



COMMENTARY

The Nominal Group Technique: an aid to Brainstorming ideas in research

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Abstract

Purpose – The purpose of this paper is to present and discuss a technique called the Nominal Group Technique (NGT) for possible use in the types of market research or management research where it is desirable to generate as many ideas as possible.

Design/methodology/approach – The benefits of the NGT were researched in a literature review. After this, qualitative research among research practitioners who have used the technique in Australia was conducted. One focus group of five researchers and three in-depth interviews were conducted. Some of these responses are presented verbatim, in this paper, to order to illustrate the positive evaluations of the technique by researchers.

Findings – The research practitioners in this research were generally very positive about the NGT as a technique for idea generation. The conclusion from the research reported on in this paper is that the use of techniques such as Brainstorming, and the NGT have very beneficial roles to play in management and market research.

Practical implications – Brainstorming techniques and the NGT are discussed as fruitful methods for use in market research. The productive role of silence in idea generation research is also commented on.

Originality/value – Results from the literature review and the original research were compared, and were found to have a high level of congruence. This has implications for research practitioners because while many researchers are aware of Brainstorming techniques, fewer are aware of the potential of the NGT in market research.

Keywords Australia, Ideas generation, Market research, Group thinking, Brainstorming, Qualitative research, Creativity research, Nominal Group Technique, Focus groups

Paper type Research paper

Introduction

The aim of this paper is to present and discuss a technique that is commonly used in managerial research and by managers as practitioners, to come to decisions as to where best to focus additional efforts on creative idea or product development. The technique is used in Brainstorming research in order to methodically generate and then sort creative ideas by their popularity, as judged by group members. It is called the Nominal Group Technique (NGT). To contextualise the technique this paper first describes Brainstorming and then describes the benefits of using the NGT within Brainstorming.

Brainstorming

Brainstorming techniques are well known to many managers, marketers and market researchers. Qualitative market researchers in particular may be very familiar with



it as a tool and many researchers make extensive and creative use of variants and adaptations of Brainstorming in their everyday practice. It is covered in practitioner related textbooks on market research such as in the series called “Qualitative Market Research: Principles and Practice”, published by Sage (Ereaut, 2002). This awareness and knowledge is not surprising, as the technique of Brainstorming was originally developed in the discipline of marketing, by Alex Osborn, an advertising executive, in the 1940s. It was developed as a way of quickly generating multiple creative ideas (Baruah and Paulus, 2008; Paulus, 2000). Osborn recognised that in thinking, the brain was involved in two activities, visualising, creating and generating ideas and also in judicial, comparative analysis. Further, that the judicial analysis could inhibit and destroy the creative generation of ideas (Barrett, 1978; Paulus *et al.*, 1995). Therefore, he attempted, in his Brainstorming methodology, to prevent this destruction by separating these two activities. An aim of Brainstorming is, therefore, to free the right brain from left brain domination and thus to give free reign to creativity (Gautschi, 1990).

Brainstorming groups are usually partially comprised of employees of the same company and may include employees from their various advisors and other agencies (marketing consultants, market researchers, advertising agency personnel, management consultants, accountants) who are working together on a project aimed at solving a particular problem which the client organisation is facing (Boddy, 1994, 2008). Brainstorming groups are used by managers because they are reported to generate high-quality creative results (Rossiter and Lilien, 1994). In Brainstorming, groups are structured in nature, rather than being semi-structured or unstructured as focus group discussions often are. The aims and rules of Brainstorming are re-explained to group members at the beginning of each group (Morgan, 1997). The rules include that people are told what the aims of the session are before they come to it so that they can start to think about possible contributions to the problem under discussion. They are also told that no criticism or praise of an idea is allowed within Brainstorming (Morgan, 1997). During the group itself, participants are encouraged to enjoy themselves and not take it too seriously. Humour has been shown to improve the performance of Brainstorming sessions when the group is faced with either vague or difficult goals to achieve (Roach *et al.*, 2006).

In terms of idea generation, academic research has shown that respondents working alone generate more ideas than they do working in groups (Paulus *et al.*, 1995, 1996; Pinsonneault *et al.*, 1999). However, in terms of collecting and then assessing ideas, working alone takes longer. A widely known barrier to idea generation in groups is “group-think” or peer pressure where people in the session are reluctant to share ideas for fear of ridicule. One of the rules of Brainstorming attempts to overcome this by stating at the outset that no evaluations are allowed during the actual Brainstorming itself. However, an evaluation or idea ranking stage may take place immediately afterwards. The moderator may even say that silly ideas are welcome because they sometimes contain the grain of a good solution, and that quality of ideas often goes together with quantity of ideas.

An advantage of Brainstorming (Eckerson, 1988) is said to be that it allows people with multiple areas of expertise to come together with the effect that the whole is greater than the sum of the individual parts. Solutions may present themselves in such an environment that would not be evident to individuals working alone on the same problems.

Brainstorming sessions have two distinct stages to them, first a “brain dump” which is a stage of rapid idea generation and verbalisation (Hartman, 2005). When all possible ideas have been exhausted this is followed by a structured evaluation of the ideas generated, for their feasibility and usefulness. In the first stage, the aim is to generate as many ideas as possible and to this end the moderator may state that silly, expensive, whacky and impractical ideas are all welcome. There may be a small prize for the silliest idea to try to stimulate idea generation and give people permission to speak out. This is to try to prevent the usual self-censorship that takes place when people discuss things. No evaluation takes place at this stage of the Brainstorming session because it hampers the flow of ideas (Sloane, 1998) and slows down idea generation. Difficult numerical targets are commonly set for the number of ideas wanted per participant but importantly, there is no quality target set.

Within this first stage some group structure may be present and the group moderator may first ask people in the session to list all the reasons why they are there (Bachman, 2000). The aim of doing this is to reiterate the problem that needs to be resolved, and to gain a fuller understanding of it and of why the problem exists and what contributes to it. This may involve asking the Brainstorming group members to list all the objectives that they want to aim for in the group. This catalogues all the benefits expected from solving the problem and helps everyone to understand the nature and scope of the problem. Such goal setting for the group is reported to increase the effectiveness of the Brainstorming session in terms of generating a good quantity and quality of ideas (Hyams and Graham, 1984).

Another element in the group session may be to develop a list of all possible sources of solutions to the problem under consideration. This can include looking at similar organisations that do not seem to have the same problem or have already solved it. This can also include looking at totally different organisations to see if their example can provide any ideas for solving the problem. For example, if a bank had a perceived problem with customer friendliness, it may look at how other banks solve this problem. However, it may also look at how Disney approaches the same problem to see if any lessons can be learnt from them.

The second major stage of a Brainstorming session is the evaluation of ideas. Ideas may be sorted and coded or categorised into general themes which can be addressed collectively as themes or individually as ideas within themes (Claxton *et al.*, 1980). This evaluation of the ideas and themes generated can be in terms of expense, workability, practicality and feasibility given the resources available. If the session participants are also charged with implementing the ideas generated, then a further stage in the Brainstorming session may be to list ways in which the ideas generated can be turned into methods, policies and plans for implementation, and to identify what resources will be needed to do this.

The rules of Brainstorming

Brainstorming has at its centre four key assertions. These assertions are first, that those involved in the Brainstorming are not to criticise emerging ideas so as not to stifle their generation. Second, Brainstorming group members are told to verbalise all their ideas as they think of them, without fear of criticism. Third, Brainstorming group members are told to try and generate as many ideas as possible without any self-censorship along the lines of the perceived quality or worthiness of the ideas.

Finally, Brainstorming group members are encouraged to combine other ideas into their own and to build on the ideas of others and develop those ideas further (Boddy, 2008). Another frequently stated rule of a Brainstorming group is that all ideas generated are owned commonly by all those in the group. This is to try to prevent politically motivated disputes. It also helps prevent issues to do with individual egos getting in the way of rational discussion. The theory being that if the group as a whole owns the ideas then suggestions for changes or modifications are easier to make at the evaluation stage of the session because no individual's feelings are hurt (Beaubien, 1997).

At the idea evaluation stage of the research Brainstorming group members are encouraged to critique the ideas themselves and not the individual people who suggested the ideas. This is so that people do not become disheartened by the process (Falstein, 2004). Brainstorming groups are reported to work best when held in neutral territory away from the distractions of everyday work life (Bashford, 2004) and at times when people are not under stress or when they want to be elsewhere. A relaxed and informal atmosphere is promoted so as to avoid formality and encourage active participation (Schwartz, 1991).

Ideas are commonly written down by the moderator on a paper flip chart, the pages of which are stuck to a wall for common display as the pages are filled up with ideas. Ideas generated are listed and are evaluated at the second stage of the Brainstorming session and a rating or ranking is agreed on by group members according to pre-agreed criteria. Ideas with the highest scores are put forward for consideration for implementation. Alternatively, session members may be asked to choose their three favourite ideas and the collectively most commonly chosen ideas are considered for further development. This development will often be by an implementation team that will often be of a different makeup compared to the members of the Brainstorming group. For example, it may be the job of an internal project team or of management consultants to take the ideas forward.

Brainstorming is often described as a way to generate creative ideas for solving particular problems (Paulus, 2000; Novak, 1997). In market research Brainstorming is said to be useful in generating ways to obtain hard to get, unusual or uncommon samples of respondents or to solve research problems (Novak, 1997). As an example of this, a research project is described by Novak in which details were wanted on how people store goods.

The research firm concerned came up with the idea of sending disposable cameras to respondents which enabled accurate details to be recorded and also increased response rates because the activity of taking pictures involved the respondents in the project more than other research techniques typically do. This technique of taking pictures could also be described as being a piece of ethnographic research because it records the actual life experience of the respondents (Boddy, 2009, 2011).

Groups in Brainstorming frequently contain people of unequal corporate or other status and dissimilar backgrounds. These may be various combinations of employees, managers, engineers and marketers or clients and agency personnel. This can pose problems because of possible deference to those group members who are perceived to be of higher status, and to problems caused by social desirability bias (Fisher, 1993). Social desirability bias is bias introduced in answers in order for the respondent to portray him or herself in the best, most socially desirable manner. Attempts are made to overcome this barrier to the expression of ideas by telling people that organisational rank is to be totally forgotten during the Brainstorming group and that all the ideas generated are to be given equal status.

This status inequality in group membership is sometimes reported to be an advantage of using Brainstorming as a research tool, in that it brings people from different corporate departments together and thus fosters a team spirit among those employees who may not otherwise see each other very often (Eckerson, 1988). Brainstorming is also said to produce well-rounded ideas, such as for products in new product development research, and to produce ideas that are not only marketable but also feasible, reliable and economical. Brainstorming is reported to be able to spark strategic insights into problems and creative ideas and to put forward ideas for further research (Morais, 2001).

The Nominal Group Technique

The NGT is a refinement to Brainstorming group research in that the first stage in the creative group task occurs individually, and in silence, in order to generate more ideas. Thus, participants are nominally in a group but are working individually at this stage, and are a group in name only, thus the name, NGT.

Some commentators on Brainstorming challenge the verbosity of the Brainstorming technique as it is commonly practiced in market research and propose that silence has an important role to play in idea generation (Heslin, 2009). A research paper concurs with this view and says that although group members often enjoy Brainstorming, it is not as productive as people tend to believe and that groups can generate more and better ideas when silently generating written ideas (Taylor *et al.*, 1958). This is reportedly because silence helps activate the right side, the creative side of the brain, and because people produce more creative ideas when they are reflecting in silence than when there is constant verbalisation and noise (Campbell, 1999; Graham, 1977a).

Anonymity, which is evident at this stage of the group research, is also a factor in generating more ideas than in a participative discussion. Similarly, researchers into Brainstorming have concluded that group participation when using Brainstorming inhibits creative thinking compared to using silent techniques such as the NGT (Taylor *et al.*, 1958). One practical reason for this is that verbalisation during Brainstorming requires turn taking by participants, and this acts as a block to idea generation and expression (Nijstad and Stroebe, 2006).

A further advantage of this technique of having group participants work alone for part of the time in the group is that inhibited individuals, and not just the extroverts who may otherwise try and dominate a focus group exercise, have an equal chance to contribute to the generation of ideas. It is also good at identifying areas that are of most concern to respondents, rather than only asking questions about pre-conceived areas, which a more structured survey approach to research may typically involve.

Research has consistently shown that Western subjects (who are typically North American and UK respondents and group participants) perform better when working individually, in terms of generating large numbers of ideas, than they do when they are working together in groups (Graham, 1977a). Researchers report that Brainstorming groups are significantly less productive than nominal groups, in terms of both quantity and quality of ideas generated (Mullen *et al.*, 1991). Researchers looking into this conducted a laboratory experiment and reported that their findings were consistent with the previous research of other experimental researchers and that focus groups generated only about half as many ideas as a similar number of individuals working in a nominal group.

On the other hand, some researchers claim that while they accept that experimental research indicates that people in face-to-face Brainstorming meetings are less efficient at generating ideas than when working alone, there are other benefits to be gained from interactive Brainstorming (Sutton and Hargadon, 1996). These benefits are said to include the preservation of organisational knowledge, through the verbal sharing of that knowledge in the verbalisation inherent in the Brainstorming session.

Graham (1977a) speculates that group Brainstorming remains popular because the shared ownership of ideas generated in a group setting, may lead to the quicker evaluation and to more acceptance of the ideas generated. In a review of the literature on this and based on their own research, researchers concluded that the empirical evidence clearly indicates that subjects working individually produce more ideas than subjects working collectively do (Baruah and Paulus, 2008; Lamm and Trommsdorff, 1973). They note that there is less clarity of evidence available in terms of measures of the quality, uniqueness and variety of ideas generated (Lamm and Trommsdorff, 1973). Researchers discuss the role of social inhibition in terms of a possible reason for this group effect. Other research has also found that an “alone to group” approach to idea generation works more effectively than a “group to alone” approach does (Baruah and Paulus, 2008). Baruah and Paulus (2008) also found that the training of group members in cognitive skills had a significant positive effect on the total number of ideas generated and on the average originality of ideas generated.

Early researchers into this area concluded that the optimal combination of group processes for a problem-solving exercise was first, the use of nominal group processes for fact-finding and idea generation. Second, the use of structured feedback and interactive discussions to discuss the ideas generated in the first stage, and lastly another nominal group session for voting for the final judgments of ideas (Van De Ven and Delbecq, 1971). Positive feedback is reported to increase the usefulness of the ideas generated in Brainstorming (Graham, 1977b). This utilises the benefits of nominal group work in terms of generating ideas, and of interactive groups in terms of discussing these ideas once they have been generated (Katrichis, 1987).

Using the NGT group participants are first asked to write down their creative or other ideas, without reference to the others in the focus group or Brainstorming group. This is commonly done on a series of sticky notes, with one idea being written on each sticky note. The use of sticky notes gives transportability to the ideas so that they can be manipulated and moved around, for example, on positioning maps. These ideas are later presented by group members themselves, or by the moderator, and are openly displayed, typically on a whiteboard or on large pieces of paper, for all group members to look at and read. When all the ideas have been read, they are then discussed and critiqued by the Brainstorming group as a whole. A rating or a ranking of each of the ideas is made and each creative idea is thus assigned a numerical value according to its popularity, gauged by the number of votes each idea gets from group members. In practical terms, this can be done by giving group members a limited number of round self-adhesive coloured labels, to use as votes. These votes are stuck on the sticky notes that the creative ideas are written on and this gives a ranking of the popularity of the ideas on any given criteria.

This process is highly interactive once the original ideas have been generated. The group participants can be invited to read out and elaborate on their ideas to the rest of the group members. Such ideas are then discussed. Group participants then manipulate the ideas on the sticky notes, as a group, according to relevant positioning criteria.

They then vote for the ideas on selected criteria, again as a group. This causes a great deal of interaction and movement within the group and typically, this quickly breaks down any feelings of inhibition within the group. It also makes people participate in an enjoyable, child-like activity (writing on stick notes, sticking them on walls and on maps) which shakes the adult mind out of its judicial rut and thereby stimulates further creativity (Barrett, 1978). It is of note here that other research techniques such as projective techniques are also reported to be successful in use because of this enjoyable aspect of their use in research (Boddy, 2004, 2005, 2007).

The highest valued ideas, those ideas with the most votes, are then developed further by the group working together, for their possible further development as creative marketing or advertising ideas.

An advantage of this technique is reported to be that it results in data that is more structured than research results from focus groups typically are (Claxton *et al.*, 1980). It is structured because the group members have sorted, mapped and voted on the creative ideas generated, leaving a visual representation, in the form of ideas on sticky notes stuck on positioning maps and associated with votes for each idea.

The group moderator does not have to strain to remember what the outcome was because there is a visual representation of it left at the end of the group. Moderator training needs are also lower because of the relatively structured way in which the group is organised (Katrachis, 1987). Market researchers who have used the technique report that it provides a middle ground between surveys and focus groups, providing a broad, but still a deep understanding of a phenomenon (Claxton *et al.*, 1980). Other advantages of the NGT are reported to be that nominal groups do not focus on a single train of thought as an interacting group may do. Also the competitiveness of group participants coming up with the most written ideas in the technique causes participants to become fully involved in the task (Van De Ven and Delbecq, 1971). The process also avoids the early evaluation of ideas, which may otherwise be withheld for fear of criticism from other group members (Van De Ven and Delbecq, 1971).

Research conducted

Questions on the value of the NGT as compared to participative group research, in terms of idea generation, were asked of a focus group discussion of five research practitioners in Australia, in 2009. This area of discussion was added to a group discussion that was already scheduled for a related, but otherwise unconnected purpose. Follow-up interviews on the same subject were then carried out with three research practitioners. The group of research practitioners was from a variety of backgrounds including market research, management consultancy, Six Sigma and academia. They have come together to form a project team at an Australian university. The aim of the team was to develop ways to improve the administrative efficiency of the university concerned. Brainstorming was one of the research methods used to generate ideas for improved efficiency.

Research findings

The research practitioners were all in general agreement that the NGT is better at producing a large number of ideas in a short time, than an interactive group discussion is. However, it was also reported that a group evaluation of the same ideas after they had been generated, was better than group members evaluating ideas when working

individually. This latter finding is in line with the literature on Brainstorming where it is recognised that evaluation of ideas is better performed in a group.

Some of the comments from this exercise are reported on below:

I reckon you get more ideas when silent, but better evaluation of ideas in a group [...] it's a good kick-start to Brainstorming (Group Participant).

I hadn't really used the Nominal Group Technique before joining my current company, but I am really impressed by its idea generating capacity, especially when you tell group participants it's a kind of competition to generate the most ideas (Group Participant).

It's much quicker than a group discussing things together, in terms of numbers of ideas generated that is (Group Participant).

The idea that silent idea generation was good when there were verbally dominant participants in a group was also mentioned, by these practitioners:

When in a group, you've maybe got people of stronger character than others are, then you can use silent Brainstorming because people don't feel a threat, they can write what they want (Group Participant).

The silent generation of ideas was also said to be useful when running groups with people of different levels in the organisational hierarchy, to avoid dominance effects.

In the literature on focus group research and Brainstorming, concerns have been expressed about what the best way to stimulate free and open discussion is, particularly when controversial issues are being discussed or when the group is made up of people of different levels of power or status (MacDougall and Baum, 1997).

Group formation and bonding within a group means that group decisions are not questioned by other group members as much as they could be (Sutherland and Canwell, 2004). This potential pitfall of the focus group technique is called group-think, the impact of members of the group censoring their stated opinions and conforming to group norms as these norms develop. The individual work involved in the NGT avoids these issues because as group members work in silence, group norms are not developed in the first place and so do not become a barrier to idea expression, at least until ideas are displayed and verbalised:

It avoids the hierarchy effect; also if you've got time constraints it's good to use silence to generate more ideas quickly (Individual Interview).

Group participants did not mention the quality of ideas generated, but previous research has found that the NGT groups generated ideas at least as good, if not better, than electronic Brainstorming groups did. In meta-analytic examinations of previous research on productivity in Brainstorming groups, researchers have found that, in general, Brainstorming groups were significantly less productive than nominal groups, in terms of both the quantity and the quality of ideas generated (Baruah and Paulus, 2008; Lamm and Trommsdorff, 1973). Other researchers say that alternating individual work and then group Brainstorming appears to be useful for enhancing group Brainstorming productivity.

In the original research reported on in this paper one senior and very experienced researcher was very strongly of the opinion that the role of the NGT was to generate a great number of ideas quickly, but that any subsequent evaluation of those ideas was very much a participative exercise:

In participative group work you can spark evaluation ideas off each other, having someone saying their ideas (out loud) is good, it could be just a word that triggers other evaluations (Group Participant).

One of the other research participants said that silent techniques were useful in large groups, to give everyone a voice in the research:

If you have a large group, silent idea generation is also useful, it removes the hierarchy and lets everyone have a say (Individual Interview).

It's horses for courses, the Nominal Group Technique is very useful at generating ideas and breaking the ice once the mapping of the ideas begins, but idea evaluation, assessment and elaboration is more productive via full, interactive focus group discussions (Individual Interview).

Another experienced researcher said that the NGT could be a useful tool for decision making in general, and that in his experience of consulting within major corporations, committees of employees often had no idea how to arrive at consensus decisions:

I also use the voting aspect of the technique for decision making in committees. If you give everyone three coloured sticky labels and ask them to stick the labels on the ideas that they find most attractive, then you get votes that are unaffected by seniority bias or people just voting for whatever their bosses want. It makes the voting anonymous[...]. I find that organisations don't teach people how to use such basic decision making tools as this and that managers are grateful to have such techniques explained to them (Group Participant).

The research practitioners, in this research, were generally very positive about the NGT for idea generation, but were also aware that it has a particular and limited, though useful, place in the creative research process as a whole:

As I said before, I hadn't really used the Nominal Group Technique before joining my current company but I will certainly use it in future and would recommend that other researchers look at it as a technique, not just for idea generation, but also for avoiding group effects (Individual Interview).

The views of the research practitioners, in the research carried out and reported on in this paper, were thus very much in line with findings from the literature on the subject of Brainstorming. Researchers have reported that the use of nominal group processes is best for idea generation, the use of structured feedback and interacting discussion is best in the second phase and that silent voting (nominal group voting) is the best method for final independent individual judgments (Van De Ven and Delbecq, 1971).

In the literature Brainstorming is also reported to be good for developing creative and lateral thinking skills (Varkey *et al.*, 2009; LitchfieldI, 2008). Brain-sketching, where group participants use drawing as the primary means of recording ideas and where they then explain their sketches to other people in the group before continuing sketching is reported to be a good way of generating ideas that connect other ideas together (van der Lugt, 2002). van der Lugt (2002) reported that in this research participants generated significantly more connections with earlier ideas. Also that during Brain-sketching participants made more incremental connections than they did under normal Brainstorming.

It is interesting to note that recently Brainstorming techniques have been prescribed for financial auditors to use in investigating possible fraud in corporations (Landis *et al.*, 2008; Lynch *et al.*, 2009). Brainstorming is thought to be more likely to lead to auditors

examining all possible avenues of fraud that may occur (Carpenter, 2007). Further conclusions from this examination of Brainstorming and the use of the NGT are discussed below.

Conclusions

The conclusion from the research carried out and reported on in this paper is that the use of silence in creative idea generation research and the use of techniques such as Brainstorming and the NGT have very beneficial roles to play in management and market research where the development of ideas is desirable. The views of the Australian research practitioners, in this regard, were very much in line with the literature on this subject.

The NGT is reported by the research practitioners, in this research, to be very good at generating a large number of ideas quickly. On the other hand, participative group discussions are reported to be better at qualitatively analysing and evaluating the ideas, than are people working silently and individually.

In practical terms, the idea discussion and manipulation exercise is reported to cause much physical movement and interaction within the group. Group participants are involved in moving about in sticking ideas on walls and on positioning maps, in discussing ideas and in voting for ideas with self-adhesive labels. Typically, this rapidly breaks down inhibitions and creates or forms a good team spirit among the group members, facilitating idea creativity and productivity.

In areas of research where a further rating of such creative ideas is desirable, in order for example, to separate the wheat from the chaff, voting in the NGT provides a good initial sorting exercise. Management and marketing researchers should arguably, therefore, make themselves aware of these techniques so that they can add them to their research toolbox.

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