

The Name Game: Using Retrieval Practice to Improve the Learning of Names

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In medium-sized groups such as classes, it is often desirable that the members become acquainted with one another. Toward this end, various methods of introducing group members are often used, with only anecdotal evidence for their effectiveness. The name game is a method for introducing group members that is based on the principles of retrieval practice. The authors compared 2 versions of the name game with a widely used introductory method—pairwise introductions—and found that the name game participants were much better at remembering one another's names after 30 min, 2 weeks, and 11 months. A second experiment tested the contribution of retrieval practice by comparing 2 versions of the name game with a procedure that was matched for number of repetitions and time spent on the task. Again, the name games were superior.

It is commonly recognized that the learning of new names is difficult. Cohen (1996), for example, in her review of memory in the real world, commented that "it is noticeable that memory seems to be particularly fallible for the recall of people's names" (p. 125). Techniques for improving the ease and speed of learning names are therefore desirable. In this article, we report the investigation of a technique (the name game) for improving the learning of names of members of a medium-sized group, such as a college class. The technique is of interest not only for its practical possibilities but also because it provides a demonstration of the robust effectiveness of retrieval practice to improve memory.

Advocates of practical methods for improving memory (e.g., Furst, 1944; O'Brien, 1993) have recommended techniques for name learning that incorporate into mental images some representation of the person's name with a prominent aspect of his or her face. Such a technique has been tested and found to be effective in the learning of names (e.g., Morris, Jones, & Hampson, 1978). A disadvantage of these techniques is that they demand a degree of investment in problem solving and imagination that is effortful.

One procedure that can improve name learning without the mental demands of the imagery mnemonics uses expanding re-

trieval practice (Bjork, 1988; Cull, Shaughnessy, & Zechmeister, 1996; Landauer & Bjork, 1978). Landauer and Bjork (1978) first demonstrated the effectiveness of expanding retrieval practice in learning to associate first and last names. Each pairing of the first and last name was presented just once, but recall of the second name was tested (i.e., retrieval was demanded) according to different schedules of presentation of the first name as a cue. Landauer and Bjork found that schedules that expanded the intervals between tests for the to-be-remembered names led to the best recall on the criterion test. This technique of retrieval practice is recommended and used by Bjork as a method for learning the names of members of a group in the name game.

It is common in many situations (classrooms, meetings, workshops, courses) for medium-sized groups (4 to 20 or so members) to meet regularly. The efficiency and comfort of the group is increased if those involved know each other by name. This is normally acknowledged by group leaders, who instigate some activity to help themselves and those present to learn members' names. Unfortunately, none of these techniques seem to be particularly successful in that it appears, anecdotally, that few members of the group remember the names of the other group members as a result of these activities.

The name game capitalizes on expanding retrieval practice to encourage the learning of the names of members of a group. In its simple form, the name game involves the first member of the group announcing his or her full name. Then the second member of the group repeats the first person's name and adds his or her own, the third person says the names of the first and second person and adds his or her own, and so on around the group. To fully involve the first person in the activity, the group leader announces about halfway through the group that the first person in the group is expected to recall all of the names of the members of the group once the circuit of the group has been completed.

The psychological processes that the name game induces are very different from those that accompany the procedures with which individuals normally introduce themselves. In conventional

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introductory sessions, the group members are likely to pay relatively little attention to the names that they are hearing. Their task is to announce themselves, and they are often somewhat anxious until their moment arrives, after which they relax with relief. There is no immediate cost involved in failing to attend to the other names that are being given. In contrast, the name game emphasizes each group member's ability to recall the names that have gone before, and this encourages each member to attend to the names as they are announced. Rehearsal of those names is provided by the earlier members of the group as they recall the names. As each person attempts to recall the names of earlier members, later members are likely to test themselves in preparation for their own trial. The gradual buildup of the number of names to be remembered creates an expanding schedule of retrieval practice because the interval between each recall of any name increases as further names are added to the list. People near the beginning of the group attend to the later names once it has been announced that the first person has to recall the names because there is the possibility that they, too, may be called on to name everyone. They are further encouraged to remain involved because if someone cannot produce a name, the group is collectively encouraged to supply it.

A modification of the name game that, anecdotally, has been found to be successful is what we call the *elaborate name game*. In this form, the group members say not only their first and last names but also include some term that has relevance to them. For example, Jane Doe might say "swimming" because she likes swimming. In this version of the name game, the group members recall these qualifying terms as well as the names of those in the group. The rationale for the addition of the extra terms is that although they add more to be remembered, it provides a semantic elaboration to the memory of each person and potentially an additional cue for the name. Elaboration is one way in which memory can be improved (e.g., Craik & Tulving, 1975).

Although the name game in both its simple and elaborate forms is popular with those who have experienced it, it has not been evaluated under controlled conditions. In the two experiments that we report below, we explored the short-, medium-, and long-term benefits of the name game in both its simple and elaborate forms.

In Experiment 1, students in their first seminar classes taking first year psychology courses at Lancaster University learned the names of their tutor and fellow students using one of three techniques. Two of the techniques were the simple name game and the elaborate name game. The comparison condition involved the learning of the names of the group members by the method of dividing the group into pairs and each person introducing the other member of the pair, giving their full name and some personal details. Recall of the names of the members of the group was tested at the end of the seminar and again when the class next met 2 weeks later. The long-term effects of the name game were examined by a further surprise test 11 months later.

In Experiment 2, Experiment 1 was replicated with a new intake of students, but the comparison condition was modified to test the effect of the repetitions without the effort of retrieval. In this study, the comparison condition involved the tutor writing out the names of the members of the group in turn and, as each new name was added, reading through the list of the names already written. This technique (the repetition condition) was adopted to equalize with the name game conditions the number of times the members of the comparison group heard the names of each group member as well

as the pattern in which the names were encountered. The recall of the names was tested both at the end of the first seminar and 2 weeks later.

Experiment 1

Experiment 1 was designed to compare the simple and elaborate name game techniques and to evaluate them both against a comparison condition that is often used by group leaders to introduce members to one another. Members of the group divided into pairs and discovered details about each other that they then announced to the group as a whole. We have called this the *pairwise condition*.

Recall was expected to be best for the students who began the game because they would have been attending and rehearsing throughout the game in preparation for their test on all of the names. Conversely, recall was predicted to be poorest for the second group member because they were tested only on the name of the *first group member*. Improvement from that member onward was expected because each later member was more likely to engage in more retrieval practice.

Method

Participants. Two hundred sixty-five (188 women and 77 men) first year Lancaster University psychology students took part in the initial seminars. The students were tested in 30 seminar groups. The number of students present at the initial meeting of the seminar groups ranged between 5 and 11, with a mean of 8.8. For various reasons, usually absence in either the first or second class or having attended the wrong seminar on the first occasion, the number of participants who could be tested after 2 weeks was 210. For the test after 11 months, invitations to participate were sent to 263 of the students and 160 replies were received, a response rate of 61%.

Design. Each of five tutors supervised six seminar groups. Each tutor tested two groups in each of the three conditions (simple name game, elaborate name game, and pairwise). The order in which the three conditions were run by each tutor was counterbalanced among the tutors to control for any practice effects of the tutors themselves. Eleven months later, the students were contacted by letter and invited to write the names of the members of their seminar group against the individual photographs of the group members.

Materials. For the late test, black and white photographs (full face) from the Lancaster Psychology Department records were scanned into a Macintosh computer, edited, and laser printed so that the members of each seminar group were displayed, in random order, together on a sheet of paper. Each photograph was approximately 5 cm × 4 cm.

A letter inviting the student to participate in the experiment was prepared. The letter included the following:

We would be very grateful if you would give a minute or two to study the pictures and to write beneath them those names that you can recall. Do not worry if you have problems recalling the correct spelling, though be as accurate as you can. If you can recall only part of a person's name (e.g., their first name) write that. Your picture should also be in the set; please write "ME" under that picture. It will help us greatly to receive replies *even where you can recall no names at all*, since that will help us to make an accurate estimate of what can be remembered.

The letter included details of a drawing to be held for 10 free cinema passes and a deadline prior to the start of term for the return of the sheet

of photographs (and entry in the drawing) in the prepaid preaddressed envelope provided.

Procedure. The seminars took place in a classroom with the students sitting in a semicircle facing the tutor and the white- or blackboard. In the simple name game condition, after welcoming the group to their new course, the tutor explained the object and procedure of the name game. The game then began with the student facing the tutor being asked to say his or her first and last names. The tutor wrote these on the board, confirming the spelling with the student. The name was then erased and the student to the left of the first student said the first student's full name and his or her own name. The tutor wrote this student's name on the board and then erased it. Proceeding clockwise, the third student repeated the full names of the first two students and added his or her own name. The game continued in this way, but after a few introductions (depending on the overall size of the group), the tutor notified the student who had started that he or she would be required to give the full set of names. When students were having difficulty recalling all or part of a name, the tutor would ask the other members, as a group, to supply it. After playing the game, the seminar continued for approximately 30 min. Toward the end of the meeting, an unexpected test of the students' memories for the names was undertaken. The students were asked to sketch the rough layout of the room and to write, in the appropriate places, the names of the members of the group. The students were asked to recall as much of each name as possible.

In the elaborate name game condition, the procedure was similar to that in the simple name game condition, but in addition to giving their names, students were asked to supply one word that they associated with themselves. They also gave a brief explanation of the reason why they had chosen the word. For example, a student might say "skiing" and explain that they like to take skiing holidays. In addition to recalling the names of the other members of the group, the students were asked to recall their associated words. In all other respects, the elaborate name game was played as the simple name game had been. As in that condition, a surprise test was carried out after approximately 30 min. In the test, the students were asked to write down the associated words as well as the names of the members of the group.

In the pairwise condition, the tutor divided the group into pairs, pairing themselves with the unpaired student if the group had an odd number. The members of each pair spent a few minutes getting to know details about each other. When the seminar group reconvened, each student introduced his or her partner, giving these details to the group. To draw attention to the names, the tutor wrote each student's name on the board and erased it before the next student was introduced. When all members of the group, including the tutor, had been introduced, the seminar proceeded. As in the other conditions, a surprise test of the names of the members of the group was carried out after approximately 30 min.

The seminar classes next met 2 weeks later, and, at the beginning of the meeting, an unexpected test of the recall of the names was undertaken. Again, the students were asked to sketch the layout of the room and to write in as many of the names of the other students as they could remember. In the elaborate name game condition, they were also asked to include the associated words if they could remember them.

For the late test (11-month test), each student who had taken part in the first stage and whose address was available from university records was sent the invitation letter and an appropriate sheet of photographs. The initial mailing took place in mid-August, and responses were requested by September 26 to precede the beginning of the new academic year.

Results

For all statistical analyses reported in this article, an alpha level of .05 was used. Recall was analyzed for the recall of the full name.¹ Slight spelling errors were accepted in cases in which the offered spelling was acoustically very close to the correct spelling. Recall of the name of the tutor was not included in the scoring. The

groups differed in size and also, at the second recall, in the number of students who had attended both tutorials. Therefore, the analyses were performed on the proportions of names that were recalled out of the maximum possible for each group in each particular session. Recall performance is illustrated in Figure 1.

One-way analyses of variance (ANOVAs) were carried out on the recall of the full names at each test. Separate analyses were carried out for the 30-min and 2-week tests because the measure used in the analysis (proportion of the group) was based on group sizes that often varied both within and between groups between the first and second test, with smaller but variable sized groups at the second test. Furthermore, any analysis of an interaction over time that would have required a two-way ANOVA was ruled out by the floor effect in the recall of the control group.

At both the first and second tests, there were significant overall differences between the three conditions: first test, $F(2, 262) = 128.02$, $MSE = 0.06$, $p < .001$; second test, $F(2, 207) = 33.20$, $MSE = 0.07$, $p < .001$. The prediction that the pairwise condition would perform more poorly than the simple name game condition was confirmed for both tests by planned comparisons: first test, $F(1, 262) = 202.06$, $MSE = 0.06$, $p < .001$; second test, $F(1, 207) = 55.14$, $MSE = 0.07$, $p < .001$. Similarly, the elaborate name game was superior to the pairwise condition in both tests: first test, $F(1, 262) = 181.83$, $MSE = 0.06$, $p < .001$; second test, $F(1, 207) = 45.27$, $MSE = 0.07$, $p < .001$. However, the prediction that the elaborate name game condition would be superior to the simple name game condition was not supported in either test: first test, $F(1, 262) < 1$; second test, $F(1, 207) < 1$.

For students in the name game conditions, the influence of their positions during the initial learning condition on subsequent recall was analyzed in two ways: as a function of the position of the learner during the game and as a function of the position of the to-be-recalled names within the group. Figure 2 gives the details of the analysis of recall of full names at the first test in terms of the position of the learner. Because of diminishing numbers of participants at the higher positions as a result of the variable sizes of the groups, only positions up to eighth in the groups were analyzed. For each student, the proportion of full names that he or she recalled from the total possible for his or her group was calculated. It was predicted that the proportion recalled would be a function of the position of the student. Position 1 required recall of all names and provided the greatest encouragement for retrieval practice, therefore the highest level of later retrieval should ensue. The lowest recall was predicted for those in Position 2 in the groups because they were required to recall only one name during the name game and had the least incentive for continued retrieval practice. Increasing recall was predicted for Positions 3–8 in the groups, as these students were required to recall progressively more names in the name game and were likely to engage in progressively more retrieval practice. This predicted monotonic relationship was tested using a linear trend test carried out for Positions 2–8, followed by Position 1. The trend was significant,

¹ Similar patterns of results were obtained when the first and second names were analyzed separately. In these analyses, first name included both first name only and full name recall; second name recall included both second name only and full name recall.

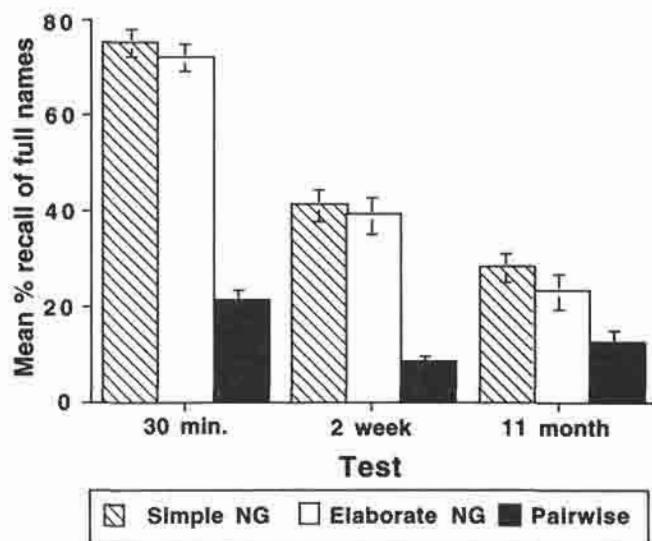


Figure 1. Percentage of recall in Experiment 1 of the full names of the members of their group by participants in the name game (NG) and the pairwise conditions. Error bars indicate 1 SE.

confirming the predicted effect of group position on recall, $F(1, 142) = 7.97$, $MSE = 0.07$, $p = .005$.

Using the data for the 30-min test, the effect of name position and thus its retrieval practice frequency on later recall was analyzed by correlating each name's position in its group (as a proportion of group size) with its frequency of recall (as a proportion of its group size). Proportion of group size rather than absolute position was used to control for the variability in group sizes. A significant negative correlation was observed, indicating that the earlier the name was in the group, the better it was recalled, $r(173) = -.26$, $p < .001$.

For the test of recall after 11 months, a number of the 160 responses that were received could not be included in the analysis for a variety of reasons, usually because the respondent had not attended both of the first two seminars. A total of 139 responses were included in the final analysis, 50 from the simple name game condition, 42 from the elaborate name game, and 47 from the pairwise condition. A 2×3 chi-square test for the three conditions and the first and late recall test indicated that there were no reliable differences between the conditions in the number of participants who responded to the late test, $\chi^2(4, N = 404) = 0.53$. Students might have been more likely to respond to our request if they recalled more names. This relationship would not interfere with our analysis unless it interacted with the experimental conditions. Using recall on the 30-min test as the dependent variable, we ran a 2×3 ANOVA with responding and experimental condition as factors. Although there was significant superiority in initial recall for those students who responded ($M = 0.60$) over those who did not ($M = 0.49$), $F(1, 247) = 12.63$, $p < .001$, the interaction between the responding and experimental condition factors did not approach significance, $F(2, 247) < 1$, therefore, the data were suitable for further investigation of the effects of the learning conditions.

Analyses were performed on the proportions of the full names that were recalled out of the maximum possible for the particular

seminar group. The results are shown in Figure 1. The name game conditions produced higher recall than the pairwise condition; an ANOVA indicated an overall significant effect of learning condition, $F(2, 136) = 6.45$, $MSE = 0.05$, $p < .01$. Planned comparisons demonstrated that there was a significant difference between the simple name game and the pairwise conditions, $F(1, 136) = 12.61$, $MSE = 0.05$, $p < .001$, and between the elaborate name game and the pairwise conditions, $F(1, 136) = 4.95$, $MSE = 0.05$, $p = .028$, but that the difference between the simple name game and elaborate name game conditions was not significant, $F(1, 136) = 1.42$, $MSE = 0.05$, $p = .24$.

Discussion

The two name game conditions led to much better recall of the full names of the members of the groups. This was reflected in the performance of the name game groups at both the initial and later tests. The name game provides retrieval practice on an expanding schedule as each new name is incorporated into the set to be recalled. The focus for the participants is to attend to and learn the names because they have to recall them. In contrast, the focus for the pairwise condition is to complete the introduction of one's partner rather than to attend to the other names.

In the analysis of the recall of the names as a function of the order of names in the group, the influence of retrieval practice is apparent. Despite the inherent considerable variability in the ease of learning some names compared with others, there is a significant relationship reflecting the better recall of those names that are

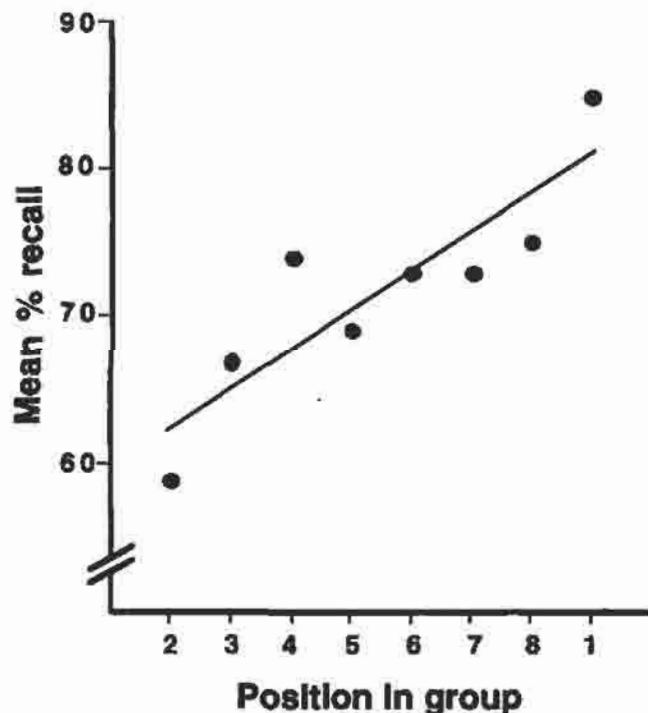


Figure 2. Percentage of recall of the names of the members of their group by participants as a function of their position in the group. Participants in Position 1 recall last and are therefore placed last in the figure. The line indicates the best linear fit.

introduced early in the name game and that were rehearsed more frequently. In terms of the participants' position in the group, performance varied with the number of names that the participants had been required to recall during the name game; more retrieval during the game led to better retrieval afterward. The performance of the two name game groups was very similar and never reliably different. The hypothesis that the addition of the extra information about the individuals would lead to better learning of the names was not confirmed.

Despite the very long interval between the playing of the name game and the 11-month test with the wide range of factors that might have impaired performance, such as the context of recall and the use of small black and white photographs, the effect of the name game on recall was still evident. As in the earlier tests, the elaborate name game did not produce improvements over the simple name game.

Experiment 1 has given a clear demonstration of improved recall through using the name game technique. In Experiment 2, we sought to replicate Experiment 1 and to introduce a comparison condition that would help to locate the source of the name game's superiority. In Experiment 1, the pairwise condition was chosen for comparison because it is a commonly used technique for learning the names of members of a group. However, members of the name game groups heard the names that they had to learn articulated many more times than the members of the pairwise groups did. This difference alone might be expected to produce a benefit. Experiment 2 was designed to test whether repetition alone is as effective as repeated retrieval practice for learning the names of members of a group.

Experiment 2

Experiment 2 was designed to replicate the name game conditions of Experiment 1 but to provide a comparison condition that matched the name game in the number of times that the names were heard by the students as well as the order in which the names were spoken. In the new (repetition) condition, the tutor wrote the first student's name on the board and read it aloud; then the next name was added, and both the first and second names were read aloud by the tutor. The third name was added, and, again, all three names were read aloud by the tutor. This procedure continued for the entire group. By following this technique, the students in the repetition condition were exposed to the same pattern and number of repetitions of the names of the seminar group as were the students in the name game conditions. The key difference between the name game and repetition conditions was that name game participants were encouraged to repeatedly *retrieve* other students' names while repetition participants repeatedly heard and read the names.

Method

Participants. Two hundred eighty-seven (221 women and 66 men) first year Lancaster University psychology students took part in the initial seminars. The students were tested in 34 seminar groups. The size of the seminar groups ranged between 5 and 11, with a mean of 8.4. For similar reasons to those described in Experiment 1, the number of participants who could be tested after 2 weeks was only 234.

Design. Each of five tutors supervised six seminar groups during the first 2 weeks of the term. Each tutor tested two groups in each of the three

conditions (simple name game, elaborate name game, and repetition). The order in which the three conditions were run by each tutor was counter-balanced to control for any practice effects among the tutors themselves. An additional tutor supervised only four seminar groups: two were assigned to the elaborate name game condition, one seminar was assigned to the simple name game condition, and one was assigned to the repetition condition. Thus, 11 seminar groups completed the simple name game and repetition conditions, and 12 groups completed the elaborate name game.

Procedure. The simple and elaborate name games were carried out as described in Experiment 1 and were tested after 30 min and 2 weeks. In the repetition condition, the tutor asked each student in turn to say, and if necessary, spell his or her name. The tutor wrote the names in a column on the board. As each name was added, the tutor read aloud the full list of names including the newly added name. After the last name was added and all names read, the names were erased. Tests of recall after 30 min and 2 weeks were carried out as for the other conditions.

Results

The recall in the three conditions at the two tests was analyzed as in Experiment 1. As in Experiment 1, the analyses were performed on the proportions of names that were recalled out of the maximum possible for that particular session. One of the repetition condition seminar groups had to be discarded because of an error in the initial procedures. Mean recall for the three conditions is illustrated in Figure 3.

The performance of the name game conditions in the recall of full names was much better than that for the repetition condition; the two name game conditions did not differ greatly. One-way ANOVAs indicated significant differences between the conditions in both the first and second test: first test, $F(2, 284) = 33.18$, $MSE = 0.11$, $p < .001$; second test, $F(2, 231) = 19.15$, $MSE = 0.06$, $p < .001$. The prediction that the repetition condition would perform more poorly than the simple name game condition

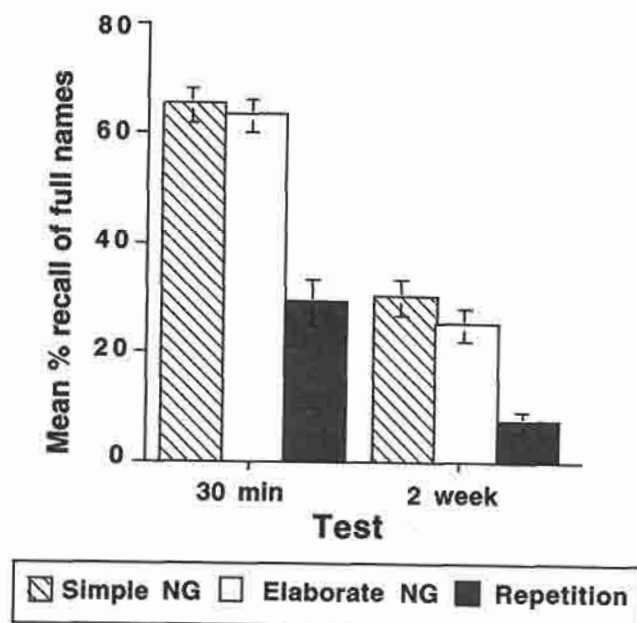


Figure 3. Percentage of recall in Experiment 2 of the full names of the members of their group by participants in the name game (NG) and the repetition conditions. Error bars indicate 1 SE.

was confirmed by planned comparisons for both the first and second tests: first test, $F(1, 284) = 54.34$, $MSE = 0.11$, $p < .001$; second test, $F(1, 231) = 34.51$, $MSE = 0.06$, $p < .001$. Similarly, the repetition condition was significantly poorer than the elaborate name game condition on both tests: first test, $F(1, 284) = 47.78$, $MSE = 0.11$, $p < .001$; second test, $F(1, 231) = 22.63$, $MSE = 0.06$, $p < .001$. As in Experiment 1, the difference between the simple and elaborate name games was not significant on either test: first test, $F(1, 284) = 0.38$; second test, $F(1, 231) = 1.63$, $MSE = 0.06$, $p = .20$.

Discussion

Experiment 2 was carried out both to introduce a control, through the repetition condition, for the number of times that names of the members of each group were repeated and to test again for a difference between the simple and elaborate name games. Once again, the two name game conditions led to much better recall of the names. The superiority of the name game groups to the repetition group indicates that the benefit of the name game lies not merely in the number of times that the participants encounter the names but also on the retrievals demanded by the name game. Mere repetition is not sufficient even with an expanding pattern as experienced by the name game participants. It is the active retrievals of the name game that lead to the improvement in performance. The presence of an additional word, which might have enhanced or impaired performance, again had no observable effect.

General Discussion

Experiments 1 and 2 provide a demonstration of the value of the name game as a technique for learning the names of members of a group. Experiment 1 contrasted the name game with a technique that is sometimes adopted to encourage the learning of the names of members of a group and showed that the name game was superior. Furthermore, almost 1 year later, in a test conducted under conditions that were very different from the learning conditions, there were still benefits from the name game. Experiment 2 demonstrated that the contribution of the name game is not merely the result of name repetitions. A vital ingredient is the active participation of the students in retrieving the names during the game.

Despite anecdotal evidence in its support, the elaborate name game produced no better recall than did the simple name game in either of the experiments. The added complexity of the elaborate

name game is, therefore, not necessary for effective name learning. However, although not the focus of the present experiment, it was clear when analyzing the recall protocols that the terms used in the elaborate name games were often recalled. If there is a need to add further information about the individuals in the group, this can be incorporated into the name game and learned without impairing performance in name learning. Comments from the seminar tutors suggested that students found the elaborate name game more interesting to play than the simple name game.

The results of these experiments demonstrate a useful technique for learning names that does not require effortful or novel mnemonic techniques and that can be adopted almost anywhere that a new group of moderate size would benefit from getting to know the names of other members. There are certainly limitations on the size of group for which the name game is practicable, and alternative techniques are required for large groups for which the playing of the name game is too time consuming. However, the present study demonstrated that the technique can be used comfortably with groups of 11 members.

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