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Brief Report

Autobiographical memory as a dynamic process: Autobiographical memory mediates basic tendencies and characteristic adaptations

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Abstract

Two studies tested whether autobiographical memory content and phenomenology mediate two consistent findings in the personality literature: Neuroticism and subjective health and Conscientiousness and achievement striving. In Study 1, participants ($N = 162$) retrieved and rated four memories and completed measures of Neuroticism and subjective health. In Study 2, participants ($N = 345$) retrieved and rated two memories and completed measures of Conscientiousness and achievement goals and study strategies. In both studies, memory content and phenomenology mediated the relations between personality and health and achievement in expected ways. For example, participants high in Neuroticism reported more somatic complaints because their memories were saturated with negative affective content. Discussion focuses on the utility of integrating trait and social–cognitive approaches to personality.

Keywords: Autobiographical memory; Personality; Emotion; Phenomenology; Mediation

1. Introduction

In McCrae and Costa's (1999) conceptualization of the personality system, personality traits are considered the basic tendencies that give rise to characteristic adaptations. For example, individuals high on Neuroticism (basic tendency) tend to have characteristic adaptations such as somatic complaints (Costa & McCrae, 1985) and lower life satisfaction (Schimmack, Oishi, Furr, & Funder, 2004). Although McCrae and Costa specify that dynamic processes are the mechanism through which basic tendencies are expressed as characteristic adaptations, they only allude to what those processes may be (e.g., cognitive–affective processes such as social comparison or selective attention). The present research proposes that autobiographical memory is one such process.

A specific type of autobiographical memory, self-defining memories, may be of particular relevance to both basic tendencies and characteristic adaptations. These memories are defined by their affective intensity, vivid-

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ness, repetition, and connection to other important memories. Compared to autobiographical memories in general, self-defining memories are more likely to be important to the individual, tap themes of self-discovery and self-understanding, and reflect enduring concerns or conflicts. These memories are reconstructed, in part, based on easily accessible information about the individual's personality (Singer & Salovey, 1993) and set a framework for how the individual interacts with the world (Conway & Pleydell-Pearce, 2000).

Self-defining memories have been linked to an individual's underlying personality dispositions (Singer & Salovey, 1993) and a variety of constructs such as personal goals (Singer & Salovey, 1993), achievement (Sutin & Robins, 2005) and identity (McAdams & Pals, 2006). Given that personality influences the reconstruction of memory and that memory influences outcomes and processes also influenced by personality, memory content should mediate the relation between these constructs. Thus, self-defining memories may be one dynamic process that translates basic tendencies into characteristic adaptations.

The current research tests self-defining memories as a mediator between two well-established relations in the personality literature: Neuroticism and subjective health and Conscientiousness and achievement-related strivings. As mentioned above, individuals high on Neuroticism report more somatic complaints (Costa et al., 1985) and lower life satisfaction life (Schimmack et al., 2004). Perhaps not surprisingly, individuals high in Neuroticism also tend to report negative emotional content in their memories (Sutin & Robins, 2005) and such memory content, in turn, has been associated with lower levels of well-being (McAdams, Reynolds, Lewis, Patten, & Bowman, 2001). These interrelations suggest that memory content may be one dynamic process between Neuroticism and subjective health. Specifically, individuals high in Neuroticism should report more somatic complaints and lower life satisfaction because their memories are saturated with negative emotional content. This potential mediating process has yet to be tested directly.

Likewise, Conscientiousness and achievement striving are consistently linked in the personality literature. Specifically, conscientious individuals tend to be persistent and achievement-oriented (Komarraju & Karau, 2005), take a deep processing approach to studying (Duff, Boyle, Dunleavy, & Ferguson, 2004), and perform better in school (Chamorri-Premuzic & Furnham, 2003). The memories of highly conscientious individuals tend to be saturated with positive emotional content and achievement motivation (Sutin & Robins, 2005) and these memory characteristics in turn have been associated with positive personal strivings (Singer & Salovey, 1993). Thus, similar to Neuroticism, memory content may be one dynamic process that translates Conscientiousness into achievement-related behavior. Specifically, highly conscientious individuals should hold more adaptive achievement-related goals and study strategies because their memories are saturated with positive emotional content and achievement motivation. Again, this potential mediating process has yet to be tested directly.

In addition to content, memories can vary on a number of phenomenological dimensions, such as vividness, emotional intensity, and coherence (Sutin & Robins, 2007). Memory phenomenology has recently emerged as an important component of autobiographical memory and preliminary evidence has linked phenomenology to personality traits (e.g., Rubin & Siegler, 2004), mental health (e.g., Rottenberg, Joorman, Brozovich, & Gotlib, 2005), and achievement motivation (e.g., Sutin & Robins, 2007). Although these relations are not as well established as the ones summarized above, phenomenology is as important a component of autobiographical memory as content, and thus likely plays a similar mediating role between basic tendencies and characteristic adaptations.

The present two studies examine the interrelations between basic tendencies, characteristic adaptations and self-defining memories. In Study 1, participants completed measures of Neuroticism, self-defining memories, and somatic complaints and subjective well-being. In Study 2, participants completed measures of Conscientiousness, self-defining memories, and achievement goals and study skills. In both studies, memory content and phenomenology are tested as mediators between these basic tendencies and characteristic adaptations.

2. Study 1

2.1. Method

2.1.1. Participants and procedure

A total of 162 undergraduates (81% female) participated in a study on memory and personality. Participants retrieved and rated four memories and completed measures of somatic complaints, life satisfaction

and, in a separate session, Neuroticism. Means, standard deviations, alpha reliabilities and intercorrelations for all variables are given in Table 1.

2.1.2. Measures

2.1.2.1. Self-defining memories. Participants wrote about four self-defining memories. Specifically, participants were asked to,

> Please describe a memory that is personally meaningful to you. It can be either positive or negative, but it should convey the most important experience you have had that helps you to understand who you are and how you arrived at your current identity. It may be a memory about any kind of experience, but it should be something you have thought about many times and is still important to you, even as you are recalling it now.

After describing each memory, participants rated their emotions during the experience on a 5-point Likert scale ranging from 1 (not at all) to 5 (extremely). Participants rated positive (e.g., proud, inspired and excited) and negative (e.g., upset, scared and ashamed) emotions drawn from the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). The individual emotions were composited into Positive Affect (PA) and Negative Affect (NA) scales across the four memories.

Participants also completed an abbreviated version of the Memory Experiences Questionnaire (MEQ; Sutin & Robins, 2007). In the current sample, three dimensions of phenomenology were assessed and averaged across the four memories: Vividness (e.g., "I can recall this memory in detail in my mind."), Emotional Intensity (e.g., "As I am remembering the event now, my feelings are very intense."), and Distancing (e.g., "I do not have much in common with the person in the memory."). Rating were made on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

2.1.2.2. Somatic complaints and life satisfaction. Five items assessed participants' somatic complaints (e.g., "I often have headaches."). Participants rated their life satisfaction on the single-item Life Satisfaction Scale (Campbell, Converse, & Rodgers, 1976): "I am satisfied with my life as a whole." All ratings were made on a 5-point scale ranging from 1 (not at all true of me) to 5 (very true of me).

2.1.2.3. Personality. Participants completed the Neuroticism scale of the Big Five Inventory (BFI; John & Srivastava, 1999). Participants rated eight items (e.g., "I see myself as someone who is depressed, blue.") on a scale from 1 (strongly disagree) to 5 (strongly agree).

2.2. Results and discussion

Consistent with expectations, Neuroticism correlated positively with Somatic Complaints and negatively with Life Satisfaction (see Table 1). Also consistent with expectations, Neuroticism correlated positively with

Table 1
Descriptive Statistics and Intercorrelations for Neuroticism, Memory Characteristics and Subjective Health (Study 1)

	M	SD	1	2	3	4	5	6	7	8
1. Neuroticism	3.1	.7	.78							
2. Positive Affect	2.5	.5	−.06	.84						
3. Negative Affect	2.1	.5	.21*	−.07	.86					
4. Vividness	3.9	.6	−.06	.10	.07	.90				
5. Distancing	2.2	.6	.15*	−.10	.33*	−.24*	.85			
6. Emotional Intensity	2.6	.8	.22*	.25*	.23*	.44*	−.09	.80		
7. Somatic Complaints	3.0	.9	.47*	.12	.32*	.08	.16*	.32*	.76	
8. Life Satisfaction	3.7	1.0	−.33*	.04	−.18*	.06	−.29*	.04	−.24*	N/A

Note. $N = 162$. Alpha reliabilities are shown on the diagonal. N/A = not applicable.
* $p < .05$.

NA, Emotional Intensity, and Distancing across the four memories. Neuroticism was unrelated to PA and Vividness.

Next, memory content and phenomenology were tested as mediators between Neuroticism and the subjective health variables. Negative Affect and Emotional Intensity both mediated the relation between Neuroticism and Somatic Complaints: Participants high in Neuroticism reported more somatic complaints, in part, because their memories were saturated with negative affective content ($\Delta\beta = .05$; Sobel test = 2.20, $p < .05$) and were marginally more emotionally intense ($\Delta\beta = .04$; Sobel test = 1.65, $p = .09$). In addition, Distancing mediated the relation between Neuroticism and Life Satisfaction: Participants high in Neuroticism had lower life satisfaction, in part, because they distanced themselves from their most meaningful memories ($\Delta\beta = .05$; Sobel test = −2.10, $p < .05$). These findings suggest that memory content and phenomenology are one dynamic process between Neuroticism and subjective health.

3. Study 2

3.1. Method

3.1.1. Participants and procedure

A total of 345 undergraduates (74% female) participated in a study on memory and personality. Participants retrieved and rated two memories and completed measures of achievement goals and study skills and, in a separate session, Conscientiousness. Participants received course credit for their participation. Means, standard deviations, alpha reliabilities and intercorrelations for all variables are given in Table 2.

3.1.2. Measures

3.1.2.1. Self-defining memories. Participants recalled two self-defining memories and made the same affective ratings as in Study 1. In addition to the three phenomenological dimensions described in Study 1, participants also completed the memory coherence scale of the MEQ (e.g., "This memory is of an event that occurred once at a particular time and place, not a summary or merging of many similar or related events."). Finally, a single-item measure of Achievement motivational content ("To do something well or to excel at something.") for each memory was composited across memories. Although Achievement was assessed by only one item, previous research suggests that single-item measures can have adequate reliability and validity (e.g., Robins, Hendin, & Trzesniewski, 2001).

Table 2
Descriptive Statistics and Intercorrelations for Conscientiousness, Memory Characteristics and Achievement Variables (Study 2)

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Conscientiousness	3.5	.6	.81												
2. Positive Affect	2.3	1.0	.21*	.90											
3. Negative Affect	1.6	.7	−.10	−.34*	.89										
4. Achievement Motivation[a]	3.4	1.1	.18*	.53*	−.14*	.31									
5. Vividness	3.9	.6	.16*	.17*	−.04	.15*	.87								
6. Distancing	2.4	.7	−.09	−.31*	.34*	−.23*	−.38*	.83							
7. Emotional Intensity	3.7	.7	.04	.08	.22*	.08	.57*	−.22*	.86						
8. Coherence	3.9	.6	.15*	.14*	−.10	.13*	.74*	−.37*	.44*	.84					
9. Mastery goals	4.0	.7	.27*	.10	−.03	.17*	.21*	−.17*	.18*	.28*	.79				
10. Approach goals	3.4	1.0	.19*	.03	.08	.16*	.04	−.01	.14*	.02	.29*	.86			
11. Avoidance goals	3.9	.9	.08	−.16	.16*	.07	.14*	−.06	.21*	.06	.17*	.38*	.80		
12. Deep processing	3.1	.8	.14*	.17*	−.02	.13*	.08	.01	.08	.07	.38*	.21*	−.09	.77	
13. Surface processing	3.7	.8	.18*	.06	.11*	.08	.13*	−.08	.26*	.07	.29*	.30*	.40*	.03	.72

Note. $N = 345$. Alpha reliabilities are shown on the diagonal.

[a] Although the alpha for achievement motivation is poor, achievement was retained because it correlated with Conscientiousness in the predicted direction.

* $p < .05$.

3.1.2.2. Achievement goals and study skills. Participants completed the Achievement Goals Questionnaire (AGQ; Elliot & Church, 1997), a measure of Mastery (e.g., "It is important for me to understand the content of this course as thoroughly as possible."), Performance-approach (e.g., "It is important to me to do better than the other students.") and Performance-avoidance goals (e.g., "My fear of performing poorly in this class is often what motivates me."). In addition, participants completed the Deep (e.g., "I treat the course material as a starting point and try to develop my own ideas about it.") and Shallow Processing (e.g., "When I study for an exam, I try to memorize as many facts as I can.") scales of the Study Skills Questionnaire (SSQ; Elliot, McGregor, & Gable, 1999).

3.1.2.3. Personality. Participants completed the Conscientiousness scale of the BFI. Participants rated 9 items (e.g., "I see myself as someone who is a reliable worker.") on a scale from 1 (strongly disagree) to 5 (strongly agree).

3.2. Results and discussion

Correlations between Conscientiousness and the memory and achievement variables are shown in Table 2. As expected, participants high in Conscientiousness reported memories with positive affective and achievement-related content and these memories were both vivid and coherent. In addition, as expected, Conscientiousness correlated positively with Mastery and Approach goals and Deep Processing. Mediation analyses focus on these three variables.

Consistent with expectations, content and phenomenology mediated Conscientiousness and the achievement variables. Conscientious participants had more Mastery goals, in part, because their self-defining memories were saturated with achievement motivation ($\Delta\beta = .03$; Sobel test $= 2.07$, $p < .05$) and were both vivid ($\Delta\beta = .03$; Sobel test $= 2.20$, $p < .05$) and coherent ($\Delta\beta = .04$; Sobel test $= 2.39$, $p < .05$). Conscientious participants also held more Approach-related goals, in part, because their important memories were saturated with achievement motivation ($\Delta\beta = .03$; Sobel test $= 2.11$, $p < .05$). Finally, somewhat surprisingly, PA mediated the relation between Conscientiousness and Deep Processing: Conscientious participants engaged in more deep processing when studying because, in part, their memories were saturated with positive affective content ($\Delta\beta = .04$; Sobel test $= 2.40$, $p < .05$). Perhaps, in this context, easily accessible positive affective memory content serves as a motivating force for these individuals to thoroughly learn and evaluate course material. Thus, similar to Neuroticism, memory content and phenomenology partially mediated several of the Conscientiousness-achievement relations commonly found in the personality literature.

4. General discussion

The present research tested the hypothesis that autobiographical memories are one dynamic process that translates basic tendencies into characteristic adaptations. In both studies, participants retrieved self-defining memories and rated the content and phenomenology of each memory. Participants also completed subjective health measures (Study 1) and achievement-related measures (Study 2), which have been consistently linked to Neuroticism and Conscientiousness, respectively. Mediational analyses in both studies supported predictions. In Study 1, negative affect, emotional intensity and distancing mediated the relation between Neuroticism and subjective health. In Study 2, positive affect, achievement motivation, vividness, and coherence mediated the relation between Conscientiousness and achievement-related goals and strategies.

Autobiographical memory is an ideal dynamic process for both practical and theoretical reasons. First, autobiographical memory has already been linked to basic tendencies and a variety of characteristic adaptations; thus, predictions can be readily made and tested. For example, intimacy-related memory content may mediate Extraversion and relationship satisfaction. A more substantive reason for using autobiographical memory is that such models integrate trait and social-cognitive approaches to the study of personality. For example, an individual high in Neuroticism may evaluate his current life satisfaction based on the content of easily accessible memories. If those memories are saturated with negative emotions, he likely uses that information to determine whether or not he is presently happy with his life. Recent research has already demonstrated the utility of such a strategy in other domains; for example, memories may be one mechanism

underlying personality change (Sutin & Robins, 2005). The present research adds to the growing body of literature integrating these two approaches and encourages a more process-oriented approach to the study of the dynamics of personality.

The present research has several limitations and opportunities for further research. First, neither memory content nor phenomenology fully mediated the relations between personality and subjective health and achievement. Focusing on specific memories related to characteristic adaptations may boost the mediating effect of the memories. For example, memories of achievement experiences may be more likely to mediate personality and achievement variables than memories from other domains. Second, relatively few memories were assessed in the present research. Aggregating across multiple memories would likely increase their mediating effect. Third, the reliability of the achievement motivational content measure was poor. Although it was retained because it correlated in hypothesized ways with the variables of interest, replication with a better measure of achievement motivational content is critical. Finally, some of the mediators did not reach conventional levels of statistical significance in Study 1. These analyses were likely underpowered due to the small sample size; larger samples (such as in Study 2) would likely provide the power needed to detect mediating effects.

Despite these limitations, the research presented here offers exciting avenues for future research on memory and personality. The dynamics and expression of personality is complex; the identification of dynamic processes, such as autobiographical memories, promotes a more nuanced, process-oriented approach to the study of personality.

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