

Transactive Memory in Close Relationships

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Memory performance of 118 individuals who had been in close dating relationships for at least 3 months was studied. For a memory task ostensibly to be performed by pairs, some Ss were paired with their partners and some were paired with an opposite-sex partner from another couple. For some pairs a memory structure was assigned (e.g., 1 partner should remember food items, another should remember history items, etc.), whereas for others no structure was mentioned. Pairs studied together without communication, and recall was tested in individuals. Memory performance of the natural pairs was better than that of impromptu pairs without assigned structure, whereas the performance of natural pairs was inferior to that of impromptu pairs when structure was assigned.

Knowledge is of two kinds: we know a subject ourselves, or we know where we can find information upon it.—Samuel Johnson

People in close relationships know many things about each other's memories. One partner may not know where to find candles around the house, for instance, but may still be able to find them in a blackout by asking the other partner where the candles are. Each partner can enjoy the benefits of the pair's memory by assuming responsibility for remembering just those items that fall clearly to him or to her and then by attending to the categories of knowledge encoded by the partner so that items within those categories can be retrieved from the partner when they are needed. Such knowledge of one another's memory areas takes time and practice to develop, but the result is that close couples have an implicit structure for carrying out the pair's memory tasks. With this structure in place, couples in close relationships have a *transactive memory* that is greater than either of their individual memories.

Transactive memory is a shared system for encoding, storing, and retrieving information (Wegner, 1986; Wegner, Giuliano, & Hertel, 1985). This research was designed to examine transactive memory by introducing new structures for memory organization in the couple. We expected that couples formed on an impromptu basis in the laboratory might gain in group memory performance as a result of an imposed organizational strategy, as such a plan would help them to focus their individual memory efforts to the pair's benefit. Because close couples already have an understood structure in place, however, we expected that an imposed organizational strategy might interfere with their implicit arrangement and thus undermine their memory performance.

Formation of Transactive Memory Structure

Our analysis begins with the observation that close relationships normally foster the development of shared memory schemes. Wegner et al. (1985) and Wegner (1986) viewed this development in terms of early theories of the group mind. By this account, individual memory systems can become involved in larger, organized social memory systems that have emergent group mind properties not traceable to the individuals. Dyads or groups of strangers do not start out with any sort of group mind, of course, as they have no shared system for knowledge storage and access. Without such a system, social memory performance among strangers is dependent primarily on the combination processes whereby individuals' retrievals are assembled into a group retrieval (see, e.g., Clark, Stephenson, & Rutter, 1986; Hartwick, Sheppard, & Davis, 1982; Hintz, 1990; Stasser, Taylor, & Hanna, 1989; Stephenson, Brandstatter, & Wagner, 1982). However, very different features of group memory become important if a system for both encoding and retrieval develops over time.

One way to understand such transactive memory systems is by analogy to memory sharing in computer systems. Some computers perform memory sharing very simply: They read from and write to the same electronic memory storage area. The luxury of a single memory bank that is shared in this way is not possible for humans, of course, as humans' brains are not connected. This means that humans must share memory as do the computer systems that begin as separate computers and later develop memory-sharing capacities. When computers have physically separate memory systems, they can be programmed to share memory through the creation of a directory within each isolated memory system that contains an abbreviated record of the contents of other memory systems (Mason, 1987).

Physically isolated memory systems can be accessed reliably from the different computer processors linked to each system to the degree that each memory system contains an up-to-date record of the organization and general contents of the other systems. The analogy to humans is simple: If each person learns

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in some general way what the other person may know in detail, the two can share the detailed memories enjoyed by both. The development of a transactive memory in the pair, then, involves the communication and updating of information each has about the areas of the other's knowledge. In essence, each partner cultivates the other as an external memory aid (Engestrom, Brown, Engestrom, & Koistinen, 1990; Harris, 1978; Norman, 1988) and in so doing becomes part of a larger system.

Directories to others' knowledge are developed in a variety of ways. At the outset, simple information about the other's social categorization (sex, age, etc.) serves through stereotyping to inform a person of the other's likely areas of knowledge. One expects different areas of memory storage from a woman than from a man, for instance (Ross & Holmberg, 1988). These default settings allow a person to estimate the memory items available from even a stranger. The key to the formation of a more advanced transactive memory structure, however, is directory updating that moves beyond the defaults.

One way to move beyond defaults is through negotiated entries in the directory. That is, if one partner agrees to accept the responsibility for certain domains of knowledge, this partner will thereafter be known as the repository of relevant items. When one partner agrees to perform particular tasks (Atkinson & Huston, 1984) or to make particular decisions (Davis, 1976), this person will then be the pair's expert in that domain. The one who agrees to do the bills, for instance, will become the source and repository of financial data for the couple. Couples may negotiate systems for the allocation of memory that parallel the more formal systems often codified in working groups (e.g., Mullen, Copper, & Johnson, 1990).

A second general method of updating one's directory for a partner's knowledge is through perceptions of the relative expertise of self and partner in different knowledge domains. These perceptions can be expected to develop in the self-disclosure process that characterizes relationship formation (see, e.g., Archer, 1980). Self-disclosure involves the mutual revelation of traits, past activities, emotions, and preferences, many of which serve as plausible bases for inferences about relative expertise. Learning that one's partner likes the zoo, for instance, suggests that he or she might know about animals or nature in general. Relative expertise might also be judged, of course, from awareness of deficiencies in one's own stock of knowledge. In this case, the partner is judged as more expert because almost anyone might be judged as more expert than self in a particular area.

A third general source of directory updates comes from knowledge of the partner's access to information. Knowing that the partner accessed some information first (e.g., he or she got the initial call about a party this weekend), accessed it for a longer time (e.g., he or she talked at length with others about the party), or accessed it most recently (e.g., he or she just talked to the party host again) could all serve as bases for inferences about the partner's knowledge. In each case, one will assume that the partner knows more than self about this topic and so will defer to the partner in this area. A good example of these bases for inference about knowledge can be found in the pages of this or any scientific journal: The typical citations suggesting relevant knowledge to the reader come from the first researcher to discover something, from the researcher who has studied it

longest, or from the one reporting on it most recently. Like scientific citations, signs of access to information can inform the person in a close relationship of the partner's likelihood of holding knowledge in a variety of domains.

There are surely other sources of information people use in fashioning directories of one another's knowledge (e.g., Ickes, Stinson, Bissonnette, & Garcia, 1990). The key point for the present analysis is that the most complete and current directories are likely to be formed in relationships that are close. In particular, relationships in which partners are highly interdependent (cf. Kelley et al., 1983) are likely to have had many occasions for updating directory information and for using such information to solve the problems of successful coercion and interaction. Knowledge will commonly be stored and accessed in a transactive system rather than by some random scheme. Couples who are able to remember things transactively offer their constituent individuals storage for and access to a far wider array of information than they would otherwise command.

Structural Interference

The existence of an organized system for knowledge in the couple holds with it the potential for disorganization. This means that unlike a pair of strangers who have no transactive memory, close partners are open to special sorts of disruption. When one partner in a close couple always remembers directions on trips, for instance, it would be disruptive if the other suddenly began to store and access such information. Unless a clear transition of responsibility for travel directions could be negotiated and then successfully maintained, the stage would be set for frequent duplication of efforts and for lapses in which each partner mistakenly refrained from storing an item in the expectation that the other would hold it for the pair. Over time, of course, the new arrangement could be learned, but the interim confusion might leave the couple doing lots of unexpected sightseeing.

These complications resemble the difficulties that occur when a new knowledge organization system is imposed on an individual who has previously been using another system (see, e.g., Thorndyke & Hayes-Roth, 1979). There is commonly interference between organization systems so that retrieval of the previously organized information is undermined, and the encoding of new information is impaired. Interference resulting from the imposition of an organizational scheme can be used, in fact, as a measure of the degree to which information was previously organized in memory (e.g., Crouse, 1971). It was with this idea in mind that the present experiment was designed.

We gave couples a memory task that would prompt the use of their transactive system. Individuals working in pairs either with their partner or with someone else were exposed to items from various categories of knowledge. Some of these pairs were instructed to share the memory task by means of an explicit assignment of categories, whereas others were not given this structure. In all cases, however, pairs working together were led to expect that they would retrieve the items together and be scored for recall as a pair. We expected that explicit assignment of categories to individuals during encoding might help unacquainted pairs but that it would inhibit the memory perfor-

mance of close couples. The close couple would follow the new assignment plan only on occasion during encoding, with each partner at times reverting to his or her version of the couple's implicit organization. Such haphazard dissent from the new plan would yield only haphazard adherence to the old plan as well and so would produce a general deficit in retrieval, measurable as a setback both for the individual and for the couple.

Method

Overview and Design

Subjects in ongoing dating relationships were asked to memorize items from seven everyday categories either with their partner or with a stranger. These *natural* or *impromptu* pairs were asked to remember items as a pair under one of two conditions. For some, an arbitrary assignment of expertise was made such that one partner was given responsibility for remembering items from some of the categories and the other partner was given responsibility for remembering items from the remaining categories. For other pairs, no assignment of expertise was made. After pairs were exposed to items (words or phrases embedded in sentences that made their category membership clear), they performed a filler task and then were separated to complete a measure of individual recall.

Subjects

Subjects were 59 heterosexual dating couples who had been seeing each other exclusively for at least 3 months. They were recruited through posters on the campus of Trinity University in San Antonio, Texas, for an experiment on memory in close relationships. Each couple received \$7 for participation. Couples participated two at a time whenever possible. Either before or after the key task of the experiment, the dyadic memory task, subjects were separated for privacy and filled out individual questionnaires about their relationships. This before/after variation allowed the assessment of any effects of prior questionnaire administration on memory task performance.

The responses indicated that, on average, subjects had known their partners for 28.7 months and had been close for 19.6 months. They saw each other for an average of 6.53 days a week; they reported spending 5.68 hours together on weekdays and 11.08 hours together on weekend days. Some 52.5% of subjects expected their relationship to last forever, 31.4% thought it would last for some time, and 16.1% expected it to end soon. On a 1- to 9-point scale, subjects rated themselves as highly satisfied with their relationship ($M = 8.12$) and reported that the relationship fulfilled their expectations ($M = 7.93$). Also, when asked to rate their group memory ability on a 1- to 9-point scale, subjects reported that they generally remembered well as a couple ($M = 6.92$).

We were concerned about whether typical college dating relationships would promote enough different shared activities so that a transactive memory structure would have a good chance to develop. Thus, we asked subjects to check a list of 90 activities in which couples can engage (Giuliano, 1983). The responses indicated a wide range of shared activity. According to at least one member of each couple, for example, 97% had watched television together, 95% had gone shopping together, 96% had slept in the same bed together, 89% had eaten together regularly, 66% had done laundry together, 84% had cooked meals together, 72% had gone on vacation together, 80% had had sex together, and 97% had met the other's family. Still, only 19% of the sample couples were engaged to be married and only 21% were living together, so these couples were still in the formative stages of their relationships.

Procedure

In addition to being asked questions about their relationship, subjects were asked individually about their relative expertise in a number of categories of knowledge. As in the case of the relationship questionnaires, these questionnaires were completed either before or after the memory task. Subjects who remained together as natural couples for the memory task filled out a Knowledge Organization Questionnaire, in which each partner was asked to make forced choices as to whether self or partner was more expert in the areas of science, food, spelling, alcohol, history, television, and psychology. Subjects who were paired with a stranger filled out a similar Knowledge Estimation Questionnaire, in which they were asked to indicate their areas of expertise relative to a typical other of the opposite sex.

For the dyadic memory task, subjects were randomly assigned either to remain with their partner (natural couple condition) or to be paired with a person of the opposite sex from another couple (impromptu couple condition). The resulting pairs were then randomly selected to encode the items either with assigned expertise for categories of items or with no assignment instructions. Assignment of expertise was determined for each pair by random selection of a previous subject's pattern of expertise judgments from the Knowledge Organization Questionnaire or Knowledge Estimation Questionnaire. These patterns typically assigned three categories to one partner and four to another; some, however, assigned categories at a 2:5 ratio, and a very few did so at a 1:6 ratio. We yoked our imposed assignments to the actual assignments from natural couples on the assumption that any standardized assignment patterns we might invent could depart from natural assignments in ways that could cloud the interpretation of the effects of assignment per se.

The instruction to assign expertise was as follows:

Now just for today, let's assume that you (one participant) are the expert in _____ (categories of items), and that you (the other participant) are the expert in _____ (the remaining categories of items). Please try to remember the items for which you are the expert.

Cards labeling the categories were placed in front of the pair on a table for both to see, with each person's assigned categories nearer to that person.

The memory stimuli consisted of 64 different sentences typed 4 at a time on index cards. Each sentence offered a context for an underlined word or phrase, such that the category membership of the underlined item was made clear. So, for example, the category of alcohol was represented by items such as "Midori is a Japanese melon liqueur," the category of television was represented by items such as "Luke and Laura got married on 'General Hospital,'" and the category of science was represented by items such as "Yeasts reproduce by budding." Each category was represented by 9 or 10 items in the set. All pairs were told

I'd like you to try to remember the underlined items on these cards together, as a pair. Later you will be tested together. At a prerecorded tone, turn over the top card on the stack in front of you and study it. Every 30 seconds when you hear the tone, turn over the next card until you're through with the entire stack. Please don't discuss this as you do it.

When the study session was complete, each pair was asked to step over to a table containing a jigsaw puzzle. They were asked to try to see how many pieces they could put together in 5 min. After this filler task, subjects were separated and asked to write down all the underlined items that they could remember from the index cards. Following the experiment, subjects were debriefed in detail, thanked, and given chocolate kisses.

Results

Natural couples were in substantial agreement on which partner in the pair was more expert for each of the seven categories of memory items. Those natural couples completing the Knowledge Organization Questionnaire agreed in their assessments of relative expertise on a mean of 5.52 of the 7 possible categories. This value was significantly greater than the comparison mean of 4.04 agreements found between impromptu couples whose responses to the Knowledge Estimation Questionnaire were examined for agreement, $t(57) = 4.60, p < .001$.

The natural couples thus seemed to have in place a shared assessment of who would be more inclined to know about each of several topics in the pair, even though these topics were an arbitrarily selected sample of everyday and academic knowledge areas. (Agreement might have been even stronger if areas had been selected to reflect the natural array of topics for which transactive memory is commonly used.) At any rate, natural couples' level of agreement was greater than the one that impromptu couples derived from minimal information—only the general knowledge of what comparative expertise might exist in self and an unknown opposite-sex partner. It is worth noting, however, that even impromptu opposite-sex couples did have a slight edge over chance in their judgments of relative expertise in the pair. The agreement observed for impromptu opposite-sex pairs ($M = 4.04$) was significantly greater than the chance agreement rate of 3.5 of seven possible categories, $t(29) = 2.32, p < .05$.

Couple Recall

As a first step in the analysis of couples' memory performance, we examined the total number of items correctly recalled by each couple (i.e., recalled by either partner). In this and subsequent analyses, order of administration of the questionnaires (before or after the memory session) was included in a preliminary analysis and did not account for any significant effects. A 2 (natural vs. impromptu couple) \times 2 (assigned expertise vs. no assignment) analysis of variance (ANOVA) revealed a significant interaction effect, $F(1, 55) = 10.00, p < .003$, and no significant main effects (see Figure 1).

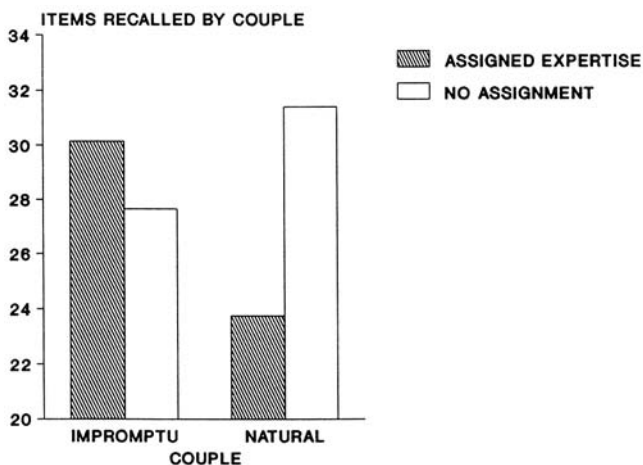


Figure 1. Couple recall as a function of couple type (natural vs. impromptu) and assignment (assigned expertise vs. no assignment).

A follow-up analysis consisted of a set of planned comparisons testing differences between specific means; the directions of comparisons were predicted, so one-tailed tests were used. The first comparison involved the recall of natural couples versus impromptu couples without memory assignment. As predicted, in the absence of assignment, natural couples remembered more items ($M = 31.40$) than impromptu couples ($M = 27.64$), $t(55) = 1.69, p < .05$. Although this result is not particularly robust, it does attest to the advantage of natural couples over impromptu couples in a group memory task and so indicates the possible operation of a transactive memory structure in the natural couples.

The advantage of natural couples over impromptu couples was entirely reversed, however, when couples were provided with an explicit memory assignment. Natural couples with assignments remembered fewer items ($M = 23.75$) than did impromptu couples with assignments ($M = 30.14$), $t(55) = 2.90, p < .005$. The interference with natural couples' memory that was introduced by the assignment was also evident in a comparison with natural couples working without assignment. Natural couples with assignment recalled fewer items ($M = 23.75$) than did natural couples without assignment ($M = 31.40$), $t(55) = 3.54, p < .001$. Finally, it is worth noting that impromptu couples did not benefit significantly from the assignment of expertise in this research. Although they recalled more items when provided with assignment ($M = 30.78$) than they did without assignment ($M = 25.43$), the difference was nonsignificant, $t(55) = 1.19$.

We performed a pair of related analyses to examine the possibility of a general motivational interpretation of the observed effects. For one analysis, couples' puzzle performance was examined in an ANOVA corresponding to the study design, and no significant effects were found. In another analysis, puzzle performance was entered as a covariate in the ANOVA of memory performance. The number of puzzle pieces the couple completed was a nonsignificant covariate ($F < 1$), and the observed interactive effect of couple type and assignment was negligibly reduced in this analysis, $F(1, 54) = 9.71, p < .003$, compared with $F(1, 55) = 10.00$ without the covariate. Thus, it does not appear that the memory assignment simply had a disruptive effect on natural couples that would influence any task they undertook. Rather, the assignment seemed to influence memory without any influence on puzzle performance.

We performed a third analysis of couple recall to investigate the degree to which couples' memory performance might reflect overlapping rather than independent efforts of the partners. For this analysis, we divided each couple's memory performance into two scores: overlapping performance (number of items both members recalled) and nonoverlapping performance (number of items one member but not both members recalled). This overlap versus nonoverlap variable was then included as a repeated measure in an ANOVA corresponding to the study design. The analysis indicated a significant main effect: Overlapping memory performance for couples ($M = 5.28$) was far less than nonoverlapping performance ($M = 22.88$), $F(1, 55) = 710.48, p < .0001$. In general, then, individuals within pairs tended to recall somewhat independent portions of the list of items.

The significant interaction of couple type and assignment was again observed in this analysis, $F(1, 55) = 10.00, p < .003$,

and no other effects approached significance. The patterns for overlapping and nonoverlapping recall thus followed the pattern for total couple recall quite faithfully. It appears that the assignment variable may not have its effect on couple recall, then, by influencing the way in which individual patterns combine into a group pattern. One way for assignment to influence memory in natural couples, after all, might be to increase the overlap between partners. Their transactive structure could commonly lead them to attend to different areas, and assignments might be disruptive of such differentiation. However, the observations for overlapping and nonoverlapping recall suggest that assignment did not interfere with natural couples' memory in this way. Rather than increasing overlap, assignment significantly undermined the degree to which both overlapping and nonoverlapping memories were constructed.

These findings suggest that assigned expertise may influence the overall memory performance of a couple by affecting individual memory performance. Instead of influencing the way in which individual memories combine, assignment may make certain individual memory strategies more or less operative and so influence group performance secondarily. This was examined through the analysis of individual recall.

Individual Recall

For the analysis of individual recall, an ANOVA was performed on individual recall scores within couples, treating sex of partner as a repeated measure. The results of this analysis paralleled the results of the analysis of couple recall. A significant interaction of assignment and couple type occurred, $F(1, 55) = 10.92$, $p < .002$, and no other effects were significant. Planned comparisons indicated that mean recall for individuals in natural couples who were not assigned expertise ($M = 18.90$) was significantly greater than recall for individuals in impromptu couples without assignment ($M = 16.31$), $t(55) = 1.69$, $p < .05$. Thus, it was advantageous for individuals' memory performance if they were paired with their natural partner.

Once again, however, this pattern was reversed when expertise was assigned. Individuals in natural couples who were assigned expertise remembered fewer items ($M = 13.66$) than did those in impromptu couples who were assigned expertise ($M = 18.21$), $t(55) = 2.14$, $p < .025$. Individuals in natural couples remembered fewer items when they were assigned expertise ($M = 13.66$) than when they were not given an assignment ($M = 18.90$), $t(55) = 3.15$, $p < .005$. On the other hand, individuals in impromptu couples did not benefit significantly from the assignment of expertise. Although they remembered more items when assigned expertise ($M = 18.21$) than without assignment of expertise ($M = 16.31$), the difference was nonsignificant ($t < 1$).

An auxiliary analysis of individual recall was conducted to establish whether the observed effects were memory effects or the effects of motivated confabulation. If the effects stemmed from simple motivation to respond (right or wrong), a pattern of incorrect responses mirroring the observed pattern would be expected. To check on this, we conducted a parallel ANOVA on the number of incorrect responses in the recalled items. Overall, the intrusion rate was low ($M = 1.45$), and this rate did not differ significantly among conditions (all $F_s < 1$). Thus, the

individual recall findings do not seem attributable to variation in motivation to report answers for the recall test.

We also examined the impact of relationship duration on memory performance. Reports of the number of months the natural couples had been close were added as a continuous independent variable in the overall ANOVA, and no significant main effect or interaction for this variable was observed. Individuals from couples who had been together longer performed no differently on the memory task than did individuals who had been together a shorter time.

Individual Recall by Reported and Assigned Expertise

The analyses of individual recall suggest that the conflict between transactive memory structure and imposed memory assignments may indeed operate at the level of individual memory. Assignment of memory tasks appears to interfere with individual performance in the context of the natural couple working together. A more fine-grained analysis was undertaken, therefore, to examine the possibility that some clues to the operation of transactive memory might be found in the specific items recalled by individuals.

For this purpose, items were sorted into four groups for each individual in the assigned expertise condition. First, items were sorted according to whether they had been assigned (by category) to that subject for recall. Second, items were sorted by reported expertise; for each individual, the items were divided into those from the categories chosen in the Knowledge Organization Questionnaire or Knowledge Estimation Questionnaire as more likely to fall in areas of own expertise versus those from categories more likely to fall in areas of the other's expertise.

Our intent was to survey the protocols of individuals in the natural and impromptu conditions for any differential recall among the four item sets constructed by the crossing of assigned and reported expertise. The study was not designed, of course, with the systematic distribution of items to these sets in mind. Thus, the random combination of individual differences in reported expertise and experimental variations in assigned expertise necessarily resulted in several individuals for whom no items existed in one or more of these sets. With complete data contributed by only 21 couples from the assigned expertise condition, the proportion of items recalled within sets was examined in an ANOVA with couple type (natural vs. impromptu) and questionnaire order (before vs. after memory task) as between-subjects variables and partner sex (male vs. female), reported expertise on item set (self vs. other), and assigned expertise on item set (self vs. other) as within-subjects variables.

We anticipated that the implicit assignment structures of natural couples were leading them to respond poorly to our experimental assignments, and a marginally reliable interaction was observed in the analysis that reflected precisely these variables. Couple type, assigned expertise, and reported expertise tended to interact, $F(1, 17) = 2.61$, $p < .16$, and tests of simple main effects between natural and impromptu couples indicated that this interaction took an interesting form. Among the four item sets created by the crossing of reported and assigned expertise, individuals in natural couples showed a significant inferiority to those in impromptu couples on only one: Items assigned to self that were also reported to be within the self's area of expertise. Individuals in natural couples recalled a significantly

smaller proportion of these ($M = 0.17$) than did individuals in impromptu couples ($M = 0.28$), $F(1, 17) = 4.86$, $p < .05$. Recall for items in the other sets (i.e., those reported to be in self's expertise that were assigned to other, those reported to be in other's expertise that were assigned to self, and those reported to be in other's expertise that were assigned to other) showed no parallel difference between natural and impromptu couples. Although there was a slight deficit for natural couples in all item sets, this difference was not significant (all simple effect F 's < 1).

These results indicate, albeit in a preliminary way, that individuals in natural couples were particularly inclined to forget items that they felt were in their own area of expertise when those items were assigned to them by the experimenter. In essence, when their implicit memory assignment was made explicit, their fulfillment of the assignment deteriorated markedly. It is as though individuals in close relationships who normally and naturally step forward to perform their memory function for the couple suddenly decline to do so when their function is pointed out and explicitly required.

Discussion

Close couples attempting to remember information together were handicapped in this effort when they were given an organizational scheme for sharing the memory task. The imposition of the scheme did not handicap the performance of pairs of strangers in the same way. Under the conditions imposed by this experiment, then, it is oddly detrimental to be a member of a close relationship. It actually hurts task performance to get a new plan for sharing the memory task. In settings outside this study, however, the impairment observed here implies that close couples have their own transactive memory schemes in place that may be widely beneficial to the individuals and to the dyad in everyday life. Indeed, when assignments were not imposed on natural couples, their memory performance exceeded that of pairs of strangers given the same task.

These results provide several clues as to how the assignment of expertise hampered close couples' memory ability. It seems, first, to be an individual phenomenon. The analyses of overlapping recall and nonoverlapping recall, as well as the general parallelism found between couple recall and individual recall, combine to suggest that the impact of assigned expertise occurred primarily at the level of the individual. No greater or lesser overlap in memory coverage was observed when natural couples were given assignments, so their group memory did not depart from an average of their individual memories.

In searching for the locus of the effect of assignment on natural couples' memory, it also seems reasonable to rule out couple closeness as a factor. The length of the relationship did not moderate the observed effect of assignment. It may be that some minimal level of transactive memory—at least for the domains of memory items used in this study—is achieved rather rapidly in a relationship, and that within the limited range of closeness available in this sample strong influences of closeness would not be observed. It is of interest, of course, just how fast and over what course a transactive memory develops, and for this reason inclusion of a wider range of close and distant relationships is an agenda for further research.

Our results also appear to rule out any simple motivational interpretation of the effect of assignment on natural couples' memory. Although it seems reasonable to suggest that assignment might be somehow more disruptive, exciting, or distracting for natural couples than for impromptu couples, a parallel measure of puzzle performance was included in the analyses to test for such broad motivational effects. Puzzle performance did not differ among experimental conditions, and its inclusion as a covariate in the analysis of memory performance did not alter the experimental conclusions.

Our strongest clues with regard to how assignment disturbed natural couples' memory come from the analysis of individual recall for the various classes of items. It was found that individuals in natural couples failed to recall the items from their own reported area of normal expertise in the couple when they were assigned those items to recall. So, for instance, a female subject who reported knowing more than her partner about psychology later failed to recall psychology items, particularly when such items had been assigned to her. So, it seems that the effect of assignment may have had to do with forgetting one's normal role in the natural couple. This conclusion must be viewed as preliminary, however, as the present experiment was not designed to emphasize the measurement of these processes, and the effect was not predicted in advance.

Our account of the influence of imposed assignment on memory in natural couples at this time, then, is as follows: Individuals in a close couple responded to the conflict between their implicit assignment plan and our imposed assignment plan only on occasion during encoding. When they encountered items that their implicit assignment usually allocated to their partner, they paid no special attention to our explicit plan—memorizing items explicitly assigned to self no more often than those explicitly assigned to their partner. The imposed assignment made them no more inclined to remember anything they were assigned and instead prompted a specific flaw in their pattern of recall. Items normally assumed to fall within the individual's own domain were given less than the usual attention when they were explicitly assigned. This strategy yielded a general deficit in retrieval both for the individual and for the couple.

Why would the explicit assignment of one's own areas of expertise to self impair memory for the natural couple? Several possibilities might explain this effect, each of which suggests avenues for further inquiry. It may be, for instance, that the explicit assignment of tasks that were once implicit introduces new uncertainty about task assignment or perhaps instills overconfidence that leads to a tendency to ignore the task at hand. Alternatively, it may be that making this implicit task explicit has the effect of cognitively disrupting the flow of an otherwise fluid performance (cf. Vallacher, Wegner, & Somoza, 1989). Like the tennis stroke that falters when it is analyzed, the transactive memory performance of the partner in a close relationship suffers when the partner is explicitly reminded of it. It makes sense, in short, that assignment affects individuals by making them fail to do their normal part in the task, but just how this failure occurs is a matter of interest.

One other result of this study should be discussed. In this experiment, although assigned expertise had some slight influence on the memory performance of impromptu pairs, it did

not lead to a significant improvement. If imposed assignment was not effective here, how is it effective when it occurs implicitly in a transactive memory structure? We suspect that imposed assignments may take some time and practice to get right, not just in close couples but in impromptu couples as well. Even impromptu couples had access to a rudimentary transactive memory in this study—one based on the perception of sex role stereotypes as well as their partner's physical appearance. Their performance may have slightly faltered because they experienced a bit of the interference from assignment that was felt more profoundly by close couples. For assignment to improve the memory performance of any couple, it would appear to require some study and practice. These were not provided in the experiment, and the trifling advantage introduced by assignment to impromptu couples seems understandable as a result.

As a final comment on these findings, we can consider how they may illustrate memory processes that occur at transitions in relationships. Although memory reassignments may happen frequently—and apparently with ill effects—in an ongoing relationship, perhaps the most jarring reassignment of expertise of all occurs when a relationship ends. Suddenly, the individual becomes the de facto expert on a multiplicity of topics that were previously in the partner's domain. Beyond the sheer loss of all that the partner knew, there will now be further difficulties that emerge from the disruption of the transactive system. New information about items in the partner's areas is likely to be handled very poorly at first and perhaps for a while. Items in one's own areas of expertise may also be missed in the confusion. And even if a new partner is found and life as a member of a couple is resumed, the new transactive memory will not only be in its infancy compared with the old one, it may frequently and unfortunately afford new assignments that conflict with earlier habits. Ultimately, it may take time and effort for the new couple to know even a small part of what the old couple took for granted.

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