The Influence of Implicit Motives on Memory Processes

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Four studies tested the hypothesis that agentic and communal motives act as a channel for new knowledge and are linked to specific ways of organizing information that facilitate its accessibility. In Study 1, agentic and communal participants read an agentic or a communal vignette consisting of differentiated and integrated statements, performed a distraction task, then completed written recall and recognition tasks. Agentics recalled and recognized more differentiation in the agentic story; communals recalled and recognized more integration in the communal story. A computerized replication with randomized recognition items (Study 2) found the same pattern of recognition results. Studies 3 and 4 used implicit motive primes and found similar results in both written and computerized recognition tasks. These ways of organizing information have powerful implications for the encoding of autobiographical knowledge and its long-term organization.

Studies of personality and memory have been rare until recently. Interest in autobiographical memory is burgeoning in both personality and cognitive psychology. Yet there has been little exchange of ideas between the two areas (Conway & Pleydell-Pearce, 2000; Robinson & Taylor, 1998; Singer & Lally, 1999). Although cognitive psychologists conduct studies on autobiographical memory that are methodologically sophisticated, they typically do not consider personological variables, even though self-relevant memories are inherently linked to personality (Conway & Pleydell-Pearce, 2000; Singer & Lally, 1999). Personality and developmental psychologists often rely on narrative accounts to study autobiographical memory (e.g., McAdams, 1985; Singer & Salovey, 1993; Thorne, 2000). Their work is sensitive to the contribution of individual-differences factors such as motives and goals, but narrative data do not allow for the investigation of the mediating cognitive factors that determine variability. Although autobiographical narrative data have consistently shown links with psychological variables, lack of experimental control has made it difficult to discern whether the data reflect differences in life experiences or writing style or actual differences in memory.

The current studies offer a model of memory that attempts to lend empirical support to personality studies that use a narrative approach. By bridging personality motivation and cognitive research methods, it may be possible to further our understanding of how general memory processes might impact the content and structure of autobiographical memories. In the following studies, experimentally controlled recall and recognition tasks were developed as a more direct way to test the hypothesis that accessibility to knowledge is mediated by motivation and specific organizing procedures. By controlling memory input, it is possible to investigate how motivation may mediate the encoding, organization, and retrieval of recently acquired knowledge. This has implications for how information, particularly autobiographical knowledge, is organized in the long term.

Conway and Pleydell-Pearce (2000) suggested that a specific autobiographical memory is a stable pattern of activation over indices of autobiographical knowledge structures. The authors described a model of autobiographical memory in which memories are transitory mental constructions within the self-memory system (SMS). The SMS contains the autobiographical knowledge base and current goals of the working self-concept (cf. Markus & Wurf, 1986). Within the SMS, control processes modulate access to the structures and, in this way, form specific memories. The relation of the knowledge base to active goals is reciprocal, and the knowledge base "grounds" the goals of the working self. Thus, the self, especially the current goals of the self, functions as control processes that modulate the construction of memories.

Researchers have found that autobiographical memories are generally organized by lifetime period (e.g., the college years) rather than by specific activities (Conway & Rubin, 1993). It has also been found that adults tend to recall more memories from the approximate ages of 15–25 than would be predicted by linear power function of forgetting (Fitzgerald, 1988, 1996; Fitzgerald & Lawrence, 1984; Rubin, Wetzler, & Nebes, 1986). Both Fitzgerald (1988) and Conway and Rubin (1993) suggested that the reason for
this increased ability to recall memories from this period may be
the period’s role in identity formation and the number of first
experiences (e.g., dating, learning to drive). For instance, Cantor
and colleagues (Cantor & Kihlstrom, 1985; Cantor, Norem,
Niedenthal, Langston, & Brower, 1987) put forth the notion of
“life tasks” that encompasses lifetime period specific problems and
concerns. Their studies show that college students report concerns
in two broad domains: achievement and social tasks. This suggests
that personality variables, including motives and goals, may play a
considerable role in the construction of autobiographical memory.
In fact, Conway (1996) posited that concern for work and rela-
tionships are the two overarching themes that might organize
memories from this period.

Many theorists and researchers (e.g., Bales, 1950; Brewer, 1990;
Kaplan, 1978; Markus & Kitayama, 1991; McAdams, 1985) have
identified the same broad distinction in human experiences that is
captured in the general terms agency and communion (Bakan,
1966). The agency—communion contrast has been used to describe
two central and enduring needs. Agency refers to the need for
autonomy, instrumentality, and dominance in relation to others;
communion refers to the need for relationships, interdependence,
and connection with others (Bakan, 1966; McAdams, 1985). Al-
though these individual differences can be operationalized in vari-
ous ways (cf. Carlson, 1971; Markus & Kitayama, 1991; Emmons
& McAdams, 1991; Wiggins, 1992), important aspects of agentic
and communal orientations have been studied extensively in re-
search programs examining the need for achievement and power
and the need for intimacy, respectively. In this research, the need
for achievement is described as a recurrent concern with meeting
a personal standard of excellence (McClelland, Atkinson, Clark,
& Lowell, 1958), and the need for power is described as a recurrent
preference for having impact, control, and influence over another
person or group or the world at large (Winter, 1973). By contrast,
the need for intimacy refers to a recurrent preference for experi-
encing warm, close, and communicative exchanges with others
(McAdams, 1984). These are considered implicit motives because
they are believed to reflect a less conscious aspect of personality
and are therefore assessed through semi-projective measures (Mc-
Clelland, Koestner, & Weinberger, 1989). There is growing evi-
dence that agentic individuals (i.e., those high in the need for
power and/or achievement) and communal individuals (i.e., those
high in the need for intimacy) process information differently and
in ways related to their motives.

Content and structure are two important properties of autobi-
ographical memories that appear to be influenced by these person-
ality motives. The content of autobiographical memories tends to
be related thematically to individuals’ implicit motives (McAd-
Woike, 1994a, 1994b; Woike, Gershkovich, Piorowski, & Polo,
1999; Woike & Polo, 2001). These motives act to channel acces-
sibility to long-term knowledge such as autobiographical memo-
ries that carry information about the motive that is central to the
individual. Autobiographical memories are also structured in ways
that reflect organization procedures related to these different mo-
tives (Woike, 1994a; Woike et al., 1999; Woike & Polo, 2001).
Furthermore, these different ways of organizing information have
powerful implications for how information is encoded into mem-
ory and, relatedly, how it is organized in the long term.

Past Findings on the Content of
Autobiographical Memories

The content or subject matter of autobiographical memories
may reveal themes that reflect an individual’s most important
conscerns (Moffitt & Singer, 1994; Singer & Salovey, 1993;
Tomkins, 1987). There is a great deal of evidence that agentic
and communal implicit motives are linked to the content of autobi-
ographical memories. Researchers (McAdams, 1982, 1985; McAd-
ams et al., 1996; Woike, 1994a, 1994b; Woike et al., 1999; Woike
& Polo, 2001) have found that when individuals are asked to
describe significant and/or emotional life experiences, agentic
individuals are consistently more likely to recall agentic experi-
ences (e.g., self-mastery, losing face), whereas communal individ-
uals are more likely to recall communal experiences (e.g., love or
friendship, rejection). Also, daily diary data show that over a
6-week period, agents reported more memories about agentic
tasks, whereas communals reported more memories about relation-
ships (Woike, 1995; Woike & Polo, 2001). From these findings,
it appears that personality motives, as part of the SMS, may have a
selective function in encoding motive-related experiences and may
be related to an organizing function in retrieving such memories.
Because these studies relied on self-report data, the specific mech-
anisms of encoding and retrieval could not be identified. The
current research aims to test the hypothesis that accessibility of
recently acquired knowledge is mediated by motivation.

Past Findings on the Structure of
Autobiographical Memories

Researchers have found the structure of self-knowledge (De-
Steno & Salovey, 1997) and its complexity of organization to be
integral to personality (Linville, 1985, 1987; Showers, 1992a,
1992b; Showers & Ryff, 1996). The structure of autobiographical
narratives refers to the underlying pattern with which the content
is arranged. Once autobiographical knowledge is accessed, it must
be reconstructed into narrative form (Rubin, 1998). Complexity is
commonly understood to comprise two important ways of orga-
nizing information that may be found in narrative structure: Dif-
ferration refers to the number of different and contrasting as-
psects, and integration refers to the number of interrelationships
and connections between aspects (e.g., Schroder, Driver, & Streufert,
1967; Suedfeld, Tetlock, & Streufert, 1992; Woike, 1997). Al-
though differentiation and integration are often assumed to operate
together, they are conceptually and operationally very different.
Differentiation involves perceiving differences and opposition
through relative comparisons and restrictions. On the other hand,
integration involves perceiving similarity, connection, interdepen-
dence, and congruity.

On the basis of this conceptual contrast, Woike (1994a) rea-
sioned that differentiation and integration may serve different func-
tions related to agency and communion, respectively. When their
concerns become salient, agentic people may use differentiation to
process information. For instance, those concerned with reaching
a standard of excellence may engage in making distinctions and
comparisons between themselves and others, or between their own
abilities, or against external standards and demands. An individual
may achieve greater impact and control by imposing restrictions
on information presented to others and by being alert to the
restrictions and conditions imposed on incoming information. Thus, perceiving oneself, others, and events as differentiated may help agentic people satisfy their need to be autonomous, competitive, and dominating in the social world. They should therefore be particularly likely to use differentiation in social situations that are related to their goals. By contrast, perceiving oneself, others, and events as integrated may allow communal people to satisfy their need for greater connection with others. Drawing similarities between themselves and others, among various aspects of themselves, and among people and situations may allow communal individuals to feel a greater sense of belonging. Seeing how people are similar and being aware of their common interests provides a way for communal people to meet their need for connection with others. Their interpersonal sensitivity may be related to seeing how people and events influence each other. In social situations that offer an opportunity for communal to make such unions, they should be particularly likely to use more integration. It is important to note that differentiation and integration are not synonymous with agency and communion. That is, agents are unlikely to perceive everything with more differentiation, nor are communals likely to see all things in an integrated manner. It was argued that in conditions that are relevant to their motive, agents and communals are more likely to use the way of organizing information that is most functional under those conditions.

Testing this idea in an experimental setting in which either agent or communal concerns were made salient, Woike (1994a) found that agents used more differentiation and communal individuals used more integration to perform a social judgment task related to their respective motives. Similarly, other researchers have found that agent (or independent) individuals use more differentiation to describe themselves and their relationships, to solve problems, and to make social judgments, whereas communal (or interdependent) individuals use more integration (Markus & Kitayama, 1991; Tetlock, Peterson, & Berry, 1993).

The same cognitive organizing procedures appear to be used to reconstruct autobiographical knowledge into narratives. Woike et al. (1999) conducted a series of studies to determine whether differentiation and integration processes were used to organize memories of motive-related experiences, as they are used to organize general motive-related information. The results demonstrated that agent and communal individuals did in fact use more differentiation and integration, respectively, to structure their motive-related narratives about global and specific affective experiences. It was also shown that agent and communal individuals used more differentiation and integration, respectively, to recall memories of social separation and connection. Woike and Polo (2001) found that agent and communal individuals used these ways of organizing information to record their most memorable daily events for a 6-week period. Together, these findings suggest that differentiation and integration are characteristics of narrative structure that are used with greater frequency by agent and communal individuals, respectively, to reconstruct their motivationally significant experiences.

The Present Studies

Autobiographical narrative data have consistently shown that agentic memories are organized using differentiation, whereas communal memories are organized using integration. However, the lack of experimental control has made it difficult to discern whether the data reflect differences in life experiences, in writing style, or in memory processes. In the current studies, experimentally controlled retrieval tasks were used as a more direct way to test the notion that agency and communion serve as a channel for knowledge and that differentiation and integration are organizing procedures specific to these motives. By controlling memory input, we were able to investigate how motive-related information structured for differentiation and integration was encoded and subsequently retrieved. We expected to find evidence for this difference in processing in the free recall as well as the accuracy and/or response latencies of recognizing differentiated and integrated information within agentic and communal topics.

We expected this pattern of findings to demonstrate the role that implicit motives play in how episodic information, including autobiographical knowledge, is organized in the long term.

Study 1

Woike et al. (1999, Study 4) found that in conditions related to their motives, agentic individuals exhibited more accurate recognition of differentiation and communal individuals had more accurate recall of integration. This interaction among motives, differentiation and integration, and the methods used strongly suggests that motives play a significant role in memory processes. However, the specific pattern of results might have been attributable to the stimuli used in this single study. Additional retrieval experiments were conducted to test the hypotheses with different stimuli and other method variations. In preparation for the retrieval experiments described here, the experiment stimuli were extensively pilot tested (Woike & Lavezzary, 2000).

In Study 1, agentic and communal individuals read an agentic or a communal vignette consisting of differentiated and integrated statements, performed a distraction task, and then completed written recall and recognition tasks. Agentic were expected to show better recall of and greater sensitivity to recognizing differentiation in the agentic story than were communals. Communal were predicted to have better recall of and greater sensitivity to integration in the communal story than were agentics.

Method

Developing stimulus materials. Vignettes were developed from topics for which both agentic and communal versions could be created using the format developed by Woike et al. (1999, Study 4). We consulted established techniques for coding descriptions of emotional experiences (Carlson, 1971) and autobiographical memories (McAdams, 1982, 1985; Woike, 1994a, 1994b; Woike et al., 1999) for agentic and communal themes in developing the agentic and communal themes of the vignettes. Coding schemes for measuring agentic motives, such as the need for achievement (McClelland et al., 1958) and the need for power (Winter, 1973), and those related to communion, such as the need for intimacy (McAdams, 1984), were also consulted. Generally, agentic themes pertain to achievement, recognition, accomplishment, and increased prestige. Communal themes pertain to friendship, understanding between people, social acceptance, and enjoyment of experiences with others. Each vignette consisted of a 12–14-sentence (approximately 200 words) paragraph about a social situation that was either agentic or communal in content. Each vignette contained nine phrases that pertained to agentic or communal content and contained six differentiated statements and six integrated statements.
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The Categories of Complexity Scoring Manual (Woike, 1997) was used to structure the vignettes using differentiation and integration. This manual describes a technique constructed using other scoring systems from past research that allows for the separate measurement of differentiation and integration (see Woike, 1994a, 1997; Woike & Aronoff, 1992, for details). A four-category scoring system was created from a review of the possible methods of assessment available (e.g., Baker-Brown et al., 1992; Suedfeld et al., 1992). First, simple differentiation involves the naming of attributes. Second, simple integration involves drawing simple connections between attributes. Third, elaborate differentiation refers to making distinctions in the forms of comparisons, contrasts, and restrictions. Fourth, elaborate integration refers to making connections in the forms of dynamic relationships, similarities, and overarching themes. Past research has shown that the simple forms of complexity are quite numerous (e.g., Woike, 1994a; Woike & Halberstam, 2001) and less discernable to readers (Woike et al., 1999). Therefore, only the elaborate forms of differentiation and integration were used to structure the vignettes. Below are brief descriptions of the six subcategories of elaborate differentiation and integration.

Three subcategories of elaborate differentiation have been identified. (a) Relative comparison refers to a comparison of relative standing between two social objects along a single dimension (e.g., “X is friendlier than Y” and “X is less able to Z”). (b) Contrast is a comparison made through the use of two opposing aspects (e.g., “X is a good listener and Y is a good talker” and “X can work well with others but can also work well on her own”). (c) Restriction of meaning refers to a statement used to confine the perceiver’s perspective of the target(s), object(s), or subject(s) (e.g., “From X’s point of view” and “Based on my understanding of Z”).

Three subcategories of elaborate integration have been identified. (a) Causal link refers to the perception of a dynamic relationship between stimulus features. The writer views features as interacting with each other rather than existing in isolation (e.g., “X made Y feel more at ease” and “Z influenced Y’s judgment”). (b) Similarity refers to the perception of commonality between two social objects (e.g., “X and Y both shared Z” and “X did Z the same way Y did”). (c) Resolution is expressed as a general theme that persists throughout the entire narrative (e.g., “All in all” and “Generally speaking”).

The vignettes were created from topics that were amenable to both agentic and communal content. The overlap in content and structure was controlled so that it was not confounded (e.g., agentic content structured with differentiation). Recognition test items were developed for each vignette on the basis of the format used by Woike et al. (1999). After extensive pilot testing of stories and recognition items, a vignette pair about a soccer team was chosen, and 20 true-false recognition items were selected for each condition. Ten statements were true (or false) and half of each were differentiation (or integration). The items were randomized. Examples of differentiated statements in the agentic story are as follows: “Ana was the best player on the team” and “Sarah wanted to try and score herself, but passed the ball to Ana.” For the integrated statements in the agentic story, examples are “Both teams were playing well” and “The victory invigorated Sarah.” Examples of differentiated statements in the communal story are “Ana felt closer to her teammates than ever” and “The players were more ready than usual to have fun.” Examples of integrated statements for the communal story are “Ana and Sarah both experienced a sense of togetherness from the team” and “The victory made Sarah cheer with delight.”

Presetting for agentic and communal motives. Approximately 400 Barnard College and Columbia University students were tested for agentic and communal motives. Participants were given the Thematic Apperception Test (TAT; Atkinson, 1958), in which they were given 5 min to write a story in response to each of six pictures that have proven useful in the assessment of achievement, power, and intimacy motivation (e.g., McAdams, 1985; Woike, 1994a, 1994b, 1995). Reproductions of these pictures can be found in Smith (1992, pp. 633–638). They included two people sitting on a bench, a man working at a desk, a ship captain and another man, two women working in a laboratory, male and female trapeze performers, and a man and a woman in a field with horses and a dog.

Three undergraduate research assistants were trained in assessment with the coding manuals for achievement motivation (McClelland et al., 1958), power motivation (Winter, 1973), and intimacy motivation (McAdams, 1984). Following the standard procedure, participants’ stories were scored for the three motives by coders who achieved at least 90% agreement with the precoded practice materials in the manuals. From these scores, separate distributions were formed for agency (the combined achievement and power scores) and communion (the intimacy score). Persons whose motive scores were in the top third on one motive and the lower half on the other were selected for the experiment. Approximately one third of the pretesting sample met one of the motive criteria and were available for further testing. Participants who were categorized as agentic had the following range of scores: achievement and power combined = 10–20, M = 12.45, intimacy = 0–6, M = 3.42, n = 90. Participants who were categorized as communal had the following range of scores: intimacy = 7–17, M = 10.12; achievement and power combined = 0–9, M = 3.73, n = 45.

Experiment procedure. Research assistants who were unaware of the participants’ motive scores scheduled them to participate in the study. Fifty-eight individuals (32 agentic, 26 communal) agreed to participate in the study and were randomly assigned to either the agentic or the communal vignette condition. Participants read the story described above and then performed a distraction to prevent rehearsal of the story. This 10-min distraction task involved viewing color switches in booklets and writing the object that came to mind for each color and giving it a name. After the time interval passed, participants were given a free recall task in which they had 3 min to write down everything they remembered about the story. They then completed the true-false recognition task described above in 3 min. Participants were debriefed and given payment.

Results and Discussion

The data from this experiment and the studies that follow were subjected to a series of one-tailed t tests within each story condition, because the dependent measures within each story condition were different. When responses to the free recall measure were examined (see Figure 1), we found that agentic recalled slightly more differentiation (M = 1.63) than did commumals (M = 1.29) in the agentic story condition, t(30) = 1.13, p = .13, one-tailed, marginally supporting the prediction. Agents also recalled significantly less integration (M = 0.63) than did commumals (M = 1.36) in the agentic story, t(30) = 2.73, p = .01. In the communal story condition, commumals recalled significantly more integration (M = 2.08) than did agents, (M = 0.92), t(26) = 4.43, p < .0001, as was predicted. Also, commumals recalled significantly less differentiation (M = 0.33) than did agents (M = 1.39) in the communal story, t(26) = 2.83, p = .009. Thus, across conditions, agents showed superior recall of differentiation, and commumals showed superior recall of integration.

To examine accuracy, we then computed a sensitivity measure (d'; Hochhaus, 1972) by subtracting the number of false-positive differentiation (or integration) errors from the total correct differentiation (or integration) items from the recognition task. For the agentic story, agents showed greater sensitivity to recognizing differentiation (M = 8.95) than did commumals (M = 6.63), t(30) = 3.47, p = .002. However, there was no difference in sensitivity to integration in the agentic story (t < 1; see the means in Table 1). For the communal story, commumals had marginally greater sensitivity to integration (M = 6.25) than did agents (M = 4.92), t(26) = 1.33, p = .09.
one-tailed. However, there was no difference in sensitivity to differentiation in the communal story ($t < 1$; see the means in Table 1).

Thus, on both retrieval measures, agentics and communals showed better recall and recognition of differentiation and integration, respectively, in motive-related stories but not superior recall and recognition in these stories generally. This pattern of results demonstrates that retrieval of recently acquired knowledge is mediated by motivation and specific organizing procedures. Because of the nature of the test, it was not possible to determine

Table 1

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*Note.* Means in boldface in the same column within a study are predicted to be significantly different.
whether this superior recognition was a result of a difference in encoding or retrieval.

Study 2

Study 2 is a computerized replication of Study 1 with randomized recognition items. This method allows for the examination of encoding and response latency. We predicted the same pattern of results in this study; that is, that agents would have superior recognition of differentiation and communalens would have superior recognition of integration in the motive-congruent vignettes. In addition, we examined differences in story encoding time or response latency between agents and communalens in the two conditions.

Method

Fifty-nine participants (30 agentic and 29 communal) from a prescreening sample similar to that described in Study 1 were contacted by undergraduate research assistants who were unaware of the participants’ motive scores and invited to participate in an experiment for monetary payment. Each participant was scheduled individually and was randomly assigned to either the agentic or the communal vignette condition. The vignettes used in Study 1 were introduced by computer. As the encoding measure, participants read the vignette and pressed the space bar when they were done. Then the 20 recognition items from Study 1 were randomly displayed on the screen one by one. Participants indicated that the statement was true or false using the keyboard. The computer program recorded response choices and the response latency of each item. From these data, d’ was computed (as described in Study 1) to represent sensitivity to differentiation (or integration). Median response latencies to the differentiation and integration items were calculated for each participant.

Results and Discussion

As in Study 1, the results showed that recognition of recently acquired knowledge was mediated by motivation. For the agentic story, agentics showed greater sensitivity to recognizing differentiation \( (M = 6.69) \) than did communals \( (M = 5.50) \), \( t(30) = 1.76, p < .05 \), one-tailed. However, there was no difference in sensitivity to integration in the agentic story \( (t < 1) \); see the means in Table 1). For the communal story, communals had greater sensitivity to integration \( (M = 5.73) \) than did agentics \( (M = 3.93) \), \( t(27) = 1.80, p < .04 \), one-tailed. Although it was not statistically significant, agentics also showed slightly higher sensitivity to differentiation \( (M = 6.28) \) than did communals \( (M = 4.60) \), \( t(27) = 1.13, p = .26 \), in the communal story. Thus, agentics and communals showed more accurate recognition of differentiation and integration, respectively, in motive-related stories but not superior recognition in these stories in general.

A look at the response latencies reveals no significant differences. For the agentic story, the medians (in seconds) for agentics and communals were 32.74 and 31.03, respectively \( (t < 1) \). Likewise, communals did not differ from agentics in their response latencies to the communal items; medians, in seconds, were 31.98 and 32.72, respectively \( (t < 1) \). It is important to note that response latencies were examined separately for differentiation and integration in the two conditions and that no differences were detected; these medians can be found in Table 1.

There were only marginal differences in story encoding times. For the agentic story, agentics had a slightly longer encoding time than did communals; medians were 65.03 and 57.61, respectively, \( t(30) = 1.36, p = .18 \). Likewise, communals had a slightly longer encoding time than did agentics for the communal story, medians were 63.47 and 53.18, respectively, \( t(27) = 1.65, p = .08 \). This could reflect a difference in interest in the material.

As in Study 1, individuals were more accurate in recognizing differentiated and integrated story structures when such stories pertained to their motives. Because there were no differences in response latency and only marginal differences in encoding, accuracy may be a result of accessibility to procedural knowledge about distinctions and connections but may not be closely linked to attention processes per se. Thus, in the first two studies, there were both differentiated and integrated recognition items that were motive related in each condition, but only those structures were predicted to be associated with the motives that were recognized more accurately. That is, not all items in the motive-related story were recognized more accurately, only differentiated items by agentics and integrated items by communals.

Study 3

Studies 1 and 2 test the hypothesis that agentic and communal motives act as a channel for new knowledge and facilitate accessibility of recently acquired information. This general hypothesis rests on the assumption that differences in processing are mediated by specific personality motives. Past work shows that agentic and communal motives measured through the TAT are consistently associated with distinct patterns of content and structure in autobiographical memory tasks as well as in other retrieval and decision-making tasks (Woike, 1994a, 1994b, 1995; Woike et al., 1999; Woike & Polo, 2001). Yet theorists have argued that the concepts of agency and communion represent a core contrast in human needs and experience (e.g., Bakan, 1966; Kaplan, 1978) and should therefore be held by all persons to some degree. It may be that all or most individuals have these same channels for organizing information in memory. For instance, Conway (1996) suggested that autobiographical memories are generally organized by work and relationship themes. Supporting this claim, Woike (1995) found that when analyzing participants’ reported most memorable daily experiences, on average, half of all the memories related to broadly defined themes of work/task achievement and social relationships. This study further found that agentic and communal motives could be primed. When participants vividly recalled an experience pertaining to agency or communion, they were able to recall more of their agentic or communal daily memories, respectively, relative to a control group and irrespective of their own personality orientations. These memories were too brief to be analyzed for differentiation and integration. However, the results suggest that priming agentic and communal memories might lead participants to use differentiation and integration as organizing procedures. That is, differentiation and integration may be organizing procedures related to agency and communion that are not exclusive to the motive but are pertinent to general channels for organizing knowledge in memory.

Thus, Studies 3 and 4 were conducted to test the generalizability of the pattern of results found in the first two studies. Agency and communion were primed using a vivid recall collection task shown in previous research (Woike, 1994b, 1995) to prime implicit motives. In Study 3, we predicted that agency-primed individuals would
have better recognition of differentiation and that communal-
primed individuals would have better recall and recognition of
integration in the relevant story conditions.

**Method**

Eighty-four participants from Barnard College and Columbia University
participated in the study to partially fulfill the requirements for their
introductory psychology course. Each participant was randomly assigned
to either the agentic or the communal priming condition and to either the
agentic or the communal story condition. In the priming exercise, partici-
pants were instructed to write a thoughtful response to the instructions
below.

In this part of the study, we are interested in the relationship between
past experiences and memory. For this exercise we would like you to
think of a single event in your life that involved [AGENTIC]; achieving
something great and/or feeling powerful and exuberant over an
accomplishment. You may also have felt as though you stood apart
from others or were recognized with the distinction of being the best.
[COMMUNAL]: being close to others and/or feeling part of a group
in a way that was very satisfying. You may also have felt as though
you were interrelated with others or that they had similar experiences
that helped to form a bond between you.

Take a moment to select a past experience, then use the rest of this
sheet (and back if necessary) to write about the event as you now
remember it. In particular, please describe how the event came about
and how you felt in detail—as vividly as you can. In fact, before you
begin writing, take a few minutes to try to reexperience this event as
vividly as possible. Then take about 10 minutes to write your descrip-
tion of the event.

After the priming exercise, the experiment followed the procedure
described in Study 1. Participants read one of the vignettes, then performed
the color naming distraction task for 10 min, then completed the recall and
recognition tasks for 3 min each. Their responses were scored, and a
sensitivity measure (d') was calculated for the recognition items.

**Results and Discussion**

When we examined the responses to the free recall measure (see
Figure 2), we found that agents recalled more differentiation
(M = 1.75) than did communals (M = 1.27) in the agentic story
condition, t(40) = 2.17, p = .03, supporting the prediction. Agen-
tics also recalled marginally less integration (M = 0.55) than did
communals (M = 0.91) in the agentic story, t(40) = 1.70, p = .10.
In the communal story condition, communals recalled more inte-
gration (M = 1.21) than did agents (M = 0.90), t(42) = 1.56,
p = .12, one-tailed, supporting the prediction. Also, communals
recalled significantly less differentiation (M = 0.67) than did
agents (M = 1.30) in the communal story, t(42) = 3.24, p < .002. Thus,
across conditions, agents showed superior recall of
differentiation and communals showed superior recall of integra-
tion. These results are similar to the free recall results found in
Study 1.

For the agentic story, agency-primed individuals showed mar-
ginally greater sensitivity to recognizing differentiation (M =
8.10) than did communion-primed individuals (M = 7.00), t(40) =
1.27 p < .11, consistent with prediction. However, there was no
difference in sensitivity to integration in the agentic story (t < 1).
For the communal story, communion-primed participants demon-
strated greater sensitivity to integration (M = 7.08) than did
agency-primed participants (M = 6.20), t(42) = 2.00, p < .05,
supporting the hypothesis. Also, there was no difference in sensi-
tivity to differentiation in the communal story (t < 1; see the
means in Table 1).

Thus, agentically and communally primed participants showed
superior recall and recognition of differentiation and integration,
respectively, in motive-related stories but not better recognition in
these stories generally. This pattern of results demonstrates that
recall and recognition of recently acquired knowledge was medi-
ated by motivation and specific organizing procedures. The data
suggest that the agentic—communal contrast may represent a funda-
mental channel through which knowledge is encoded and organ-
ized. This possibility is further investigated in the computerized
study described below.

**Study 4**

Study 4 is a computerized replication of Study 3 with random-
ized recognition items. As in Study 2, this method allows for the
examination of encoding and response latency. We predicted the

![Figure 2](image-url)

**Figure 2.** Study 3: Mean freely recalled differentiation and integration by motive prime and story condition. Story A was the agentic story condition; Story C was the communal story condition.
same pattern of results: We expected agency-primed individuals to show superior recognition of differentiation and communal-primed individuals to exhibit superior recognition of integration in the motive congruent vignettes. We also examined differences in story encoding time and response latency between the agency and community primes in the two vignette conditions.

**Method**

Seventy-four participants from Barnard College and Columbia University participated in the study to partially fulfill the requirements for their introductory psychology course. Each participant was randomly assigned to either the agentic or the communal priming condition and to either the agentic or the communal story condition. Participants performed the priming exercise as described in Study 3. Then each participant read the vignette on the computer and indicated “true” or “false” for the 20 randomized recognition items using the keyboard. The computer program recorded response choices and the response latency of each item. From these data, $d'$ was computed as a measure of sensitivity to differentiation (or integration). Median response latencies for the differentiation and integration items were also computed.

**Results and Discussion**

As in Study 3, the results show that recognition of recently acquired knowledge was mediated by the content of primed autobiographical knowledge. For the agentic story, agency-primed individuals showed greater sensitivity to recognizing differentiation ($M = 8.53$) than did communal-primed individuals ($M = 7.43$), $t(36) = 1.83, p = .05$, one-tailed. However, there was no difference in sensitivity to integration in the agentic story ($t < 1$). For the communal story, communal-primed participants showed greater sensitivity to integration ($M = 5.72$) than did agentic-primed participants ($M = 3.56$), $t(36) = 3.12, p = .004$. Also, as expected, there was no difference in sensitivity to differentiation in the communal story ($t < 1$). Thus, agentic- and communal-primed participants showed superior recognition of differentiation and integration, respectively, in motive-related stories but not better recognition in these stories generally.

A look at the response latencies found that for the agentic story, agentics did not have shorter response latencies compared with communsals; medians (in seconds) were 19.74 and 21.11, respectively, $t(36) < 1$. Likewise, communsals did not differ from agentics in their response latencies to the communal items; medians were 37.60 and 37.59, respectively, $t(36) < 1$. When the response latencies were examined separately for differentiation and integration, no differences were detected between the two conditions (see the medians in Table 1). However, there was a significant difference in the response latencies between the differentiation and integration items in the agentic condition, $t(36) = 2.43, p < .05$. It appears that both agentics and communsals responded much more quickly to the differentiated items than to the integrated items in the agentic story.

The story encoding times did not differ. For the agentic story, agentics did not have an encoding time that differed from communsals; medians were 59.68 and 59.79 seconds, respectively, $t(36) < 1$. Likewise, communsals did not differ from agentics in their encoding of the communal story. Medians were 52.44 and 56.92 seconds, respectively, $t(36) < 1$.

Thus, these findings are similar to those found with implicit motives in Study 2. In fact, the pattern appears to be as strong as it was for individuals who were preselected on the basis of the strength of their implicit motives. These findings therefore suggest that agency and communion represent fundamental channels through which knowledge is encoded and organized. As in the previous studies reported here, the data demonstrate that recognition of recently acquired knowledge is mediated by motivation and specific organizing procedures. Individuals were more accurate in recognizing differentiated and integrated story structures when such stories pertained to the content of their primed autobiographical knowledge. This appears to be a processing effect related directly to procedural knowledge about distinctions and connections but unrelated to attention differences.

**General Discussion**

In these studies we attempt to combine a sensitivity to personological variables with experimental precision to test a model of the personality and memory processes. Our general hypothesis was that agentic and communal motives act as channels for new knowledge and are linked to specific ways of organizing information that facilitate its accessibility. Across the four studies, the data demonstrate that accessibility to recently acquired knowledge is indeed mediated by motivation and specific organizing procedures. Specifically, agentic and communal motives, measured as stable individual differences and as primed motivational states, are linked to differentiated and integrated organizing procedures, respectively.

In each study, participants read an agentic or a communal vignette consisting of differentiated and integrated statements and then completed retrieval tasks. On the whole, agentics showed consistently superior recall and recognition of differentiation in the agentic story. Communsals exhibited consistently superior recall and recognition of integration in the communal story.

In interpreting the results of these studies, it is important to note that agentics and communsals both received this information for the first time during encoding. Having specific prior knowledge of agentic and communal topics would not have helped them to recognize the items that were specific to the story. There were both differentiated and integrated recognition items that were motive related in each condition, but only those structures that were predicted to be associated with the motive were recognized more accurately. That is, not all items in the motive-related story were recognized more accurately, only differentiated items by agentics and integrated items by communsals. This strongly suggests that agentic and communal motives serve as general channels for information and that differentiation and integration are organizing procedures more broadly linked to these channels.

**Comparing the Findings Across the Studies**

As can be seen in Table 1, there were some differences in the findings among the four studies that varied in terms of motivation assessment, distraction versus no distraction task after encoding, free recall versus no free recall, and written versus computerized recognition. One difference was that participants generally had more difficulty recognizing the integration items. This pattern was also seen in our pilot testing of stories and recognition items (Woike & Lavezzary, 2000). This may be because the recognition
paradigm involves making true–false distinctions, which are essentially a form of differentiation. Integration, on the other hand, involves seeing the links between aspects. This fact may have introduced a unique form of method variance that made the task slightly more difficult for the integrated items. The free recall measure was arguably more sensitive to detecting differences in accessibility of differentiation and integration. Not only did this measure bear out the predictions that agentic recall would more differentiation and communal recall would recall integration in the motive-congruent conditions, it also found that agentic recall more differentiation and communal recall more integration regardless of story content. The unstructured nature of the test may have allowed participants to use their own way of structuring the information more readily and without interference.

The lack of a distraction in the computerized version of the studies did not seem to affect accuracy. In fact, the computerized version seemed more difficult, probably because participants were presented with only one recognition item at a time, in contrast with having all 20 items on the sheet of paper in the written version.

Implications for a Constructive Model of Autobiographical Memory

It is important to consider that these motive-related stories are not equivalent to autobiographical knowledge. The recall and recognition of information from these stories may involve different memory processes than those involved in autobiographical memory. However, there is evidence from self-reported autobiographical memory research (Woike, 1994a; Woike et al., 1999; Woike & Polo, 2001) to suggest that motive-related memories are processed using differentiation and integration by agentic and communal participants, respectively, even though these studies did not use the experimental control necessary to detect processing differences directly. This strongly suggests that the same organizing procedures that are used to recall and recognize recently acquired knowledge are also used to access autobiographical knowledge.

Recall studies offer important information about the accessibility or availability of autobiographical knowledge (Higgins, 1996). A self-relevant retrieval cue should lead to greater accessibility of autobiographical knowledge than should cues that are unrelated to key aspects of the self. In fact, this was shown in the seminal work of Markus (1977), in which self-described independent and dependent participants recalled instances which they behaved in those ways. It now generally appears that people have greater accessibility to personal memories that are compatible with their self-conceptions (e.g., Markus & Ruvolo, 1989), emotions and goals (e.g., Singer and Salovey, 1993; Stein, Wade, & Liwag, 1997), and beliefs about themselves and others (e.g., Mikulincer, 1998). In all of these studies, a cue related to some aspect of the self-concept activated the retrieval of memories related to that cue. The data support the premise that autobiographical knowledge is organized by content, but they have not been informative about other mechanisms that must be present in the process of memory reconstruction. Once autobiographical knowledge is activated, how is it reconstructed into narrative form? Our past work (Woike, 1994a, 1994b; Woike et al., 1999; Woike & Polo, 2001) has shown not only evidence for motives acting as a channel for the accessibility of autobiographical knowledge but also that the way these memories are reconstructed varies with their motivational content. It may be that the executive processor of SMS organizes retrieved autobiographical knowledge into differentiated or integrated narrative structure. These different ways of structuring autobiographical knowledge—that is, through perceiving differences or similarities—may allow individuals to maintain a stable sense of self. For instance, agentic want to be "better than" and communal want to be "related to." Because this process occurs frequently, individuals may have greater accessibility to autobiographical knowledge and general knowledge that has been encoded or reconstructed using these organizing structures.

Future Directions

There is evidence for a constructive model of autobiographical memory in the recall and recognition data of recently acquired motive-related information in controlled studies and in the recall data of freely reported autobiographical narratives, but there has been no recall and recognition data on autobiographical memories in a laboratory-controlled setting. Future studies should examine this gap in the research by testing the constructive model with autobiographical memories in recall and recognition studies. Cognitive researchers (e.g., Barclay & Wellman, 1986; Barclay & Subramaniam, 1987) have demonstrated that it is in fact possible to devise plausible foils for autobiographical knowledge. These techniques might be adapted to test our hypotheses.

Another key consideration for future research is the fact that all past research conducted to test the constructive model has used implicit motives (or implicit motive primes) as the measures of agency and communion. The model must be tested with explicit or self-reported measures of agents and communal motives for researchers to know the extent of the influence of personality motives on autobiographical memory processes. Implicit and explicit motivational constructs are tapped through different cognitive procedures (i.e., responding to a highly structured question, freely responding to an ambiguous picture). Woike (1995) found that both implicit and explicit motives influence the selection and processing of everyday experiences. Implicit motives were related to affective memories associated with the implicit motive, whereas explicit motives were related to routine memories corresponding to self-descriptions and values. According to Conway and Pleydell-Pearce’s (2000) distinction between levels of specificity, it might be that implicit motives act as a channel for event-specific knowledge, whereas explicit motives channel accessibility to general event structures. Support for this notion would provide powerful evidence for two separate motivational systems with different cognitive and behavioral corollaries (see McClelland et al., 1989).

Broader Implications

Our findings contribute to the growing body of research that integrates personality and autobiographical memory research. Personological-level analyses of autobiographical memory have been few in number, particularly those that combine the more rigorous laboratory-based techniques favored by cognitive psychologists. Moreover, the particular motives that were studied here have a long and rich history in behavioral science. The findings demonstrate both the pervasiveness and the subtlety of implicit motives' influence in memory processes and add to a body of work.
that demonstrates their considerable validity, despite recent criticisms (cf. Lilienfeld, Wood, & Garb, 2000; Woike & McAdams, 2001).

The contrast between work and relationships, called agency and communion here, is an important contrast in human experience (e.g., Bales, 1950; Brewer, 1990; Kaplan, 1978; Markus & Kitayama, 1991; McAdams, 1985). Understanding the cognitive underpinnings of these orientations has broad implications in the areas of clinical, cognitive, personality, social, and developmental psychology. These studies lay the foundation to ask questions about the roles that differentiation and integration may play in personality development, identity formation, the self-concept, defensive processes, and decision making. By understanding the personalological and social variables that activate these different cognitive organizing processes, we will be better able to understand how basic cognitive processes facilitate social functioning. By integrating theory and methods from personality and cognitive psychology, the findings add to our understanding of how individuals encode, interpret, and understand their experiences and how these events, in turn, shape personality and social functioning in a wide array of circumstances.

References


