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Abstract
Interactive brainstorming groups consistently produce fewer ideas, and fewer high quality ideas, than nominal groups, whose members work alone before pooling their ideas. Yet, brainstorming continues to be regarded as an effective method for enhancing creativity. This paper describes an engaging classroom ''experiment'' that reliably demonstrates the superiority of nominal over brainstorming groups for generating more ideas. Analyses of data from 105 student groups, collected from 12 classes, show that typical differences between the two group methods are sizable. Beyond lessons about group techniques, this exercise shows students the limits of intuition and the value of evidence-based management practices.
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In 1953, advertising executive Alex Osborn published *Applied Imagination*, in which he laid out the principles of ''brainstorming,'' now a popular group method for creative idea generation. On the assumption that producing a high number of ideas increases the odds of finding a good solution to a problem, Osborn recommended that brainstorming groups be encouraged to focus on quantity – to generate as many ideas as possible. He further recommended that, to achieve this goal, group members should be instructed to freely suggest whatever ideas come to mind (no matter how odd or infeasible the ideas might seem), not to criticize or judge each other's ideas, and to build on each other's ideas.

Just a few years later, however, Taylor *et al*. (1958) published results showing that four-person groups following brainstorming instructions produced only half as many ideas as groups of four individuals working alone. Over the five decades since then, a large body of research has confirmed the superiority of ''nominal group'' methods – which pool the ideas generated by group members working alone – over brainstorming and other interacting group techniques. Nominal groups consistently generate many more ideas (see Lamm and Trommsdorff, 1973; McGrath, 1984; Diehl and Stroebe, 1987; Mullen *et al*., 1991; Dennis and Valacich, 1993; Rietzschel *et al*., 2006; Girotra *et al*., 2009) and, as Osborn suggested, quantity is helpful for finding creative and high quality

solutions. The number of ideas produced by groups correlates highly with the number of their ideas that are unique (Dugosh and Paulus, 2005) or judged to be of high quality (Diehl and Stroebe, 1987).

In examining the creativity or quality of ideas generated under different group instructions, researchers have typically asked independent judges, often experts in the relevant subject matter, to rate the ideas in terms of their uniqueness, variety, feasibility, likely profitability, probability of success, or other dimensions of potential utility (see Dean *et al*. (2006) for a review of measures). The *average* quality of ideas generated by nominal groups has not been found to be consistently better than those produced by brainstorming teams (Diehl and Stroebe, 1987; Rietzschel *et al*., 2006; Baruah and Paulus, 2008). By virtue of the larger pool of ideas they generate, however, nominal groups tend to produce sets of ideas that yield higher *total* quality ratings (Taylor *et al*., 1958; Dunnette *et al*., 1963; Milton, 1965; Gurman, 1968; Bouchard, 1969; Vroom *et al*., 1969), as well as more ideas judged to be ''good'' according to some criterion or cutoff (Bouchard, 1969; Vroom *et al*., 1969; Diehl and Stroebe, 1987, 1991). Noting that a large pool of good ideas is not a prerequisite for finding a good solution to a problem, Girotra *et al*. (2009) compared the quality of the top few ideas produced by each of their nominal and brainstorming groups. Again, the results indicated the superiority of having team members generate ideas individually rather than through interaction.

Three primary explanations for why nominal groups produce more and better ideas than brainstorming and other ''real'' groups have each received some support. First, use of a nominal group technique (NGT) reduces or eliminates *production blocking* (Diehl and Stoebe, 1987, 1991). Members of interacting groups have difficulty simultaneously listening to the group's discussion while producing their own ideas; moreover, production of ideas is further blocked by having to wait for ''air time'' to state one's own ideas. Second, NGT produces less *evaluation apprehension* and, subsequently, less self-censorship than interacting groups; even when members of brainstorming groups have been instructed to not criticize one another or hold back ideas, they can still feel inhibited (Collaros and Anderson, 1969; Connolly *et al*., 1990; Cooper *et al*., 1998). Third, the greater perceived accountability and indispensability of individuals in nominal groups reduces the extent of *social loafing*, the tendency for individuals to exert less effort when they work in a team (Asmus and James, 2005; Chidambaram and Tung, 2005).

Given the substantial productivity gains that can result from having team members generate ideas privately, why does brainstorming continue to be widely employed while NGT remains relatively obscure? One significant reason may be that individuals are strongly inclined to believe that they are more productive when working in groups than when working alone (Connolly *et al*., 1990; Diehl and Stroebe, 1991; Stroebe *et al*., 1992; Paulus *et al*., 1993; Plous, 1995). This tendency has been referred to as the ''illusion of group productivity'' (Paulus *et al*., 1993) or ''illusion of group effectivity'' (Stroebe *et al*., 1992).

Fortunately, NGT can be implemented in ways that raise participants' perceptions of its effectiveness while helping ensure that the group achieves good outcomes. Whereas pure nominal group methods simply pool the ideas generated privately by group members, modified or hybrid NGTs follow the ''idea generation'' stage with an ''evaluation and selection'' stage in which – as would likely be the case in most practical applications of NGT – team members interact verbally to elaborate, synthesize, debate, and select ideas. The best-known two-stage approach, developed by Van de Ven and Delbecq (1971, 1974), structures the idea-sharing and voting processes used to evaluate and select ideas; positive results have also been obtained, however, by following idea generation with unstructured discussion. Group members participating in two-stage NGTs report higher levels of satisfaction and greater perceived group effectiveness than those in groups that brainstorm ideas together (Van de Ven and Delbecq, 1974; Hegedus and Rasmussen, 1986). They are also, according to content analyses of taped discussions and ratings of group member participation, more likely to contribute to the group's discussion and to contribute more fully when they do (Van de Ven and Delbecq, 1974; Hegedus and Rasmussen, 1986; Asmus and James, 2005). And this combination of private ideation and rich discussion appears to pay off: two-stage NGT groups have been found to reach better decisions (Herbert and Yost, 1979; Girotra *et al*., 2009), give better group presentations (Asmus and James, 2005), and implement group recommendations at higher rates (White *et al*., 1980) than groups working entirely as interacting teams.

Researchers have also found ways to improve the effectiveness of brainstorming, although only rarely have results exceeded those of NGT. Two of

the most promising approaches – using electronic brainstorming (EBS) or trained facilitators – are both, however, much more resource intensive than NGT. In EBS, participants are trained to use group decision support software to share ideas on a networked computer system; they privately enter ideas on a keyboard and view other participants' ideas on monitors. While EBS groups consistently outperform face-to-face groups in both quantity and quality of ideas (see DeRosa *et al*. (2007) for a meta-analysis), nominal group methods generally produce results that match or exceed those of EBS (especially for groups of fewer than eight members) (Pinsonneault *et al*., 1999a, 1999b; DeRosa *et al*., 2007). Pinsonneault *et al*. (1999a) argued that even the process of simply reading others' comments on the monitor is enough to disrupt the concentration of EBS participants.

Several studies found that brainstorming groups led by well-trained facilitators produced ideas comparable in quantity and quality to unfacilitated NGT groups (Offner *et al*., 1966; Oxley *et al*., 1996; Kramer *et al*., 2001). The gains are dependent, however, on the nature and extent of the facilitators' training (Oxley *et al*., 1996); moreover, facilitated brainstorming groups still demonstrate productivity losses when compared to *facilitated* two-stage NGTs (Van de Ven and Delbecq, 1974; White *et al*., 1980). The results of providing other types of support to brainstorming groups have not been encouraging. Researchers found that the productivity losses associated with brainstorming persisted despite providing groups with helpers to record ideas on flip charts or electronic projection systems (Offner *et al*., 1966; Kramer *et al*., 2001), having experimenters or other authorities present as observers (Mullen *et al*., 1991), or giving the participants themselves prior practice – or even very extensive training – in brainstorming (Cohen *et al*., 1960; Dillon *et al*., 1972; Paulus *et al*., 1995; Kramer *et al*., 2001; Baruah and Paulus, 2008).

The evidence presented here strongly suggests that having individuals spend time writing down their ideas privately before discussing them with others is a simple, reliable, and inexpensive way to improve idea generation and, ultimately, group decision making and problem solving. Yet, simply telling students about NGT's advantages may not be enough to overcome the widespread illusion of group productivity. Without experience comparing NGTs to brainstorming groups, individuals tend to fall victim to the ''baseline fallacy,'' that is, they correctly perceive that groups achieve more than they could as just one person working alone, but fail to consider what could be achieved if all group members worked on their own and then pooled results (Stroebe *et al*., 1992). Further, group members tend to overestimate how many of a group's ideas they personally contributed, leading them to believe they are more prolific working in groups than alone (Stroebe *et al*., 1992). The classroom ''experiment'' described in this paper is aimed at helping students overcome the illusion of group productivity by providing first-hand – and, typically, dramatic – evidence of NGT's capacity to produce more ideas than brainstorming.

A classroom experiment to compare NGT and brainstorming

Overview

In this exercise, students are divided into small groups (preferably three to five members) and asked to generate as many names as they can for a new ice cream store. Half of the groups follow brainstorming instructions and the other half follow NGT instructions. Afterwards, a comparison is made of the quantity of ideas generated with the two techniques. The exercise is concluded with a discussion of why NGT tends to generate many more ideas than brainstorming and how interactive discussion can be incorporated as a second stage to follow idea generation.

Number and level of participants

At least three brainstorming and three nominal groups will be needed for comparison. I generally conduct the exercise with approximately 30 students divided into eight groups, but have also used the exercise successfully with a class of 70 students (larger classes have the advantage of generating more data). The instructor's role is minimal while the groups are generating ideas, so the exercise can readily be used with very large classes. The exercise has been used successfully with both undergraduate and graduate organizational behavior classes.

Time requirements

This exercise can be done at a relaxed pace in a 75-min time period. I have also used it in a 50-min session, both by urging students to move quickly as they change classrooms, rearrange seats, and review and count their ideas, and by abbreviating the post-exercise discussion.

Materials needed

- Two classrooms or other spaces that allow one half of the class to be physically separated from the other half. If one of the rooms is poorly configured for group interaction (such as a tiered classroom or one with fixed seats), use it for the nominal groups.
- Copies of instructions for brainstorming and NGT groups (Appendices A and B). To minimize confusion, print each set of instructions on a different color of paper. Sufficient copies will be needed so that each group receives one set of instructions.
- Small prizes, such as candy bars. Bring enough for the members of four groups, to allow for the possibility of ties.

Preparation

The students will need to be organized into groups of, preferably, three to five students. While desirable, it is not essential that the groups be of the same size (especially since emphasis is placed on the average number of ideas produced *per group member*). Results are stronger with larger groups, but I have had successful results even with two-person groups. My students work with the same teammates throughout the semester, so I use those teams for this exercise, but the exercise can also be done by randomly assigning students to groups for the day. In the event of an uneven number of groups, assign the extra team to follow NGT instructions to give more students direct experience of the technique.

Conducting the exercise

*1. Introductory instructions (*5–10 *mins).* Address the entire class with the following instructions: (Note that these introductory remarks do not mention the names of the group techniques that will be compared or the topic on which students will produce ideas.)

> Creativity experts have argued that what makes highly creative people different from others is not so much that they have *better* ideas, but rather that they have *more* ideas. That is, if you can come up with *a lot* of ideas, you increase the odds of coming up with a *good* one.
>
> The exercise we'll be doing today will compare two different group techniques. Each has been suggested as a way to help groups generate more ideas. Half of the class will stay in this room using one technique. The other half will move to room number [X] to try the other technique.
>
> You'll be working in your teams on a problem that requires a creative solution. Your goal today is simply to come up with as many ideas as you can; you don't need to agree on a solution. As an added incentive, I've brought in prizes [hold up a candy bar or other prize]. Since the different rooms will be testing out two different techniques, I'll give prizes to the members of the team in *this* room that comes up with the most ideas per person and also prizes to the members of the team in the *other* room – using the other technique – that comes up with the most ideas per person.
>
> You'll have 8 minutes to generate as many ideas as you can. The instructions you'll receive ask that you have someone in your group act as a timekeeper, so be sure someone in your group who has a watch or cell phone volunteers to keep an eye on the time. If your group is asked to move to the other room, be sure to take along paper, a pen or pencil, and any valuables.

At this point, ask half of the groups to leave for the other room, handing each group just one copy of the NGT instructions (or brainstorming instructions – just be sure to have everyone in a given room following the same set of directions). Instruct them to have someone in the group read the instructions aloud to the rest of the group before starting. After they leave, distribute the brainstorming instructions (or NGT instructions) to the teams that remain in the classroom, again asking that they have someone read the instructions to the rest of the group.

2. Reading group technique instructions (5 min). A student in each group reads their team's instructions aloud. The instructor can walk between the two rooms asking if there are questions and telling students that they can begin whenever they are ready. Remind them to record the start time at the top of their instruction sheet. (The nominal group members sit with each other in this exercise, even though they do not interact as they list their ideas.)
3. Idea generation (8 min). As the groups generate ideas, the instructor can, with minimal disruption, remind them to focus on quantity and to keep an eye on the time. The instructor should avoid behaviors that might raise evaluation apprehension, for example, listening in to the brainstorming groups or reading over the shoulders of NGT group members as they write ideas. Any encouragement or reminders of instructions should be made to all groups in the room, not singling out any one group. (Although 8 min may sound like a short period of time for idea generation, I have tried the exercise with 10-min time periods and thought both the NGT and brainstorming groups ran out of steam well before the time limit was up.)
*4. Recording the results (*5–10 *mins).* After 8 min of idea generation, members of the nominal groups read their ideas aloud to each other, eliminating

any duplicates before counting the total. The instructor can remind them that the instructions indicate it is acceptable to add a *few* additional ideas at this point, for example, if a teammate's idea gives someone else a new idea. (Note that the option to add additional ideas can be deleted from step 5 of the instruction sheets; I allow this in order to get NGT group members thinking about building on others' ideas, a common practice in two-stage NGTs as well as brainstorming.) The members of interacting groups also count their ideas, and can similarly be reminded that they can add a *few* extra ideas that may come to mind while they are reviewing their lists. Each group should be encouraged to choose a few of their favorite ideas to be read to rest of the class. The bottom of the instruction sheet includes a place for recording the total number of ideas generated by the group, the number of participating members of the group, and the group's favorite ideas.

5. Reviewing results and awarding prizes (5–10 mins). When all students have returned to the regular classroom, collect the completed instruction sheets from the groups. Under the heading ''brainstorming'' on the board (or a flip chart) at the front of the classroom, list (in three columns): the number of ideas generated by each brainstorming group, the number of members in the group, and the calculated average number of ideas per group member. Award prizes to the brainstorming group with the most ideas per member.

Under the heading ''NGT'' (written as an abbreviation to get the brainstorming groups wondering what it is) record the results for each of the nominal groups and award prizes to the NGT group with the most ideas per member. The difference in results for NGT and brainstorming groups is typically very dramatic; students from the brainstorming groups will often exclaim, even accusing the other groups of cheating, when they see how much higher the NGT counts are.

6. Post-exercise discussion (20–35 mins). I begin the post-exercise discussion by reading aloud the instructions followed by the brainstorming groups in our ''experiment'' and noting how the instructions are designed to reduce group members' inhibitions and encourage them to generate as many ideas as they can. I then explain that, despite the widely held belief that brainstorming is an effective group technique (the ''illusion of group productivity''), research has not found it to be a particularly helpful way to produce high numbers of ideas or even better quality ideas. To further demonstrate this, I present the results for brainstorming and NGT groups that I have accumulated over time (Table 1).

Table 1 Numbers of ideas produced by brainstorming and nominal groups

	Mean	*SD*	*No. of groups*
A. Number of ideas per group			
Brainstorming groups	42.20	22.30	51
Nominal groups	64.28	33.65	54
B. Number of ideas per group member			
Brainstorming groups	12.46	7.05	51
Nominal groups	19.03	9.06	54

Notes: Brainstorming and nominal groups differed significantly in both the mean number of ideas per group ($t=-3.98$, $P<0.001$) and the mean number per group member ($t=-4.16$, $P<0.001$). Group sizes ranged from two to eight; mean group sizes for brainstorming (3.48) and nominal groups (3.61) did not differ significantly ($t=-0.56$, $P>0.10$). The number of ideas per group member for the 51 brainstorming and 54 nominal groups were weighted equally in the analyses, rather than weighted by the size of the group.

Next, I read the instructions followed by the nominal groups in our class and then, to show one way the technique can be expanded to include group interaction for evaluating and selecting ideas, describe Van de Ven and Delbecq's (1971, 1974) two-stage NGT process. This particular NGT variation has group members, after the first stage of private ideation, meet together to (a) share ideas in a round-robin fashion; (b) discuss and evaluate the ideas, perhaps adding new ones that ''piggy back'' or ''hitch hike'' on earlier ones; and (c) select an idea through an anonymous voting procedure.

I then ask the students to identify what they have seen in their own experiences as the downsides of group decision making. They typically list various problems that have to do with production blocking (e.g., ''socializing wastes time'' and ''it's too hard to think and listen at the same time''), evaluation apprehension (e.g., ''people are afraid to speak up'' and ''you don't want to disagree with other people''), and social loafing (e.g., ''some people let others do all the work'' and ''you don't feel like doing a lot if no one else is''). It is usually fairly easy to point out how using NGT to generate ideas overcomes most of the negatives associated with interactive group decision making. (One could also build into this discussion some reflection about what happened in the exercise itself that might have facilitated or inhibited production.) In addi-

tion, I point out how Van de Ven and Delbecq's approach to structuring the evaluation and selection of ideas can help the group work well together once they are done listing ideas individually. Round-robin idea sharing helps to ensure that reluctant group members disclose their ideas; encouraging participants to build on others' ideas can capitalize on the group's potential for synergy; and having participants use an anonymous voting procedure can help reduce pressures to conform to high status or domineering individuals.

Next it is a good idea to remind students that this exercise focused on the quantity of ideas and that there was no assessment of their quality. Reading the ideas that the groups selected as their favorites will make it pretty easy for students to see that both the NGT and brainstorming groups were quite creative. (I have sometimes awarded prizes to individuals who came up with particularly clever ideas.) It is worth emphasizing that there is good evidence, as noted earlier in this paper, to support the claim that having a larger pool of ideas in general means that one is likely to have a larger pool of ''good'' ideas from which to choose.

If time permits, I ask the students to comment on the means shown in Table 2, which provides the results I have obtained over time for groups of different sizes. This table shows a typical pattern (according to meta-analyses by Bond and Van Leeuwen (1991) and Mullen *et al*. (1991)) of a declining number of ideas per person as brainstorming groups increase in size, but fairly constant results for nominal groups (at least for groups of two to four members in my data set). This can generate a thoughtful discussion of whether and how production blocking, social loafing, and evaluation apprehension might be responsible for brainstorming's productivity losses. Also, if the textbook I am using includes a discussion of EBS, I discuss the successes that researchers have had using that method (compared to non-EBS, if not nominal groups); Pinsonneault *et al*. (1999a), and Valacich *et al*. (2006), provide good reviews of research and controversies regarding EBS.

Table 2 Numbers of ideas generated by brainstorming and nominal groups, by group size

Group size	*Brainstorming groups*		*Nominal groups*	
	Mean	*No. of groups*	*Mean*	*No. of groups*
A. Number of ideas per group, by group size				
2	33.67	9	40.33	12
3	41.27	15	60.47	17
4	42.88	17	82.36	14
5	48.22	19	68.56	9
B. Number of ideas per group member, by group size				
2	16.83	9	20.17	12
3	13.76	15	20.16	17
4	10.72	17	20.59	14
5	9.64	19	13.71	9

Note: Only three groups had more than five members; their results have been omitted.

To encourage students to try using NGT outside of the classroom, I mention some fairly unobtrusive ways to add nominal group methods to group decision making, such as by asking people to list their ideas in advance of the meeting or just suggesting that group members spend a few minutes at the start of a meeting writing their ideas privately.

Teaching notes

The obvious concern for the professor is whether this experiment really does ''work.'' I generally find that the average number of ideas for the nominal groups far exceeds the average for the brainstorming groups. As can be seen in Table 1, the average nominal group in my classes has produced 50% more ideas (both per group and per person) than the average brainstorming group. As is evident in Table 2, the results have been most dramatic for four-person groups, where the mean number of ideas generated by nominal groups has been double that of brainstorming groups. While an occasional brainstorming group will perform exceptionally well, or a nominal group especially poorly, it no longer surprises me when the majority of the nominal groups outperform all of the brainstorming groups. The results in Tables 1 and 2 are from a dozen sections of undergraduate organizational behavior courses (taught over 4 or 5 years); I also used the exercise for a number of years before I began tracking the data. In all that time, I only recall one occasion on which the nominal groups in a section of the class averaged fewer ideas per student than the brainstorming groups. Also, since presenting an earlier version of this paper at a conference, three other faculty members told me they used the exercise successfully in their courses. Nevertheless, because the possibility always exists that a particular class will produce the ''wrong'' pattern of results, I do go in armed with data from previous semesters to show students.

Judging from the laughter and excitement in the classroom, the task of suggesting names for an ice cream store is one that students find very engaging.

The prospect of prizes seems to create a heightened sense of competition. The reader should be warned, however, that a few of the ideas that the groups list as their favorites are likely to be mildly off-color – usually variations based on the words ''cream'' or ''lick.'' I generally read these with mild embarrassment and get some good-natured laughs; I have never had to set aside ideas too obscene to read aloud, but I do stay alert to that possibility.

If this exercise is done early in the semester, the instructor who requires frequent team assignments will have multiple opportunities to remind students to privately record their ideas before the group begins to work jointly on a classroom assignment. Even though, following this exercise, the vast majority of students can correctly answer a multiple choice exam question about the relative efficacy of nominal and brainstorming groups, old brainstorming habits die hard. Reminding students to begin teamwork with nominal group idea generation can help to reinforce the lesson. It may help to point out to students that the technique works well for a wide range of tasks, not just simple tasks requiring divergent or creative thinking. NGT's superiority has been found to extend, for example, to tasks requiring convergent thinking (McGlynn *et al*., 2004) and evaluative problem solving (Hegedus and Rasmussen, 1986), and has been used to help find solutions to complex problems in employment settings (e.g., White *et al*., 1980; Paulus *et al*., 1995).

Variations

When I first created this exercise, I sometimes asked students to generate names for a line of colorful jeans for children, rather than for an ice cream store. Although naming an ice cream store seems to generate more excitement, the results were similarly strong in demonstrating the superiority of nominal groups. I have also had consistently strong results using an altogether different assignment in some of my graduate classes:

> Your team represents the paid staff of the Maple County Literacy Agency, a nonprofit organization. For the last 25 years MCLA has relied on a large group of volunteers to provide free tutoring services to teach adults to read. Each year you try to recruit about 150 volunteers to attend an 8-hour training session on tutoring skills and then provide tutoring one evening per week. The tutoring is conducted in one-on-one sessions, usually at a library or other public building near the adult who wishes to be tutored. The program has been very effective in helping adults learn to read.
>
> In the past, quite a few of your agency's tutors were housewives recruited through local women's clubs. Club membership has declined sharply in recent years, however, perhaps because more women in your area now hold full-time employment. As a result, MCLA has found it increasingly difficult to recruit tutors.
>
> Adult illiteracy continues to be a serious problem, nevertheless, and MCLA remains committed to its mission of helping adults learn to read. With your traditional pool of volunteers evaporating, your goal at this meeting is to generate as many possible ideas as you can for how MCLA can continue to carry out its mission.

One advantage of the literacy agency scenario is that it has the potential to demonstrate the superiority of nominal groups for generating *more diverse* ideas, not just *more* ideas. Brainstorming teams have sometimes (although not always) narrowly focused much of their discussion on ways to recruit more volunteers, while nominal groups typically suggest a very wide range of solutions (e.g., using software to teach reading, paying tutors, or tutoring in small groups, rather than one-on-one).

Conclusion

Many who teach organizational behavior have had the frustrating experience of students dismissing classroom lessons that contradict their personal intuition about human behavior. The exercise presented in this paper allows students to see concrete evidence – from their own behavior – that is likely to contradict their long-held beliefs about the effectiveness of brainstorming. In doing so, it provides a simple method for demonstrating, generally fairly dramatically, the limits of intuition and the value of ''evidence-based management'' practices (Cascio, 2007; Pfeffer and Sutton, 2007).

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Appendix A

Instructions for brainstorming groups

One of your team members should read steps 1 through 4 out loud to the rest of the group

1. Choose someone to be the group's timekeeper. This person will need a watch that measures seconds. The timekeeper should give his or her own ideas for the group's task, just like any other group member.
2. Choose someone who will record the ideas that the group generates.
3. Here is the task for your group:
   You are a small group of entrepreneurs who are starting their own ice cream store. Today your group is meeting to discuss possible names for the store. Because generating a lot of ideas is an important first step in the creative process, your group's goal is to generate as many names as possible for the new ice cream store. To do this, your group will use the technique called ''brainstorming.'' Specifically, this means that your group should:
   - Share your ideas with each other out loud.
   - Try to come up with as many wild and crazy ideas as possible.
   - Be sure not to criticize each other – sometimes a ''stupid'' or ''off-the-wall'' idea can become the seed for a terrific idea.
   - Feel free to build on each other's ideas.
   - Make sure someone keeps a list of all the ideas that are generated.

   Remember, the goal is quantity – your group should list as many ideas as you can.

4. Once everyone feels that they understand the directions and is ready to begin, the timekeeper should say ''go,'' make a note of the group's ''start time,'' and begin timing the 8 min.

   After the 8 min is up, your group should do the following:
5. Count how many different ideas your group was able to generate. Please note: as ideas are being reviewed and counted, group members may think of some additional ideas to add. If so, it is all right to add a *few* more ideas to your count of how many ideas the group generated.
6. Answer the following questions and turn this sheet in to me:
   (a) How many different names did your group come up with for the store? (*Note*: I don't need a copy of the entire list; just give me the total number you came up with.)
   (b) How many people were in your group?
   (c) What were your group's favorite two or three names? (optional)

Appendix B

Instructions for nominal groups

One of your team members should read steps 1 through 4 out loud to the rest of the group

1. Choose someone to be the group's timekeeper. This person will need a watch that measures seconds. The timekeeper should give his or her own ideas for the group's task, just like any other group member.
2. Group members should not start writing anything until the timekeeper says ''go.''
3. Here is the task for your group:
   You are a small group of entrepreneurs who are starting their own ice cream store. Today your group is meeting to discuss possible names for the store. Because generating a lot of ideas is an important first step in the creative process, your group's goal is to generate as many names as possible for the new ice cream store. To do this, your group will use the ''nominal group technique.'' Specifically, this means that each group member should write down his or her ideas individually without interacting with other group members. You will have 8 min to quietly write down your own ideas. Afterwards, you will have an opportunity to share your ideas.
   Remember the goal is quantity – each person should list as many ideas as he or she can.
4. Once everyone feels that they understand the directions and is ready to begin, the timekeeper should say ''go,'' make a note of the group's ''start time,'' and begin timing the 8 min.

   After the 8 min is up, your group should do the following:
5. Count how many different ideas your group was able to generate. Because you worked separately, some people may have come up with the same ideas as others; therefore, you'll need to read your lists out loud and cross out any duplicate names to get your total count. Please note: as the group members read their lists, others in the

group may think of some additional ideas. If so, it is all right to add a *few* more ideas to your count of how many ideas the group generated.

6. Answer the following questions and turn this sheet in to me:

   (a) How many different names did your group come up with for the store? (*Note*: I don't need a copy of the entire list; just give me the total number you came up with.)
   (b) How many people were in your group?
   (c) What were your group's favorite two or three names? (optional)

About the author

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