MEMORY TRAINING IN THE COMMUNITY: EVALUATIONS BY PARTICIPANTS AND EFFECTS ON METAMEMORY

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This study examined 129 participants in seven types of memory training programs in Belgium. It was found that more than half of the subjects participated because they felt their memory was deteriorating or because they were afraid of memory deterioration. After completion of the program, subjects rated the training as being somewhat too short, as useful for their daily lives, as very pleasant, and as being of adequate difficulty. Almost all subjects indicated they would like to take part in a follow-up training program. Forty-one percent of the subjects indicated increased memory awareness as the main effect; other effects often cited included the discovery that subjects were not the only ones with complaints, increased knowledge of memory functioning, and the possibility for self-development. However, no pre-to-posttraining effect could be found on scales of the Memory Functioning Questionnaire, except for a small (but significant) increase in self-reported frequency of forgetting.

In recent years, memory training programs for the elderly have been taken out of the psychological laboratory into the educational field. In this process (at least in Belgium) some shift in treatment goal has occurred: Many of the training programs offered in educational settings try to change the way people look at their memory, rather than just offering opportunities for mnemonic training (Van Ranst, Verhaeghen, & Marcoen, 1990). Metamemory (i.e., the self-knowledge and self-perceptions concerning memory; Hultsch, Hertzog, Dixon, & Davison, 1988) becomes an increasingly important focus for these training programs. Unfortunately, though the effects of memory training on memory functioning have been examined extensively (for a review, see Verhaeghen, Marcoen, & Goossens, 1992), the effects of memory train-

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ing on metamemory has less often been the focus of research. Noteworthy exceptions are the studies conducted by Hill, Sheikh, and Yessavage (1988); Loonen and Richter (1988); Rebok and Balcerak (1989); Scogin, Storandt, and Lott (1985); Zarit, Cole, and Guider (1981); and Zarit, Gallagher, and Kramer (1981). None of these authors found a reliable positive effect of memory training on aspects of metamemory as tapped by various questionnaires (memory complaints, recall confidence, or memory self-efficacy) or on depression.

In the present article, we examine the effects of memory training programs for the community elderly as they are conducted now (i.e., in 1990–1991) in the Dutch-speaking part of Belgium. Rather than initiating a training study ourselves, we examined existing programs in various educational settings. Three main questions guided our research: (a) What kinds of people participate in memory training programs, and what are their motives? (b) How do the participants evaluate the programs they have received? (c) Can changes in metamemory be observed after training?

METHOD

Subjects and Types of Training

A first step in our research consisted of making an inventory of all memory training programs for the elderly available in the Dutch-speaking part of Belgium (Van Ranst et al., 1990). We found that eight organizations offered training on a more or less regular basis. Five of these initiated new cycles of training programs during our research period (1990–1991), and two others started a one-year tryout. All of these organizations agreed to take part in our investigation, and thus seven types of training are included in the design. All of these programs are derived from the Nijmegen curriculum (de Ronde & Kamm, 1988; Nouws, 1990). As a consequence, they did not differ much in content or goals, with the exception of Type 1, which comprised only four sessions, so that time for exercises was very limited, and Type 2, which was much more exercise-oriented than the other types. Training typically consisted of instruction in the use of a particular mnemonic, exercises to train this technique, and homework. The mnemonics taught are mainly techniques improving concentration, association, and structuralization. In all programs, information about memory and memory aging was provided. Five of the programs were developed by psychologists, one by an occupational therapist, and one by an adult educator.

The number of sessions for the seven types of training varied between 4 and 11, with a median of 9. Sessions took between one and a
quarter to two and a half hours, with a median of two hours, and were conducted weekly. The training groups consisted of 9 to 21 trainees, with a median of 18. Two training groups were examined for Type 6, three for Type 4, and four for Type 7. For all other types, only one group was included.

In total, data on 129 subjects were available for the two times of assessment. The mean age of this group was 63.3 (SD = 8.6). Although the training programs were aimed at the elderly, the youngest subject was 37, and 6 other subjects were still in their forties. The large majority of the trainees (84%) were women. The trainees were highly educated: Forty-six percent of the sample had completed college. Differences existed among the types of training in terms of age and educational level of participants (as indicated by one-way ANOVAs). Type 3 had older subjects than Types 1, 5, and 7; Type 6 had older subjects than Types 1, 4, 5, and 7; Types 2 and 3 had subjects more highly educated than Types 1 and 7. The number of subjects per type varied considerably, ranging from 5 to 40.

In the remainder of this article, data will be reported from these 129 subjects as a whole. Whenever reliable differences could be detected as a function of type of training or the age of participants (broken down by age decade), this will be noted in the text.

**Measures and Procedure**

The first time of assessment was at the beginning of the first training session; the second time was at the end of the program. Trainers mostly preferred not to have time taken out of their last session, so questionnaires were distributed for subjects to fill out at home after the next-to-last session.

Two types of measures were used. The first type was tailor-made for the occasion. At the first time of assessment, people were asked to indicate their prime motives for participation among eight alternatives (seven real alternatives or the option “Other, namely . . .”). At the second time of assessment, subjects were asked for their evaluations of the duration of sessions, the number of sessions, the program’s usefulness for daily life, the pleasantness of training, and the level of difficulty. They indicated what they liked most about the program among eight alternatives (seven real alternatives or the option “Other, namely . . .”). They also stated whether they would like to participate in follow-up training, if such training were available, and whether they would like to take other courses.

The second type of measurement was a psychometrically sound metamemory questionnaire, administered upon both assessment occa-
sions. This test was a Dutch translation of the Memory Functioning Questionnaire (MFQ; Zelinski, Gilewski, & Thompson, 1980). The questionnaire consists of eight scales: (a) a general rating of memory problems; (b) retrospective functioning (comparing memory functioning now to some time in the past); (c) frequency of forgetting (in 18 situations); (d) memory problems while reading a book; (e) memory problems while reading an article; (f) remote memory (proficiency in remembering things that happened some time ago); (g) seriousness of forgetting (in the same 18 situations as in frequency of forgetting); and (h) mnemonics usage (frequency of usage of 10 mnemonic techniques). All items on these scales were scored on a 7-point Likert scale. At the first time of assessment, subjects were carefully instructed on how to make their ratings and provided with help when necessary. In order to limit the number of socially desirable answers, all questionnaires were filled in anonymously; subjects were identified by date of birth.

RESULTS

Reasons for Participating

The reason most often cited for participating was "I feel my memory deteriorating" (32%). "I am afraid of memory deterioration" was the main reason for participating for 19% of the sample. "I want to refresh my memory" and "I want to learn something about my memory" each were cited by 14% of the sample. "Taking precautions" was the main motive for 13%. Clearly less popular motives were "I want to make contact with other people" (3%) and "Curiosity" (2%). Three persons (2%) indicated that none of the motives listed applied to them. So it is clear that memory-related reasons are most often cited as main reasons for participating, and that for the majority of the sample, memory deterioration was an important theme.

Reasons for participating covaried with age groups ($\chi^2$ (28 df) = 54.41; $p < .01$). Analysis of the adjusted standardized residuals revealed that the motive of making contacts was present more than expected for people younger than 50 (2 out of 6 persons in this age range, vs. 0.2 persons expected), that people in their seventies stated relatively more often that they wanted to refresh their memory (6 out of 17 persons in this age range, vs. 2.3 expected), and that people in their eighties were relatively more curious than other age groups (1 out of 5, vs. 0.1 expected).

Reasons for participating also covaried with type of training ($\chi^2$ (42 df) = 58.55; $p < .05$). Among the participants in Type 1 there were relatively more people who wanted to refresh their memory (3 out of 8
persons in this type, vs. 1.1 expected); in Type 3 there were more people who were curious (1 out of 5, vs. 0.1 expected), and in Type 6 more people who wanted to make contacts (3 out of 18, vs. 0.6 expected).

**Evaluation of the Program by Participants**

While 64% of the sample found the duration of sessions adequate, 34% indicated that sessions were somewhat or much too short. Only 2% indicated that sessions were somewhat too long. The number of sessions was described as adequate by 44% of the subjects; 56% indicated that there were somewhat or much too few sessions. Opinion about the duration or number of sessions did not covary with the objective duration or number of sessions (Kendall's \( \tau = -.00 \) and .01, respectively; \( ns \)). The large majority of participants (80%) were always present; 18% missed less than a quarter of the sessions; and only 2% missed between one quarter and one half of the sessions.

Usefulness of the training for daily life was rated as high. Only 2% indicated that not much or almost nothing they had learned was useful for daily life, whereas 67% indicated that a lot or most of what they learned was useful, and 31% found quite a lot of what they learned useful. A great many participants (59%) found the training very pleasant; 37% found it pleasant; 4% found it a bit unpleasant; no one indicated that the training was unpleasant. The difficulty of the training was rated as being adequate for 70% of subjects; 16% found it a bit difficult; 10% found it rather easy; 2% each rated the training as very difficult and very easy. The large majority of the subjects (83%) indicated that they wished to participate in a follow-up training program if such a program were organized. After completing the memory training program, 56% of the participants wanted to take some other course. For 46% of the subjects, the memory training program was the first course they ever took after completing school. Of these, 35% indicated they would like to continue taking courses.

Two of these variables were influenced by the age of participants, as evidenced by one-way ANOVA. Rated usefulness for daily life diminished over age groups (mean score 4.67, 4.21, 3.80, 3.83, and 3.40 for each age decade between 40 and 90, on a 5-point rating scale). Tukey tests failed to reveal significant differences among any of the age groups for rated usefulness. Persons in their eighties indicated significantly less than did persons in their fifties, sixties, and seventies that they wanted to follow some other curriculum after the memory training.

Type of training had an influence on three of the variables examined. Number of sessions proved too short for participants in Types 2, 4, 5, and 6 in comparison with participants in Type 1 (which received
a mean score of 3 on the 5-point scale). Subjects in Type 5 missed reliably more sessions than subjects in Types 2 and 7. The F-test proved significant for rated usefulness, but Tukey tests failed to reveal significant differences among groups.

When asked what they liked most about the training, 41% indicated that they "had become more aware of (their) memory functioning." About 1 out of 7 participants indicated "I found out that I am not the only one with complaints" (16%), "I now know more about my memory" (15%), or "I was able to work on self-development and I learned to do something about my problems" (14%) as the main outcome. Less often indicated were: "Making enjoyable contacts" (8%) and "I have more self-confidence now" (6%). Only 1 participant (1%) indicated that her "memory had really improved." Effects did not covary with age group ($\chi^2 (49 \, df) = 19.92; \, ns$). Type of training had an influence on effects reported by the participants ($\chi^2 (42 \, df) = 61.71; \, p < .05$). Type 4 had relatively more people who rated self-confidence (4 out of 30 participants in this type, vs. 1.6 expected) and fewer people who rated knowing that they were not the only ones who had complaints (1 out of 30, vs. 4.7 expected) as the most important effects; Type 6 had relatively more memory-aware people (14 out of 18, vs. 7.3 expected); and Type 7 had relatively more persons who rated knowing they were not the only ones with complaints as the main effect (13 out of 39, vs. 6.1 expected).

The effects reported by the subjects were significantly related to their motives for participating ($\chi^2 (49 \, df) = 86.20; \, p < .001$). Self-confidence was an outcome noted significantly more often by people who came out of curiosity (1 out of 3 participants who indicated this motive, vs. 0.2 expected); knowing more about one's memory was noted more often by people for whom taking precautions was a motive for joining (5 out of 16, vs. 2.1 expected), and less often by people who were afraid of memory decline (0 out of 25, vs. 3.2 expected).

Summarizing these subjective evaluations, we might say that people appreciate the training programs: They obviously want more. Participants do not miss many sessions, they find the program useful and pleasant, and most find it adequately difficult. Most participants want to take another course afterwards, on the same subject or on another. An increased awareness of memory functioning is the effect most often cited.

**Effects on Metamemory**

When looking at the effects of memory training on a psychometric questionnaire (Table 1), we see that effects are practically nonexistent.

A significant difference between the first and second time of mea-
TABLE 1  Means, Standard Deviations (in parentheses), and t-values for Scales of the Memory Functioning Questionnaire at Two Times of Measurement

<table>
<thead>
<tr>
<th>Scale</th>
<th>n</th>
<th>Time 1</th>
<th>Time 2</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>General rating</td>
<td>81</td>
<td>4.07 (0.95)</td>
<td>4.17 (1.01)</td>
<td>0.84</td>
</tr>
<tr>
<td>Retrospective functioning</td>
<td>107</td>
<td>3.20 (0.67)</td>
<td>3.04 (1.02)</td>
<td>-1.39</td>
</tr>
<tr>
<td>Frequency of forgetting</td>
<td>129</td>
<td>4.75 (0.77)</td>
<td>4.61 (0.87)</td>
<td>-2.31*</td>
</tr>
<tr>
<td>Reading (book)</td>
<td>117</td>
<td>4.89 (1.14)</td>
<td>4.79 (1.23)</td>
<td>-1.02</td>
</tr>
<tr>
<td>Reading (article)</td>
<td>121</td>
<td>4.77 (1.10)</td>
<td>4.74 (1.27)</td>
<td>-0.24</td>
</tr>
<tr>
<td>Remote memory</td>
<td>126</td>
<td>4.38 (1.24)</td>
<td>4.33 (1.19)</td>
<td>-0.50</td>
</tr>
<tr>
<td>Seriousness of forgetting</td>
<td>129</td>
<td>3.62 (1.20)</td>
<td>3.71 (1.28)</td>
<td>1.00</td>
</tr>
<tr>
<td>Mnemonic usage</td>
<td>126</td>
<td>3.30 (1.13)</td>
<td>3.35 (1.23)</td>
<td>0.86</td>
</tr>
</tbody>
</table>

Note. All scores are mean scores for scales, rated on a 7-point Likert scale. Higher scores indicate fewer problems, or less usage of mnemonics. n = Number of participants for which data on this scale are available.

*p < .05.

measurement can be found only for frequency of forgetting, with people reporting that they forget things more often after the training than before. This difference is rather small: 0.14 on a 7-point scale, or an effect size of −0.17 SD. Memory training has no effect on the way people rate their memory in general, on the way they look back on memory functioning, on perceived problems with reading, on the perceived seriousness of memory problems, or on the usage of mnemonics. Differences between scores on the MFQ scales for the two times of assessment did not covary reliably with age group or type of training.

DISCUSSION

The main finding in this research is that participants clearly consider memory training for the elderly an agreeable experience that is relevant to their daily lives. Participants mostly enter the training for memory-related reasons; about one half of the participants cite reasons related to experiences of or emotions about a decline of their own memory functioning. So motives for joining are clearly related to the perception of participants’ own memory. At the end of the training, the majority of the participants have learned or experienced something about their own memory or affects related to it: Awareness of their own functioning is increased, they have learned to do something about their problems, or they have gained self-confidence. Social elements also seem to be important, as about one quarter of the sample indicated
that they have learned they are not the only ones with memory complaints, or that the social contact was the most enjoyable aspect of training. Participants consider the things they have learned useful for their daily lives. However, perceived usefulness decreased with age, and program designers should take the relevancy to the daily life of the old old in consideration.

The process of memory training is considered agreeable by almost all participants. The program is pleasant, and the participants clearly want more: longer sessions, more sessions, follow-up courses, other courses. The difficulty of the training is perceived as adequate.

Of course, this very positive evaluation of the training program may in part be due to the fact that measures were taken immediately after completion of the course, at a time when people usually have strong feelings and opinions about what they have received. Note, however, that all of the evidence points in the direction of a strong positive experience, and that almost no negative opinions were voiced. Moreover, all subjects remained anonymous, a factor that should limit the number of socially desirable answers.

Among types of training there were some differences in the effects reported by participants. Particularly noteworthy is the fact that 78% of the subjects in Type 6 indicated increased awareness as the main effect and that 33% of the participants in Type 7 indicated finding out they were not the only ones with memory complaints as the main effect. Both these percentages are about twice the base rate percentage of the total group. There is no ready explanation for that, especially since the types closely resemble one another. Moreover, Type 6 is a derivative from Type 4 and uses the same training manual. Aspects related to the trainer, rather than to the training, may be responsible for the differences between types; this remains to be checked.

An interesting finding is that the positive appraisal by participants is not reflected in changes on the metamemory questionnaire. Memory training does not change the way the elderly perceive their memory functioning, nor does it change the usage of mnemonics. The sole exception is that after training, our subjects report slightly (but significantly) more instances of forgetting. This stability of metamemory scores after memory training was also found in previous studies using other questionnaires (Hill et al., 1988; Loonen & Richter, 1988; Rebok & Balcerak, 1989; Scogin et al., 1985; Zarit, Cole, & Guider, 1981; Zarit, Gallagher, & Kramer, 1981).

One reason for this discrepancy between subjective evaluations and metamemory questionnaires may be that the questionnaire used here (like those in the previous studies) does not tap the aspects of metamemory that change with memory training. Changes may be
more subtle and may have more to do with feelings of control than with the perception of problems or the perception of seriousness of problems. Having received a lot of useful information about memory functioning, both in general and about their own specific memory functioning, and having learned techniques that can be useful when problems occur may give participants the feeling that they can take memory functioning in their own hands, that they now have a better grip on it. This increased feeling of control over their own functioning is perhaps exemplified in the increased awareness, increased self-confidence, and increased ability to do something about memory problems indicated by so many participants as the main outcome of the training.

It is important to note that the results presented here do not imply that memory training programs in educational settings are indicated for the elderly who experience real memory difficulties (apart from the usual forgetfulness associated with old age). It is highly doubtful that these training programs have a beneficial effect on memory functioning (Verhaeghen, 1993), and the present research shows that a decrease in complaints is not to be expected. Moreover, such a training program may have detrimental effects on the self-perception of the mnemonically disturbed elderly: Being a bad performer in a group of age peers is a very threatening situation.

On the whole, memory training appears to be an interesting tool in social and educational work with the elderly. They obviously like it, and the experience clearly is an enriching one.

REFERENCES


