*	.21**
Conscientiousness	.21**	.45***	-.16*	.21*	.44***	.44***
Agreeableness	.15	.24**	.01	.11	.25**	.26**
Self-Esteem	.27**	.62***	-.31***	.29***	.51***	.58***
<u>Sample C</u>						
Neuroticism	-.35***	-.44***	.14*	-.12		
Extraversion	.51***	.42***	-.03	.19**		
Openness	.43***	.32***	.14*	.11		
Conscientiousness	.19**	.34***	.04	.17**		
Agreeableness	.23***	.23***	.02	.13*		
Self-Esteem	.38***	.58***	-.18**	.14*		
Notes: * $p < .05$; ** $p < .01$; *** $p < .001$. Self-concept clarity and sense of coherence were assessed only in Samples A and B.						

Whereas extraversion, openness, conscientiousness, agreeableness, and self-esteem were significantly associated with higher perceived storytelling ability and sense of meaning, neuroticism was significantly associated with lower scores on both perceived storytelling ability and sense of meaning. Therefore, the association between perceived storytelling ability and sense of meaning observed in Table 3 might be in fact a direct reflection of the impact that global personality factors had on both storytelling ability and sense of meaning. In order to deal with

this "third variable" alternative explanation, it is critical to examine whether the association between storytelling ability and sense of meaning measures would be still statistically significant even after controlling for the contribution of global personality factors.

Table 5

Standardized Regression Coefficients of Meaning-Related Variables as a Function of Storytelling Ability, the Big-Five Personality Traits, and Self-Esteem in Each of the Samples

	Presence of Meaning	Search for Meaning	Level of Construal	Self- Clarity	Sense of Coherence
<u>Sample A</u>					
Storytelling ability	.40***	.09	.16*	.31***	.36**
Neuroticism	-.13	.03	-.10	-.25***	-.17*
Extraversion	-.16*	.13	.13	-.13	.01
Openness	.09	.01	.09	-.06	-.03
Conscientiousness	.19**	.02	.17*	.27***	.31***
Agreeableness	.04	.02	-.02	.07	-.02
Self-Esteem	.23**	-.33***	.02	.27***	.10
<u>Sample B</u>					
Storytelling ability	.30***	.01	.22*	.42***	.38***
Neuroticism	.15	.01	-.21*	-.04	-.10
Extraversion	.25***	.01	.01	.04	.12
Openness	-.08	.19*	.15	-.07	-.07
Conscientiousness	.15	-.03	.01	.18**	.10
Agreeableness	-.06	.12	-.10	-.01	-.03
Self-Esteem	.49***	-.38***	.07	.30**	.32***
<u>Sample C</u>					
Storytelling ability	.36***	.11	.36***		
Neuroticism	-.05	.04	.03		
Extraversion	.03	-.03	.02		
Openness	.03	.15*	-.08		
Conscientiousness	.13*	.08	.12		
Agreeableness	.04	.05	.02		
Self-Esteem	.35***	-.27**	-.02		

Notes: ** $p < .01$; *** $p < .001$. Self-concept clarity and sense of coherence were assessed only in Samples A and B.

To examine this, we conducted multiple regressions in which we simultaneously entered the total perceived storytelling ability score together with the five core personality traits and global self-esteem as the predictors of sense of meaning. These regressions were conducted separately for each sense of meaning measure (presence of meaning, level of construal, self-

concept clarity, and sense of coherence) as well as for search for meaning in each of the three samples. Table 5 presents the relevant standardized regression coefficients for these regressions.

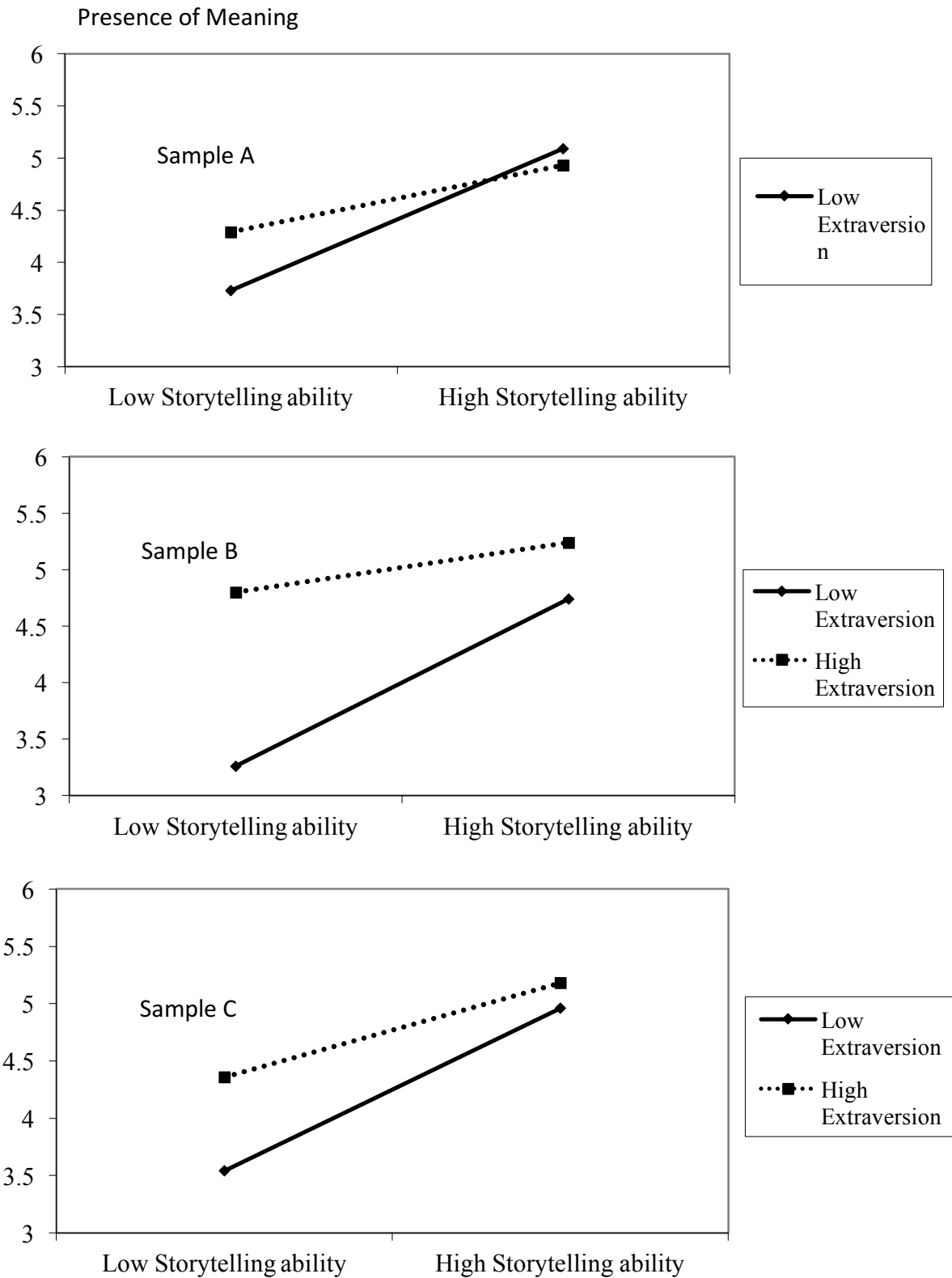
In all the samples, the unique contributions of perceived story telling ability to the four measures of sense of meaning (presence of meaning, level of construal, self-concept clarity, and sense of coherence) were still statistical significant even after controlling for the five core personality traits and global self-esteem (see β s in Table 5). That is, although the β s for perceived storytelling ability decreased a bit in all cases, the assessed global personality factors did not account for the significant associations between perceived storytelling ability and sense of meaning observed in Table 3. Beyond this association, the regressions revealed that global self-esteem, conscientiousness, and openness were additional significant predictors of sense of meaning, though their contribution was not always significant across different measures and samples. These findings provided supportive evidence for the incremental validity of perceived storytelling ability in accounting for individual variations in the sense of meaning beyond global personality factors.

Exploring Interactions between Storytelling Ability and Personality Factors

In this section, we report explorative analyses concerning possible interactions between our measure of storytelling ability and global personality factors in accounting for individual variations in sense of meaning. For this purpose, we conducted 2-step hierarchical multiple regressions for each sense of meaning measure (presence of meaning, level of construal, self-concept clarity, and sense of coherence) in each of the three samples. In the first step of each regression, we entered the perceived storytelling ability score and the assessed global personality factors (mean centered) as the predictors. In the second step, we entered the interaction of the

perceived storytelling score with each of the assessed personality factors as an additional predictor.

Figure 1. Presence of Meaning as a Function of Perceived Storytelling Ability and Extraversion in each of the Three Samples



These regressions revealed that all the interactions of storytelling ability with neuroticism, openness, conscientiousness, agreeableness, and self-esteem were not significant for all the measures of sense of meaning in all the samples, all β s < .14 all p s > .076. However, the interaction between perceived storytelling ability and extraversion made a significant contribution to presence of meaning in the three samples, $\beta = -.16, p = .017$ in Sample A, $\beta = -.19, p = .005$ in Sample B, and $\beta = -.13, p = .015$ in Sample C. In addition, this interaction made a significant contribution to self-concept clarity in both Sample A, $\beta = -.15, p = .028$, and Sample B, $\beta = -.18, p = .014$, as well as to level of construal in Sample A, $\beta = -.28, p < .001$ (but not in Samples B and C, β s of $-.08$ and $-.12, p$ s > .059) and sense of coherence in Sample A, $\beta = -.21, p = .002$ (but not in Sample B, $\beta = -.06, p = .348$).

The pattern of the significant interactions between perceived storytelling ability and extraversion were identical across the various measures of sense of meaning and samples (see Figure 1 for these interactions on presence of meaning). Specifically, the contribution of perceived storytelling ability to heightened presence of meaning, level of construal, self-concept clarity, and sense of coherence was stronger when extraversion was relatively low (-1 SD) than when extraversion was high (+1 SD). In addition, the contribution of extraversion to heightened presence of meaning, level of construal, self-concept clarity, and sense of coherence was stronger when perceived storytelling ability was relatively low (-1 SD) than when this variable was high (+1 SD). Overall, participants who scored relatively low on both perceived storytelling ability and extraversion showed the lowest sense of meaning across the various measures. Increases in either perceived storytelling ability or extraversion contributed to heightening of participants' sense of meaning in life.

Discussion

The current findings clearly indicate that participants' storytelling ability is closely related to their sense of meaning in life. Using three independent samples, we found that the relationship between storytelling ability and meaning is stable and strong and holds across two different cultures (US, Israel) and four different measures of meaning: (i) presence of meaning in life, (ii) high construal level, (iii) self-concept clarity, and (iv) sense of coherence. Furthermore, this association holds even when we controlled for important and relevant personality characteristics, such as the big five personality traits and self-esteem. Finally, interacting storytelling ability with these personality traits reveals that the impact of storytelling on the sense of personal meaning is the highest among introverts and lowest among extraverts. These findings highlight that storytelling ability is an overlooked personality characteristic that plays an important role in peoples' sense of meaning and purpose. Furthermore, to some degree it can substitute another personality trait – extraversion – in meaning construction. Both storytelling and extraversion are related to expressiveness. Extraversion represents people's urge to express themselves in social settings and storytelling ability stands for their talent in doing so via stories. It turns out that anyone of these two variables is enough to stimulate the sense of meaning and purpose.

The focal result of the current study – that storytelling ability is related to the sense of meaning and purpose – is explained by two characteristics of storytelling – its ability to (i) connect events and experiences that occurred in different points in time – i.e. past, present and future, and (ii) make sense of the world and the environment of the individual. Previous studies have demonstrated that these two ingredients are fundamental elements of the sense of meaning. Notice that these two channels have one thing in common – “making sense”. In one case stories are making sense of the external world and in the other – connecting events and experiences that occurred in different points in time – they are making sense of the individual's internal world.

On this basis, people with high storytelling abilities can make better sense of their external and internal world and as a result have a stronger sense of meaning in life.

These findings reinforce the theoretical idea that an important function of meaning in life is making sense of the world (e.g., Baumeister & Vohs 2002; Karlsson et al., 2004). In other words, our findings also contribute to a deeper understanding of the functions of purpose and meaning in life. However, the main contribution of these findings is that they bring attention to an overlooked personality trait – storytelling ability. This trait is likely to be relevant in other contexts. Consider, for example, health. Previous studies have already documented the health benefits of purpose and meaning in life (e.g., Boyle et al. 2009; Krause 2009; Steger et al. 2009). Combining the results of this study with these earlier studies suggests that storytelling ability might have positive implications on one's physical health and subjective well-being. Furthermore, it seems reasonable to expect that a person with a high storytelling ability has a larger and wider social network. Given the findings about the positive health benefits of social network (e.g., Holt-Lunstad, Smith, & Layton 2010; Holt-Lunstad et al., 2015), a larger and wider social network might strengthen the link between storytelling ability and health. Such a link, as well as additional potential behavioral implications, can be examined in future research into the role of storytelling ability.

Another interesting issue raised by the findings of the current study relates to the roots of storytelling ability. Our findings clearly showed that storytelling ability and the sense of meaning in life are related, even when the big-five personality traits and self-esteem are accounted for. Moreover, although these personality traits could not account for the association between storytelling ability and sense of meaning, the findings indicated that extraversion, openness, conscientiousness, agreeableness, and self-esteem were significantly associated with higher

perceived storytelling ability. In addition, neuroticism was significantly associated with lower scores on perceived storytelling ability. These associations are far from being surprising. For example, one might expect to find a relationship between openness and storytelling because people who are open to experiences are likely to experience various extraordinary events that make a good story. Accordingly, more extraverted people would be eager to express their feelings and thoughts in social contexts through stories, which, in turn, would allow more storytelling practice and the development of storytelling ability. However, all these explanations are post hoc speculations that need to be systematically examined in further studies. In fact, the findings raise interesting questions about the nomological network of storytelling ability, its personality correlates, its genetic and environmental influences, and its developmental trajectory. Further studies should conduct systematic research on all these important issues in order to delineate the construct validity of storytelling ability and its developmental roots.

We have speculated that the relationship between storytelling and sense of meaning is via a “making sense” mechanism. An important next-step is to examine whether there is any empirical support for this theoretical idea. Finally, the evidence above is based on people reporting their storytelling ability. This measure was found to be high on its internal consistency, stable and reliable over one month, and the data support its validity (when comparing one’s self report with her friends’ evaluation). However, in order to make an even more convincing argument in favor of the effect of storytelling ability on sense of meaning, an experimental setting is required. The challenge in such a task is to manipulate storytelling ability in a clean and reliable way. Priming, which is doing a good job when it comes to perceptions, beliefs and such, is not likely to work when it comes to a basic ability. Thus, the optimal approach seems to

involve training of a large group of participants and measuring their sense of meaning and purpose long enough time after the experiment. This is clearly a challenging task.

References

- Baumeister, R. F., & Vohs, K. D. (2002). The pursuit of meaningfulness in life. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 608–618). New York, NY: Oxford University Press.
- Boyle, P. A., Barnes, L. L., Buchman, A. S., & Bennett, D. A. (2009). Purpose in life is associated with mortality among community-dwelling older persons. *Psychosomatic Medicine, 71*, 574–579.
- Brunner, Jerome (1991). The Narrative Construction of Reality. *Critical Inquiry, 1*, 1-21.
- Campbell, J. D., Trapnell, P. D., Heine, S. J., Katz, I. M., Lavallee, L. F., & Lehman, D. R. (1996). Self-concept clarity: Measurement, personality correlates, and cultural boundaries. *Journal of Personality and Social Psychology, 70*, 141-156.
- Donahue, J. K., & Green, M. C. (2016). A good story: Men's storytelling ability affects their attractiveness and perceived status. *Personal Relationships, 23*(2), 199-213.
- Frankl, V. E. (1963). *Man's search for meaning: An introduction to logotherapy*. New York: Washington Square.
- Heintzelman, S. J., & King, L. A. (2014). Life is pretty meaningful. *American Psychologist, 69*(6), 561.
- Hicks, J. A., & King, L. A. (2007). Meaning in life and seeing the big picture: Positive affect and global focus. *Cognition and Emotion, 21*(7), 1577-1584.
- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: a meta-analytic review. *PLoS medicine, 7*(7), e1000316.

- Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: a meta-analytic review. *Perspectives on psychological science*, 10 (2), 227-237.
- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory--Versions 4a and 54*. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.
- Judge, T. A., Higgins, C. A., Thoresen, C. J., & Barrick, M. R. (1999). The big five personality traits, general mental ability, and career success across the life span. *Personnel psychology*, 52(3), 621-652.
- Karlsson, N., Loewenstein, G., and McCafferty, J. (2004). The Economics of Meaning. *Nordic Journal of Political Economy*, 30, 61-75.
- Krause, N. (2009). Meaning in life and mortality. *Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 64B, 517– 527.
- Kray, L. J., George, L. G., Liljenquist, K. A., Galinsky, A. D., Tetlock, P. E., & Roese, N. J. (2010). From what might have been to what must have been: Counterfactual thinking creates meaning. *Journal of personality and social psychology*, 98 (1), 106-118.
- Martela, F., & Steger, M. F. (2016). The three meanings of meaning in life: Distinguishing coherence, purpose, and significance. *The Journal of Positive Psychology*, 11(5), 531-545.
- McAdams, D. P. (1993). *The stories we live by: Personal myths and the making of the self*. Guilford Press.
- McAdams, D. P. (2001). The psychology of life stories. *Review of general psychology*, 5(2), 100-122.

- Pennebaker, J. W., & Beall, S. (1986). Confronting a traumatic event: Toward an understanding of inhibition and disease. *Journal of Abnormal Psychology, 95*, 274-281.
- Pennebaker, J. W. (1990) *Opening up: The healing power of confiding in others*. 931-935.
- Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological science, 8*(3), 162-166.
- Routledge, C., Arndt, J., Wildschut, T., Sedikides, C., Hart, C. M., Juhl, J., Vingerhoets, A. and Schlotz, W. (2011). The past makes the present meaningful: Nostalgia as an existential resource. *Journal of Personality and Social Psychology, 101*(3), 638.
- Schank, R. C., Abelson, R. (1977). *Scripts, plans, goals and understanding: An inquiry into human knowledge structures*. Hillsdale, NJ: Erlbaum.
- Schank, R. C., & Abelson, R. P. (1995). Knowledge and memory: The real story. In R. Wyer (Ed.), *Knowledge and memory: The real story* (pp. 1–85). Hillsdale, NJ: Erlbaum.
- Schlegel, R. J., Hicks, J. A., Arndt, J., & King, L. A. (2009). Thine own self: True self-concept accessibility and meaning in life. *Journal of personality and social psychology, 96*(2), 473.
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology, 53*, 80-93.
- Steger, M. F., Mann, J. R., Michels, P., & Cooper, T. C. (2009). Meaning in life, anxiety, depression, and general health among smoking cessation patients. *Journal of Psychosomatic Research, 67*, 353–358.
- Vallacher, R. R., & Wegner, D. M. (1987). What do people think they're doing? Action identification and human behavior. *Psychological review, 94*(1), 3.