Comparison of outcomes obtained from nominal group technique and survey method: an empirical investigation

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Abstract: Nominal group technique (NGT) is a method wherein brainstorming is used to generate ideas in large number on a certain issue. Afterwards, the ideas are prioritised by using a suitable voting scheme. The result of a nominal group (NG) session is basically a hierarchical list of ideas. The number of participants of a NG session normally ranges from six to ten people. Together they make the hierarchical list of ideas through voting. The objective of the present research is to examine the difference, if any, between the results obtained from a NG session and a succeeding follow-up survey. The results from two experiments suggest a close association between the ranks of ideas obtained from NGT and survey method. The findings of the present research emphasise the effectiveness of NGT in terms of idea generation and reliability of ranking of ideas.

Keywords: NGT; nominal group technique; survey method; qualities of a manager; location selection for global business.

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1 Introduction

As these days organisations deal in a dynamic and uncertain environment, organisational decision making has become complex (Lunenburg, 2010). Because of the complexity and the rapidly changing nature of the business environment, it is important that decision-makers make decisions in groups consisting of people of a diverse range of managerial and technical expertise. It is expected that these multidisciplinary teams can reach a better and more effective decision in comparison to the decision made by an individual. It can be expected that a group consisting of a diverse range of people can reach a solution that is more creative (Blanchard, 1992).

In order to ensure continuous improvement, groups can be used in formulating vision and mission statements, developing particular goals, identifying and recommending solutions and developing performance measurement tools (Roth et al., 1995; Boddy, 2012). By generating innovative and novel ideas, groups can warrant continuous improvement in the organisational systems. According to Marx (1995, p.16):

> "Everything mankind has and will have in the future is and will be the result of people's ideas. …Some of the more progressive companies in the history of modern management realized the potential value of their employees' ideas for the improvements in the general functioning of their organisations. They have realized that 'idea power is the most tremendous human force in the world."

Employees can become more enthusiastic when they are allowed to take part in the group decision making process. They consider themselves valuable. However, the traditional interactive group approach, i.e., the focus group approach, has its own limitations (Pringle and Neeley, 1983). In this approach, the group members communicate with each other in an unstructured manner by taking the direction of the chairperson. Due to its limitation of unstructured communication, several other structured approaches were developed. These include Brainstorming, Delphi Technique and nominal group technique (NGT) (Anderson, 1990; Peña et al., 2012).

According to Osborn (1957), brainstorming helps in making better decisions and improving productivity in a group. This approach is based on four principles. First, it encourages generating as many ideas as possible. Second, it promotes generating wilder and more innovative ideas. Third, it highlights on improving and combining the ideas. Fourth, it encourages accepting every idea without criticism. As a technique of generating ideas in a group, brainstorming has been widely used over the last 60 years. The main advantages of brainstorming are:

- it is easy to apply

- it calls for synergy.

In a brainstorming session, people can generate novel ideas which may lead them to further generating better ideas that would have been unimaginable in normal circumstances (Gallupe et al., 1992). However, brainstorming is not free from limitations. During the brainstorming session, more aggressive participants may take charge of the total process and thus the decisions of the less aggressive participants may remain less heard or even unheard. Conlin (1989, p.32) points out:

> "Business people, searching for new creative ideas, try to help the process along in a brainstorming session. They gather five or six people in a room. Two or three end up dominating the conversation. Participants criticize each other's

> ideas, then compromise on a solution, and everyone leaves the meeting unsure
> that the group even came up with the best answer. It probably didn't."

NGT was developed by Andrew Delbecq and Van de Van in 1968 to ensure the democratic participation in a normal brainstorming session. Basically, it is a structured brainstorming technique to ensure egalitarian participation among the group members. The technique also helps to gather a large amount of subjective information on a particular issue. Fredrick B. Kraft, Robert H. Hoiss, and Joseph G. Paolillo (cited in Roth et al., 1995) suggested NGT as an alternative to traditional focus group session (FGS). Their research has identified that the number of the problem-solving dimensions as well as the number of high-quality suggestions produced by FGS is low in comparison to NGT sessions. In the words of Frankel (1987, p.543):

> "Recent works in literature reflect the view that structured techniques are needed to ensure quality solutions to problems. The nominal group technique (NGT), which provides multiple high-ranking alternative solutions representing important information, is considered one of the best structured techniques available."

People conduct surveys to know feedback from the survey participants. The objective of the proposed research is to compare findings obtained from two nominal group sessions and two follow-up normal surveys. Specifically, the objectives of the proposed research are the following:

- to conduct two nominal group sessions for two separate issues

- to conduct two surveys involving 140 participants each

- to compare the outcomes of the nominal group sessions with those obtained through the normal surveys.

As the core task of this research is experimentation with NGT, its brief description is provided in Section 2. Section 3 provides a brief literature review on NGT. However, this review is limited to NGT and academia only. Section 4 provides the methodology used to carry out the present research. Section 5 discusses the results obtained through two experiments using NGT involving academia. The final section of the paper provides the concluding remarks.

2   Nominal group technique (NGT)

NGT is a controlled brainstorming method which helps to produce a large number of ideas on an issue by ensuring equal participation of all the group members (Delbecq et al., 1975). Furthermore, NGT helps to select ideas by prioritising them through majority voting. NGT is normally applied for identification and solution of problems. This technique is mostly useful for groups where members usually do not interact, tension level is high among them or difference in status among the group members exits.

Some degree of prior arrangement is required when conducting an NGT session. Firstly, a group comprising 6–10 knowledgeable people on the subject area needs to be formed. It is preferable to select participants from a diverse background. A venue or room should be arranged with a U-shaped table. Secondly, an experienced facilitator needs to be selected who has experience in conducting NGT session or has participated in some

NGT sessions. The facilitator should be an unbiased person. He or she should not influence the group to stand for a particular decision. The success of an NGT session largely depends on the experience and expertise of the facilitator (Macphail, 2001; Harvey and Holmes, 2012).

The procedure in an NGT session are:

- opening the session

- generation of ideas silently in writing

- round-robin recording of ideas

- sequential discussion of ideas

- selection of the most important ideas by voting

- further discussion on the selected ideas.

Boddy (2012) and Harvey and Holmes (2012) suggested the following rules to be observed for a successful NGT:

1   generate as many ideas as possible

2   modify and combine ideas

3   no evaluation of anybody's ideas

4   no criticism about anybody's ideas

5   anonymity of input.

As the name suggests, the NGT is only 'nominally' a group. As NGT does not allow any interaction among group members, voting on the ideas is carried out on an individual basis. According to Dunham (1998) and Hutchings et al. (2013), some advantages of NGT are:

1   participation among the members are balanced

2   more creative idea generation than interactive groups

3   number of ideas generated would be larger than the traditional interactive groups

4   prioritisation procedure is used to select the best ideas

5   minimisation of problems that are common in face-to-face meetings

6   greater sense of accomplishment on the part of the participants.

NGT has been extensively applied in many areas such as education, business, tourism, health, information systems, governmental organisations and social services (Moore, 1987; Abdullah and Islam, 2011). Few specific areas of application are education (Davis et al. 1998; Montano et al., 2005; Shortt et al., 2010; Yousuf et al., 2011; Burrows et al., 2011), tourism (Edwards et al., 2008; Formica and Kothari, 2008; Liburd and Edwards, 2010) change management (Lane, 1992; Tribus, 1992; Gastelurrutia et al., 2009), project management (Rustom and Amer, 2006; Brauers and Zavadskas, 2010; Mojtahedi et al., 2010), consumer research (Claxton et al., 1980; Boddy, 2012; Lenker et al., 2013; Parthasarathy and Sharma, 2014), information systems (Lago et al., 2007; Rosemann and Vessey, 2008; Mingers and Walsham, 2010; Hidecker et al., 2011), health

(Hofemeister, 1991; Williams et al., 2006; Pan et al., 2013), construction management (Zavadskas et al., 2010; KarimiAzari et al., 2011) meeting management (Blanchard, 1992; Finlay, 1992; Graefe and Armstrong, 2011; Peña et al., 2012), organisational development (Mendelow and Liebowitz, 1989; Sarre and Cooke, 2009; Lunenburg, 2011), performance evaluation (Veillard et al., 2005; Yiu et al., 2005; Pastrana et al., 2010), social issues (Pissarra and Jesuino, 2005; Welling et al., 2006; Porter, 2012).

As mentioned before, *the main purpose of this paper is to empirically investigate the difference, if any, between the outcomes obtained from a nominal group session and a subsequent follow-up survey*. The investigation has been carried out initially through the participation of 57 MBA students from the author's university. The literature review provided below highlights the studies that involve academia, especially students.

3   Literature review on NGT involving academia

Skibbe's (1986) research focused on determining personal development needs of the faculty and staff members at Appalachian State University (ASU). The research was conducted by forming two nominal groups. The first group consisted of six-second semester freshmen from psychology course and in the second group, five graduating seniors were selected from various classes. It was seen that the freshmen in the first group were more concerned with the issues such as the support from the faculty members, association with the communities in the campus and information about campus and academic issues. The second group was more concerned about time management, career counselling and priority setting.

Gallupe et al.'s (1992) investigation involved two experiments. The authors examined the effect of computer-mediated technology and group size in brainstorming groups. The experiment was conducted in two universities: Queen's University in Ontario (with 120 participants in three group sizes (2, 4 and 6)) and the University of Arizona in Tuscan (with 144 undergraduates in 2 group sizes (6 and 12)). It was found that the larger group generated more unique and high-quality ideas. Also, the members expressed more satisfaction using electronic brainstorming techniques (in comparison to verbal techniques).

Frankel (1987) mingled NGT with multidimensional scaling in order to improve the effectiveness of NGT. While testing the combined technique in three groups of the graduate students and faculty, the authors found that this technique proved to be successful in defining complex problems and preserved and captured the participants' sources of perception and meaning. Hazard's (1983) experiment focused on whether the techniques for getting groups consensus are better in comparison to the more traditional group decision-making techniques. To conduct this experiment, the author selected six groups each consisting of five members (selected randomly) from an undergraduate class. The participants were asked to propose a teacher evaluation system for board education in an imaginary district. The groups were asked to perform four tasks

- to determine the goal of teacher evaluation system

- to decide on general criteria for teachers', performance evaluation

- to determine who selects and applies this system of assessment

- to identify the data sources that are to be used in this assessment.

Among these six groups, three had to go through traditional technique and the others followed NGT. The groups were judged on the basis of relevance, reliability and validity. It was seen that in each experiment groups that employed NGT performed better in terms of overall effectiveness. The only criterion in which these groups (using NGT) did not perform better was validity.

Davis et al. (1998) conducted an NGT on 40 faculty members in University of South Alabama College of Nursing in order to identify the areas of the curriculum where improvement is needed. Through this exercise, the participants developed a revised curriculum. In the study of Bristol and Fern (2003), the authors made an attempt to understand whether consumer attitude can be changed through focus group and NGT. The students from a US university participated in this experiment. It was found that though through focus group discussion the attitudes of the consumers got changed, this change was not much in case of NGT. The authors concluded that in case of doing consumer research, NGT can produce more fruitful results than focus group discussion.

The aim of the research of Hornsby et al. (1994) was to examine the impact of three techniques of group decision making on job evaluation outcomes. These techniques are: traditional interactive, NGT and Delphi. The experiment was conducted on 21 groups consisting of 105 Business Administration students at a Midwestern university over three consecutive nights. The researchers employed different decision-making techniques in each night. In case of Delphi technique, the authors did not find any change between the initial and group evaluation. The authors concluded that this method goes for the highest degree of evaluation decision anonymity. However, in case of both NGT and traditional technique, there was a significant change from initial evaluation. According to the authors, this was because of decreased confidentiality.

The study of Kramer et al. (1997) was conducted on 200 students in a multi-section basic communication course. The authors aimed at examining the outcomes of three techniques: untrained, brainstorming and nominal groups. The findings of the research suggested that there was no difference in terms of decision quality of these three groups. Nevertheless, it was seen that brainstorming and nominal group members were more satisfied as they believed that they went through a more effective process in comparison to the process of untrained groups.

Mahler (1987) highlights that though NGT has become a popular tool in case of public planning, policy making and budget setting, its assumptions on group processes and politics remained under-researched. The author examined three issues

- the actors' perception about their participation level in NGT

- their commitment and acceptance level about the outcome of the process

- their evaluation on the level of consensus reached by the process.

Several group exercises were applied to the political science and public administration majors participating in the organisational theory course. There were 101 students from five classes. The research was conducted over three semesters. Fifty percent of the students were asked to apply traditional group technique. The remaining students were assigned to apply NGT. It was found that though through NGT larger number of ideas was generated, there was actually no difference between the acceptability of the results. Moreover, the interactive group felt more sense of participation in comparison to NGT.

Experiments have been conducted on various brainstorming methods regarding their idea generation capability, the effect of anonymity on the output, user satisfaction and so

on. In a 2 × 2 factorial design experiment involving various brainstorming methods such as face-to-face discussion, the computer-mediated communication including NGT, Pissarra and Jesuino (2005) found more satisfaction on the part of the users when the anonymity of the respondents are maintained. Additionally, it was found that the type and characteristics of the brainstorming methods play a decisive role in users' satisfaction.

NGT has been widely used in education, especially to develop curriculum and finding solutions in program delivery. Perry and Linsley (2006) used NGT with the participation of 36 students to develop modules for teaching and assessment of interpersonal skills. The participants emphasised on several issues including role play, course content, marking, teaching style and student development.

Boddy (2012) conducted an experiment on NGT and interactive group discussion with the participation of eight research practitioners in Australia. In general, the participants are in agreement that NGT generates more ideas in a short time compared with the interactive group. However, as for the ideas evaluation, the interactive group does a better job compared with NGT.

Students gain real-world experiences through service learning. Rutti et al. (2016) claim that though the literature on service learning is of full relevant theories, however, no attempt has been made to compile project ideas across several disciplines. In their own research, the authors have identified a wide range of service learning projects across various disciplines. The researchers identified the list through NGT involving faculty members.

4   Method

Firstly, one nominal group session was conducted on the issue "What are the desired qualities and traits (and their corresponding priorities) of a good manager?" The number of participants was 30 MBA students. This nominal group session was followed by a survey for the same issue and sample size of the survey was 140 respondents. Majority of these respondents were executive MBA students who work in their respective organisations. It can be asserted that the NGT participants and survey participants share common characteristics. After the survey, a comparison of the findings of the NG session and the survey is made.

The above flow of activities is repeated for another NG session and another survey for a separate issue, "What are the criteria and their priorities to choose a foreign country for expansion of a manufacturing company?" The reason for selection of those two issues is that both the issues are general in nature so the students can easily contribute. The main research method adopted in the present research is NGT, which is described below briefly (Abdullah and Islam, 2011).

The six steps of NGT are following:

Step 1: Opening the session

The session is opened by clearly mentioning the objective of conducting the session, especially mentioning the issue (usually in interrogative mode) for which the NGT session is organised. 'Issue' here referred to something that can easily evoke several ideas. However, the participants should possess a good understanding of the subject matter. It is advisable to communicate the issue to the participants well before the NG

session is convened. Additionally, the facilitator should mention the rules and regulation of NG session which the participants need to follow.

Step 2: Ideas generation in writing

In about 10 minutes, all the participants individually generate as many ideas as possible on the issue. Initially, the quantity of ideas is emphasised rather than quality. Participants are given freedom to write down ideas whatever comes into their mind. Later, the quality of ideas is taken care of. This step of idea generation does not permit any discussion among group members and the process needs to be completed in total silence.

Step 3: Recording of ideas in a round-robin way

The facilitator asks each participant to share the best idea from his or her list that was generated at Step 2. In one round, if there are ten participants then there will be ten ideas. The ideas should immediately be written down on a board visible to everyone. The facilitator will then continue the procedure for a second round. This will generate tern new ideas which will also be written down on the board. Generating ideas in this round-robin fashion will continue until all the ideas are exhausted. At any round, the participants can pass that round if he/she does not have any idea to share. However, he/she can re-enter again to share ideas. The ideas are sequentially numbered on the marker board.

Step 4: Serial discussion on the ideas

To clarify the meaning of all the ideas is the main purpose of this step. The facilitator then asks the participants to clarify one by one the ideas which have been written on the marker board. For non-clarity of any idea, the participants, especially the person who provided it need to clarify. It is very essential to remove any ambiguity on any idea. All participants should clearly understand all the ideas. However, the facilitator should control the floor so that no untoward situation occurs.

Step 5: Selection of the most important ideas through voting

In this step, the ideas are prioritised. Each participant is asked to identify the most important five ideas from the master list and rate those on a scale of 1 to 5 according to importance. The least important idea is to be assigned a rating of 1 whereas the most important of these five ideas will receive a rating of 5. The facilitator will then collect all the rating cards from the participants. Finally, votes are written against the ideas on the board. One sample of the master voting list is provided in Table 1.

Table 1   A sample of the master list when votes are written down

Serial number	Idea	Vote
1.	Idea 1	3, 5
2.	Idea 2	1, 2, 4
3.	Idea 3	
4.	Idea 4	2
…	…	…

Source: Author

After aggregating all the votes, it is easy to select the best five ideas which are highly rated by the group as a whole.

Step 6: Discussion on the selected ideas

It is recommended that the group members discuss the most important five ideas that have been identified in Step 5. These are the ideas that have potentials for implementation. All six steps discussed above have been summarised in Figure 1.

Figure 1   Flow chart of various steps in nominal group technique
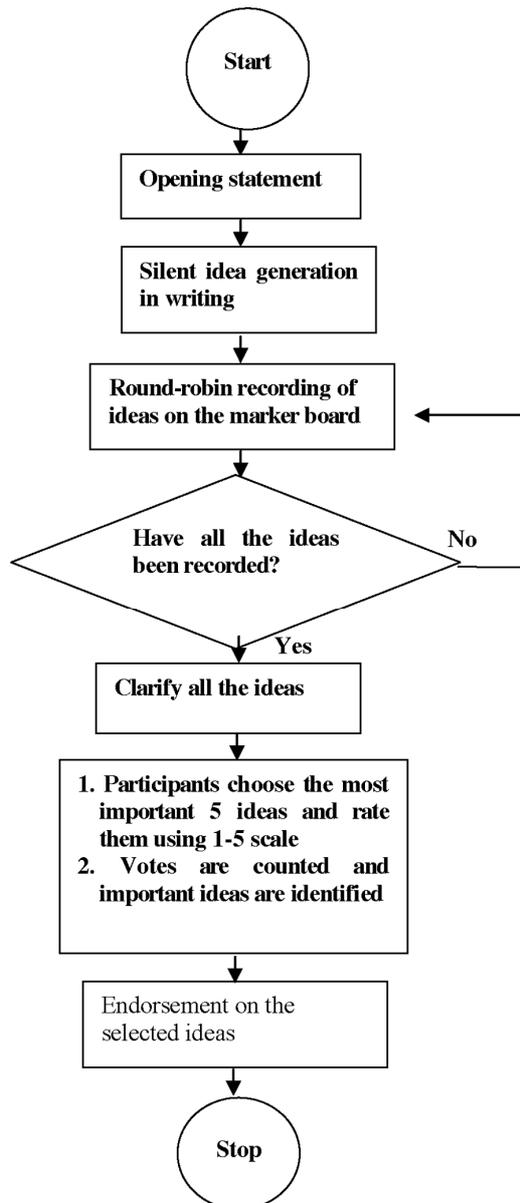
Source: Abdullah and Islam (2011)

Sampling

For the present research, we conducted two different nominal group sessions for which the number of participants were 30 and 27, respectively. They were the MBA students registered with the Graduate School of Management of IIUM. The issues (in question form) of these two sessions were

- What are the qualities of a good manager?

- What are the factors to be considered to choose a country for overseas expansion of a manufacturing company?

Using the usual NGT, we generated a list of items and their corresponding ranks. Later we conducted an integrated survey in which altogether 140 respondents participated. The respondents were mainly executive MBA students coming from 44 different organisations in Malaysia, as shown in Appendix. The demographic profiles of all the survey respondents are provided in Table 2. Here we used a questionnaire that had mainly three parts: In Part A, we asked to provide their demographic information; in part B, we provided the list of items (qualities of a manager) that was generated in the previous brainstorming session. Part C was similar to Part B, the only difference being the items here are the factors to be considered to choose a foreign country for expansion of manufacturing business. In both Part B and C, the respondents were asked to choose the five most important items and rate them using a 1–5 scale, as it is done in the NGT.

Table 2 Respondents' demographic information

Variable*	Frequency	Percent
Gender		
Male	84	60.0
Female	56	40.0
Race		
Malay	90	64.3
Chinese	07	5.0
Indian	07	5.0
Others	35	25.0
Age group		
20 years or below	02	1.4
21–25 years	28	20.0
26–30 years	51	36.4
31–35 years	29	20.7
36–40 years	19	13.6
41–50 years	07	5.0
51 years and above	04	2.9

Table 2   Respondents' demographic information (continued)

Variable*	Frequency	Percent
Highest level of education		
Certificate	07	5.0
Professional	03	2.1
Bachelors	80	57.1
Masters	48	34.3
PhD	02	1.4
Employee size of the company		
Less than 100	32	22.9
100–200	07	5.0
200–500	18	12.9
More than 500	62	44.3
No. of years the company exists		
less than five years	24	17.1
5–10 years	24	17.1
10–20 years	25	17.9
More than 20 years	47	33.6
Working as		
Executive	99	70.7
Non-executive	21	15.0
No. of years the company served		
Less than three years	58	41.4
3–5 years	26	18.6
5–10 years	20	14.3
More than 10 years	16	11.4

*Missing entries are not considered in the table. Therefore, the total of percentage may not be equal to 100% for certain variables.

5   Results and discussion

As mentioned above, 30 MBA students participated in the first nominal group study. Altogether 31 qualities of a good manager were generated and those were voted using the NGT voting scheme. The qualities and their individual weights are shown in Table 3. The last column of the table shows the ranks of the items. Table 4 provides the sorted results arranged from the most important to the least important. The participants of this session found the following five most important qualities of a manager:

- listens to ideas and opinions of others (have open mind)

- high integrity (morality)

- a motivator

- good command and control
- be accountable and responsible.

Table 3   Qualities of a good manager (NGT findings)

Quality	Weight	Total
Listens to ideas and opinions of others (have open mind)	4, 1, 4, 2, 4, 3, 2, 4, 1, 3, 5, 4, 3, 3, 5, 1, 1, 2, 1, 2	55
Innovation and entrepreneurship	5, 2, 5, 5, 2, 4, 4, 1	28
Love their own business and bring professional spirit	5, 3, 5, 5	18
Firm and fair	5, 2, 1, 5, 2, 3	18
Good command and control	1, 1, 3, 1, 5, 4, 2, 4, 2, 4, 4, 3, 2	36
Knowledge about delegating power	5, 1, 1, 2, 1, 1	11
Being able to contribute knowledge	4, 1, 2	7
Be pragmatic		
Have a sense of humour	3, 1, 1	5
Continuous learning habit	1	1
Promote teamwork	3, 3, 4, 3, 3, 1, 5	22
High integrity (morality)	5, 2, 5, 5, 4, 5, 3, 5, 5, 5, 5, 5, 5	55
Ability to conduct effective meeting	5	5
Be flexible but firm	3, 3, 1, 2, 4, 1	14
Decisive	5, 3, 4, 1	13
Be transparent	1, 4, 4	9
Respect others	2, 5, 3, 1	11
Practical experience in his or her own business		
Should be well-educated	4, 1	5
Be humble	5	5
Able to undertake any task given	4	4
Be accountable and responsible	4, 2, 3, 2, 4, 1, 2, 2, 1, 3, 3, 3	30
Reliable for knowledge and reference	2, 2	4
Trustworthy (keep promises)	3, 4	7
Be disciplined	2, 1, 5	12
Be proactive	3, 5	8
A motivator	1, 2, 2, 3, 4, 4, 4, 2, 1, 5, 3, 1, 2, 3, 2	39
Have perseverance		
Personality and behaviour	1, 4, 4, 3	12
Ability to control budget		
Empathetic	2, 3	5

Source: Author

Table 4   Sorted results of the first NGT session

Quality	Weights	Total	Rank
Listens to ideas and opinions of others (have open mind)	4, 1, 4, 2, 4, 3, 2, 4, 1, 3, 5, 4, 3, 3, 5, 1, 1, 2, 1, 2	55	1
High integrity (morality)	5, 2, 5, 5, 4, 5, 3, 5, 5, 5, 5, 5, 5	55*	2
A motivator	1, 2, 2, 3, 4, 4, 4, 2, 1, 5, 3, 1, 2, 3, 2	39	3
Good command and control	1, 1, 3, 1, 5, 4, 2, 4, 2, 4, 4, 3, 2	36	4
Be accountable and responsible	4, 2, 3, 2, 4, 1, 2, 2, 1, 3, 3, 3	30	5
Innovation and entrepreneurship	5, 2, 5, 5, 2, 4, 4, 1	28	6
Promote teamwork	3, 3, 4, 3, 3, 1, 5	22	7
Firm and fair	5, 2, 1, 5, 2	18	8
Love their own business and bring professional spirit	5, 3, 5, 5	18	9
Be flexible but firm	3, 3, 1, 2, 4, 1	14	10
Decisive	5, 3, 4, 1	13	11
Be disciplined	2, 1, 5	12	12
Personality and behaviour	1, 4, 4, 3	12	13
Knowledge about delegating power	5, 1, 1, 2, 1, 1	11	14
Respect others	2, 5, 3, 1	11	15
Be transparent	1, 4, 4	9	16
Be proactive	3, 5	8	17
Being able to contribute knowledge	4, 1, 2	7	18
Trustworthy (keep promises)	3, 4	7	19
Have a sense of humour	3, 1, 1	5	20
Should be well-educated	4, 1	5	21
Empathetic	2, 3	5	22
Ability to conduct effective meeting	5	5	23
Be humble	5	5	24
Reliable for knowledge and reference	2, 2	4	
Able to undertake any task given	4	4	25
Continuous learning habit	1	1	26
Be pragmatic			
Practical experience in his or her own business			
Have perseverance			
Ability to control budget			

*Though 'High integrity' receives same total weight as 'Listening to ideas and opinions of others', but 2nd rank has been assigned as it receives votes from fewer participants.

There has been a wide range of researches on desired qualities of a manager or relating managerial qualities with organisation performance (Varje et al., 2013; Crilley and Sharp, 2006). Managerial qualities also depend upon the nature of his or her job. For example, Crilley and Sharp (2006) developed a model involving managerial qualities and organisation performance for Australian local government sports and leisure centres. Adler and Bartholomew (1992) revealed the desired qualities of a manager working in a multi-national company: adapting to many foreign cultures, cross-cultural management skills, treat foreign colleagues as equals. Thompson (2004) outlined the following 10 qualities of a nurse manager:

- respect all staff

- communicate clearly to all

- be a reliable source and staff advocate

- be available and accessible to staff

- high integrity

- humorous

- able to motivate staff

- be organised, yet creative and flexible

- be an effective decision maker as well as conflict and crisis manager

- set standards and a role model.

It is again pointed out that the main objective of the present research was not to outline the qualities of a manager or to explore factors for overseas expansion of business, rather, as it was mentioned earlier, compare results obtained from a nominal group session with that of the survey. To address this objective, we conducted a survey involving 140 participants working in different organisations of Malaysia. The participants were not required to generate any idea about the quality of a manager, instead, they were asked to choose the five most important ideas from the list generated by the NG participants. They were also asked to rate the chosen five qualities using 1–5 scale (5 being the most important factor). The results were aggregated using SPSS version 23 and summary results are provided in Tables 5 and 6.

The following observations can be made from Table 6, where the data have been arranged based upon total weight of the qualities.

- a highest number of respondents (73) voted for 'listens to ideas and opinions of others (have open mind)

- 'innovation and entrepreneurship' and 'a motivator' received the second (51) and third (50) highest number of votes

- with respect to total weight, the three most important qualities are 'listens to ideas and opinions of others (have open mind)', 'high integrity (morality)', and 'innovation and entrepreneurship'

- all the qualities have received votes from at least four survey respondents whereas four qualities were not assigned any vote by the NG participants

- out of 31 qualities, 28 received a maximum weight of 5, though they have also received a minimum weight of 1 from some of the respondents.

Table 5   Survey statistics for the quality of a good manager survey

Quality	N	Min	Max	Total	Mean	SD
Listens to ideas and opinions of others (have open mind)	73	1.00	5.00	213.00	2.9178	1.36171
Innovation and entrepreneurship	51	1.00	5.00	167.00	3.2745	1.37227
Love their own business and bring professional spirit	11	1.00	5.00	36.00	3.2727	1.73729
Firm and fair	26	1.00	5.00	78.00	3.0000	1.38564
Good command and control	45	1.00	5.00	143.00	3.1778	1.31924
Knowledge about delegating power	30	1.00	5.00	85.00	2.8333	1.31525
Being able to contribute knowledge	7	1.00	5.00	20.00	2.8571	1.46385
Be pragmatic	7	1.00	5.00	23.00	3.2857	1.49603
Have a sense of humour	6	1.00	3.00	12.00	2.0000	1.09545
Continuous learning habit	17	1.00	5.00	32.00	1.8824	1.16632
Promote teamwork	42	1.00	5.00	124.00	2.9524	1.36064
High integrity (morality)	47	1.00	5.00	171.00	3.6383	1.53829
Ability to conduct effective meeting	7	1.00	5.00	15.00	2.1429	1.46385
Be flexible but firm	27	1.00	5.00	70.00	2.5926	1.30853
Decisive	26	1.00	5.00	88.00	3.3846	1.23538
Be transparent	9	1.00	3.00	22.00	2.4444	.72648
Respect others	23	1.00	5.00	71.00	3.0870	1.27611
Practical experience in his or her own business	10	1.00	5.00	34.00	3.4000	1.57762
Should be well-educated	13	1.00	5.00	38.00	2.9231	1.38212
Be humble	10	1.00	5.00	28.00	2.8000	1.47573
Able to undertake any task given	11	1.00	5.00	31.00	2.8182	1.32802
Be accountable and responsible	46	1.00	5.00	141.00	3.0652	1.43608
Reliable for knowledge and reference	21	1.00	5.00	67.00	3.1905	1.40068
Trustworthy (keep promises)	15	1.00	5.00	49.00	3.2667	1.27988
Be disciplined	10	1.00	5.00	36.00	3.6000	1.42984
Be proactive	14	1.00	5.00	36.00	2.5714	1.60357
A motivator	50	1.00	5.00	136.00	2.7200	1.51240
Have perseverance	4	1.00	4.00	9.00	2.2500	1.50000
Personality and behaviour	20	1.00	5.00	64.00	3.2000	1.43637
Ability to control budget	12	1.00	5.00	28.00	2.3333	1.55700
Empathetic	9	1.00	5.00	28.00	3.1111	1.61589
Valid N (listwise) have	0					

Source: Author

Table 6 Sorted results in the survey for qualities of a good manager

Quality	N	Min	Max	Total	Mean	SD	Rank
Listens to ideas and opinions of others (have open mind)	73	1.00	5.00	213.00	2.9178	1.36171	1
High integrity (morality)	47	1.00	5.00	171.00	3.6383	1.53829	2
Innovation and entrepreneurship	51	1.00	5.00	167.00	3.2745	1.37227	3
Good command and control	45	1.00	5.00	143.00	3.1778	1.31924	4
Be accountable and responsible	46	1.00	5.00	141.00	3.0652	1.43608	5
A motivator	50	1.00	5.00	136.00	2.7200	1.51240	6
Promote teamwork	42	1.00	5.00	124.00	2.9524	1.36064	7
Decisive	26	1.00	5.00	88.00	3.3846	1.23538	8
Knowledge about delegating power	30	1.00	5.00	85.00	2.8333	1.31525	9
Firm and fair	26	1.00	5.00	78.00	3.0000	1.38564	10
Respect others	23	1.00	5.00	71.00	3.0870	1.27611	11
Be flexible but firm	27	1.00	5.00	70.00	2.5926	1.30853	12
Reliable for knowledge and reference	21	1.00	5.00	67.00	3.1905	1.40068	13
Personality and behaviour	20	1.00	5.00	64.00	3.2000	1.43637	14
Trustworthy (keep promises)	15	1.00	5.00	49.00	3.2667	1.27988	15
Should be well-educated	13	1.00	5.00	38.00	2.9231	1.38212	16
Love their own business and bring professional spirit	11	1.00	5.00	36.00	3.2727	1.73729	17
Be disciplined	10	1.00	5.00	36.00	3.6000	1.42984	18
Be proactive	14	1.00	5.00	36.00	2.5714	1.60357	19
Practical experience in his or her own business	10	1.00	5.00	34.00	3.4000	1.57762	20
Continuous learning habit	17	1.00	5.00	32.00	1.8824	1.16632	21
Able to undertake any task given	11	1.00	5.00	31.00	2.8182	1.32802	22
Be humble	10	1.00	5.00	28.00	2.8000	1.47573	23
Ability to control budget	12	1.00	5.00	28.00	2.3333	1.55700	24
Empathetic	9	1.00	5.00	28.00	3.1111	1.61589	25
Be pragmatic	7	1.00	5.00	23.00	3.2857	1.49603	26
Be transparent	9	1.00	3.00	22.00	2.4444	.72648	27
Being able to contribute knowledge	7	1.00	5.00	20.00	2.8571	1.46385	
Ability to conduct effective meeting	7	1.00	5.00	15.00	2.1429	1.46385	
Have a sense of humour	6	1.00	3.00	12.00	2.0000	1.09545	
Have perseverance	4	1.00	4.00	9.00	2.2500	1.50000	
Valid N (listwise)	0						

The ranks of the qualities generated separately by the NG and survey participants are compared, as shown in Table 7. A Spearman rank correlation coefficient of 0.795 ($p < 0.01$) has been obtained, which is significant at 1% level. This shows that, overall,

the two sets of ranks are significantly correlated. Following are some of the additional observations:

- Out of 31 qualities, six retain the same rank by both types of respondents.

- Four out of five top qualities retain the same rank.

- 'A motivator' and 'innovation and entrepreneurship' have swapped their ranks.

- Those qualities which have received high ranks from NGT participants have also received high ranks from the survey participants. Same observation is also valid for the qualities holding lower ranks.

- There has been considerable difference in ranks for certain qualities, e.g., 'love their own business and bring professional spirit', 'be transparent', 'being able to contribute knowledge'. All of these have received significantly lower ranks by the survey participants.

Table 7   A comparison between NGT and survey findings (qualities of a good manager)

	Rank (NGT)	Rank (Survey)	RCC
Listens to ideas and opinions of others (have open mind)	1	1	0.795**
High integrity (morality)	2	2	
A motivator	3	6	
Good command and control	4	4	
Be accountable and responsible	5	5	
Innovation and entrepreneurship	6	3	
Promote teamwork	7	7	
Love their own business and bring professional spirit	8	17	
Firm and fair	9	10	
Be flexible but firm	10	12	
Decisive	11	8	
Be disciplined	12	18	
Personality and behaviour	13	14	
Knowledge about delegating power	14	9	
Respect others	15	11	
Be transparent	16	27	
Be proactive	17	19	
Being able to contribute knowledge	18	28	
Trustworthy (keep promises)	19	15	
Have a sense of humour	20	30	
Ability to conduct effective meeting	21	29	
Should be well-educated	22	16	
Be humble	23	23	
Empathetic	24	25	
Able to undertake any task given	25	22	

Table 7 A comparison between NGT and survey findings (qualities of a good manager) (continued)

	Rank (NGT)	Rank (Survey)	RCC
Reliable for knowledge and reference	26	13	
Continuous learning habit	27	21	
Be pragmatic			
Practical experience in his or her own business			
Have perseverance			
Ability to control budget			

**Significant at 1% level.

Now we proceed to describe the second experiment which was conducted in the same way as described above. The issue considered was the identification and ranking of factors that are important to consider before choosing a foreign country in order to expand a manufacturing company's business. In the NGT session, 27 MBA students of the author's university participated and a total of 24 factors were generated and these are shown in Table 8. As the participants were doing MBA, they are deemed knowledgeable to generate the said factors. The factors are sorted according to the weights received (from most important to least important), as shown in Table 9.

Table 8 Factors for country choice for a manufacturing company

Criteria	Weight	Total
Economy of the country	5, 5, 5, 4, 2, 4, 1, 1, 5, 4, 5, 5, 4, 3, 4, 5, 5, 2, 5, 4, 4, 4	86
Language		
Threat of expropriation	1, 4	5
Government interference	2, 3, 3, 3	11
Government stability	4, 5, 4, 5, 5, 5, 4, 5, 1, 3, 5, 2, 4, 1, 5, 5, 5, 5	73
Labor skill (training requirement)	5, 5, 4, 6	20
Work culture/worker productivity	5, 3, 3, 3, 2, 2	18
Local equity and financing	5	5
Availability of technology	3, 1, 1, 1, 4	10
Transportation and distribution systems	3, 2, 4, 2, 3, 4, 1, 1, 2	22
Competitors' strength	5, 3	8
Distance from market concentration	1, 4, 2, 4	11
Climate		
Raw materials cost	1, 2, 4, 3, 1, 2	13
Tax structure	3, 2	5
Availability of raw materials	3, 3, 3, 4, 2, 2	17
Construction cost		
Business climate/opportunity	2, 2, 1, 5, 2, 5, 4, 3, 3	27
Wage rate	4, 2, 1, 4, 2, 4, 3, 5, 3	28

Table 8   Factors for country choice for a manufacturing company (continued)

Criteria	Weight	Total
Quality of life	1	1
Real estate, utility costs	1	1
Exchange rate	1, 3, 1, 1	6
Financial incentive by local government	4, 1, 2, 1, 2, 4, 3, 2, 1	20
Possibility of future expansion	1, 3, 1, 2, 2, 2, 4, 1	15

Source: Author

Table 9   Sorted factors (country choice)

Criteria	Weight	Total
Economy of the country	5, 5, 5, 4, 2, 4, 1, 1, 5, 4, 5, 5, 4, 3, 4, 5, 5, 2, 5, 4, 4, 4	86
Government stability	4, 5, 4, 5, 5, 5, 4, 5, 1, 3, 5, 2, 4, 1, 5, 5, 5, 5	73
Wage rate	4, 2, 1, 4, 2, 4, 3, 5, 3	28
Business climate/opportunity	2, 2, 1, 5, 2, 5, 4, 3, 3	27
Transportation and distribution systems	3, 2, 4, 2, 3, 4, 1, 1, 2	22
Labor skill (training requirement)	5, 5, 4, 6	20
Financial incentive by local government	4, 1, 2, 1, 2, 4, 3, 2, 1	20
Work culture/worker productivity	5, 3, 3, 3, 2, 2	18
Availability of raw materials	3, 3, 3, 4, 2, 2	17
Possibility of future expansion	1, 3, 1, 2, 2, 2, 4, 1	15
Raw materials cost	1, 2, 4, 3, 1, 2	13
Government interference	2, 3, 3, 3	11
Distance from market concentration	1, 4, 2, 4	11
Availability of technology	3, 1, 1, 1, 4	10
Competitors' strength	5, 3	8
Exchange rate	1, 3, 1, 1	6
Threat of expropriation	1, 4	5
Local equity and financing	5	5
Tax structure	3, 2	5
Quality of life	1	1
Real estate, utility costs	1	1
Language		
Climate		
Construction cost		

Table 9 shows that the five most important factors are:

- economy of the country

- government stability

- wage rate

- business climate/opportunity

- transportation and distribution system.

The findings have been corroborated by Baena (2015), who finds that, among others, political stability and economic development are important factors for expansion of franchising business across Latin American nations. She writes (p.149):

> "… geographical distance between the host and home countries, as well as the level of host country's political stability, economic development, market potential and transparency are able to drive the spread of international franchising across Latin American nations."

Alcantara and Mitsuhashi (2013) also found political stability as a factor of paramount importance for overseas expansion. In a related study, while expanding Malaysian SMEs internationally, Hashim (2015) investigated the impediments that SMEs face internally as well as externally. Increased competition and availability of skilled manpower are cited to be the main external impediments.

As per the first experiment, here also we conducted a survey involving the same respondents of the first survey and they were asked to choose the most important five factors from the list of 24 and assign weights using the 1–5 scale as per the rule of NGT process. The details are shown in Table 10. The results are sorted on the basis of total weight of the factors and shown in Table 11.

Table 10 Survey results for the country choice experiment

Factor	N	Min	Max	Total	Mean	Std. Deviation
Economy of the country	95	1.00	5.00	349.00	3.6737	1.51897
Language	11	1.00	5.00	34.00	3.0909	1.30035
Threat of expropriation	12	1.00	5.00	36.00	3.0000	1.53741
Government interference	32	1.00	5.00	89.00	2.7812	1.12836
Government stability	85	1.00	5.00	324.00	3.8118	1.38439
Labour skill (training requirement)	25	1.00	5.00	76.00	3.0400	1.05987
Work culture/worker productivity	49	1.00	5.00	141.00	2.8776	1.25221
Local equity and financing	8	1.00	5.00	26.00	3.2500	1.48805
Availability of technology	24	1.00	5.00	61.00	2.5417	1.28466
Transportation and distribution systems	49	1.00	5.00	119.00	2.4286	1.29099
Competitors' strength	23	1.00	5.00	58.00	2.5217	1.47308
Distance from market concentration	7	1.00	4.00	14.00	2.0000	1.41421
Climate	5	1.00	5.00	17.00	3.4000	1.67332
Raw materials cost	26	1.00	5.00	81.00	3.1154	1.30620
Tax structure	20	1.00	5.00	53.00	2.6500	1.22582

Table 10   Survey results for the country choice experiment (continued)

Factor	N	Min	Max	Total	Mean	Std. Deviation
Availability of raw materials	21	1.00	5.00	60.00	2.8571	1.10841
Construction cost	1	2.00	2.00	2.00	2.0000	.
Business climate/opportunity	53	1.00	5.00	177.00	3.3396	1.31476
Wage rate	32	1.00	5.00	84.00	2.6250	1.21150
Quality of life	1	2.00	2.00	2.00	2.0000	.
Real estate, utility costs	6	1.00	3.00	12.00	2.0000	1.09545
Exchange rate	25	1.00	5.00	57.00	2.2800	1.36991
Financial incentive by local government	29	1.00	5.00	74.00	2.5517	1.35188
Possibility of future expansion	41	1.00	5.00	92.00	2.2439	1.28024
Valid N (listwise)	0					

Source: Author

Table 11   Sorted results of the country choice problem

Factor	N	Min	Max	Total	Rank
Economy of the country	95	1.00	5.00	349.00	1
Government stability	85	1.00	5.00	324.00	2
Business climate/opportunity	53	1.00	5.00	177.00	3
Work culture/worker productivity	49	1.00	5.00	141.00	4
Transportation and distribution systems	49	1.00	5.00	119.00	5
Possibility of future expansion	41	1.00	5.00	92.00	6
Government interference	32	1.00	5.00	89.00	7
Wage rate	32	1.00	5.00	84.00	8
Raw materials cost	26	1.00	5.00	81.00	9
Labour skill (training requirement)	25	1.00	5.00	76.00	10
Financial incentive by local government	29	1.00	5.00	74.00	11
Availability of technology	24	1.00	5.00	61.00	12
Availability of raw materials	21	1.00	5.00	60.00	13
Competitors' strength	23	1.00	5.00	58.00	14
Exchange rate	25	1.00	5.00	57.00	15
Tax structure	20	1.00	5.00	53.00	16
Threat of expropriation	12	1.00	5.00	36.00	17
Language	11	1.00	5.00	34.00	18
Local equity and financing	8	1.00	5.00	26.00	19
Climate	5	1.00	5.00	17.00	20
Distance from market concentration	7	1.00	4.00	14.00	21
Real estate, utility costs	6	1.00	3.00	12.00	22
Construction cost	1	2.00	2.00	2.00	23
Quality of life	1	2.00	2.00	2.00	24

The survey results widely conform to the findings of NG session. For example, four out of five most important factors are same in NG and survey. Some more observations are the following:

- out of 140 participants, 95 voted for 'economy of the country' as one of the most important factors

- 'construction cost' and 'quality of life' are least favoured factors

- out of 24 factors, 19 received minimum as well as maximum weightage from the survey participants

- the level of importance assigned to 'economy of the country' and 'government stability' are significantly higher compared to all other factors

- though 'language' and 'climate' were not voted in the foregoing NG session, these two factors have received 11 and 5 votes, respectively, from the survey participants.

Table 12   Ranks of the factors obtained by using NGT and survey method

Factor	Rank (NGT)	Rank (Survey)	RCC
Economy of the country	1	1	0.878**
Government stability	2	2	
Wage rate	3	8	
Business climate/opportunity	4	3	
Transportation and distribution systems	5	5	
Labour skill (training requirement)	6	10	
Financial incentive by local government	7	11	
Work culture/worker productivity	8	4	
Availability of raw materials	9	13	
Possibility of future expansion	10	6	
Raw materials cost	11	9	
Government interference	12	7	
Distance from market concentration	13	21	
Availability of technology	14	12	
Competitors' strength	15	14	
Exchange rate	16	15	
Threat of expropriation	17	17	
Local equity and financing	18	19	
Tax structure	19	16	
Quality of life	20	24	
Real estate, utility costs	21	22	
Language			
Climate			
Construction cost			

** Significant at 1% level.

Table 12 provides the comparison of the two sets of ranks obtained in NGT and survey method. The rank correlation coefficient was found to be 0.878, significant at 1% level. This shows that the ranks are highly correlated.

Apart from the rank correlation coefficient, few additional observations from Table 12 is provided below:

- the survey participants assigned a considerable lower rank to 'wage rate', whereas 'work culture', 'possibility of future expansion, 'government interference' received higher ranks by them

- the top three factors, 'economy of the country', 'government stability' and 'transportation and distribution system' have maintained their ranks in both NG session and survey

- overall, the factors that were favoured by the NG participants are also favoured by the survey participants; this observation is also true for the factors that have received lower weightage.

6   Conclusions

NGT is a popular group decision-making method in organisations. To investigate the robustness of the decisions derived from NGT, two experiments were conducted. The findings from of both the experiments share the similarity of ranks of the items generated by the NGT as well as survey participants. Therefore, the present research shows, once again, the usefulness of NGT as a decision-making method in a small group setting.

NGT is a perfect method that can be applied to make a decision involving only a few members. The present research amply shows that even if a larger number of participants are involved in making the decisions, the results will not be significantly different. Therefore the organisation's managers need not be overly concerned that the decision might be different if they involve a larger number of participants. This saves organisation's scarce resources such as time and money.

As a fallout of the present research, five important qualities of a manager are found to be:

- listens to the ideas and opinions of others (have open mind)

- high integrity (morality)

- a motivator

- good command and control

- be accountable and responsible.

Further, the following five important factors may be considered for overseas expansion of a manufacturing company:

- economy of the country

- government stability

- business climate/opportunity

- transportation and distribution systems

- wage rate.

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Appendix

No.	Organisation name
1.	Yayasan Dar Al-Quran Temerlah
2.	International University College of Technology Twintech, Bandar Sri Damansara, KL Titan Petchen (M) Sdn Bhd, Damansara KL
3.	International Islamic School (Setiabudi)
4.	RHB Bank Bhd
5.	Kaseh Lebuhraya Sdn Bhd, Petaling Jaya, Selangor
6.	Lembaga Hasil Dalam Negeri Malaysia
7.	University of Malaya
8.	Management Centre, IIUM
9.	Maybank Berhad

Appendix (continued)

No.	Organisation name
10.	FDI Travel Services
11.	Alliance Bank (M) Bhd
12.	RHB Bank (Islamic branch)
13.	Universiti Teknologi MARA
14.	EON Bank Bhd
15.	i Perintis Sdn Bhd
16.	Perodua Manufacturing Sdn Bhd
17.	ESPL Fleet Management Sdn Bhd
18.	CIMB
19.	Aseanbankers Malaysia Berhad
20.	UNITAR (Universiti Tun Abdul Razak) Kelana Jaya
21.	Leo Consulting Sdn Bhd
22.	PNB
23.	Nultiplex Constructions (M) S/B
24.	Island and Peninsular Berhad
25.	Kumpulan Perangsang Bhd
26.	VANTAG
27.	Kumpulan Warog Simpanan Pekerja
28.	313call Sdn Bhd
29.	SRC Damansara
30.	Ame Darby Bhd
31.	Ejab Engineering S/B
32.	GP Holding Bhd
33.	IRB Malaysia
34.	Islamic Bank of Thailand
35.	UM Financial Inc, Canada
36.	Stamford College
37.	Law Centre, IIUM
38.	Biotech Medical Corp Sdn Bhd
39.	IUCTT Damansara
40.	Pan Malaysian Sdn Bhd
41.	Radio Televisyen Malaysia
42.	Net Infinium Sdn Bhd
43.	ISEFID Indonesia
44.	IIUM