The Sociogram: A Useful Tool in the Analysis of Focus Groups

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Abstract

Background: Focus groups are being increasingly utilised in health services research, however methods of analysing focus groups that acknowledge group processes are still being developed.

Approach: The present paper explores the use of 'sociograms' as a tool in focus group analyses, describing how to develop and create them, and highlighting ways in which they may enlighten the focus group analyst.

Results: Sociograms are presented for two focus groups which were conducted to complement a randomised controlled trial on the use of audiovisual distraction during minor surgery. The sociograms are interpreted to accentuate issues that may arise during focus group research.

Discussion: Sociograms offer a useful method of conceptualising group dynamics, drawing comparisons between focus groups, and reflecting on moderator technique. The sociogram provides a useful aid for displaying and interpreting data from focus group discussions when used in combination with further qualitative enquiry.

The Sociogram: A Useful Tool in the Analysis of Focus Groups

The use of focus groups as a tool in nursing research is becoming increasingly popular (Happell, 2007), and guidance for conducting focus group research is widely available (e.g. Krueger, 1998a; Morgan, 1997). Focus groups generate distinct data through the process of group interaction (Kitzinger, 2000); through interaction, focus group participants discuss issues they feel important and explore topics that may not have materialised in a series of one-to-one interviews. The resulting data is reliant on group processes and context; any agreement between participants is a product of the group context, rather than a simple aggregation of individual views (Sim, 1998). Focus group research is often criticised for failing to explicitly use data from the group dynamics. Instead, the write-up often represents the range of views, to include the commonalities and differences in opinions expressed, but not how these views were explored through the interaction of the group members (Reed & Payton, 1997).

Unfortunately, although analysis methods for one-to-one interviews have been well-defined (e.g. Burnard, 1991), few techniques have been posited for the analysis of focus group data to account for group processes (Lehoux, Poland, & Daudelin, 2006). This situation is being addressed, and a number of papers have highlighted issues that the focus group analyst should attend to. Examples include: analysis at the 'intragroup' and 'intergroup' levels (Morrison-Beedy, Côté-Arsenault, & Feinstein, 2001); the context of time and influence of dominant members (Reed & Payton, 1997); interpreting the "common ground" (Hydén & Bülow, 2003); the interpretation of silence and dissent (Sim, 1998); the appropriate presentation of quotes (Barbour, 2005); the impact of the moderator (or 'facilitator') on the group dynamics (Smithson, 2000; Crossley, 2002); and the demarcation of power status and the influence of this on group dynamics (Lehoux, Poland, & Daudelin, 2006). Picking out these issues from reams of transcriptions can be a daunting process and

although a certain sense of how much each focus group member contributed to the

discussion can be gained from tables of word frequency counts or average number of words

per turn (Hydén & Bülow, 2003), such tables fail to provide details on how the conversation

turn-taking developed, as well as who interacted with whom.

<center>Visual Representation of Group Interaction</center>

The present paper posits the use of graphical depiction of focus group dynamics to

complement the qualitative enquiry into the focus group discourse. Graphical representation

of qualitative data is useful for seeking patterns and obtaining further clarity of analysis

issues (such as those highlighted above), as well as for presenting information to an audience

(Chi, 1997). The adapted use of a 'sociogram' is proposed here, to demonstrate the flow of

conversation as it passes around the group, with weighted arrows to depict the amount of

times the conversation passes from one individual to another. A sociogram is a chart plotting

the structure of interpersonal relations in a group situation. Sociograms are commonly based

on people's ratings of who they do and do not like, and are used to recognise alliances

between people, identify people who are rejected by others, and detect isolated people.

Sociograms have long been used in educational contexts to understand classroom dynamics

(Brickell, 1950), and their use can also be found in other disciplines, such as in information

systems research (Willis & Coakes, 2000), and research carried out in psychiatric settings

(Taiminen, Kallio-Soukainen, Nokso-Koivisto, Kaljonen, & Helenius, 1998). Yet

sociograms have yet to emerge as a tool in focus group analysis. Example data here is drawn

from two focus groups that were conducted in 2005 as part of an investigation on the use of

audiovisual distraction for pain and anxiety relief during minor surgery.

<center>Methods</center>

Preparation

To make an assessment of group dynamics it is essential to know who is talking; this requires preparation *prior* to conducting the focus groups. Distinguishing individual voices on an audiotape is difficult, and there are a number of potential means of aiding the process: video recording; assistant note-taking during each focus group (i.e. noting down the participant number and first few words spoken); recording a reference of each participant's voice at the start of the session (i.e. asking participants to say their name/number and favourite food); and asking participants if they can remember, to speak their participant number each time before they contribute to the discussion (e.g. "number one, I think that…"). Each of these approaches can have its' drawbacks, and in turn may affect group dynamics; the utilisation of one or more of these suggested techniques will depend on the focus of the research and the participants involved. The example data drawn upon here utilised a combination of these approaches to aid participant identification: focus groups were audio-taped with a research assistant (who sat to the side of the group) taking notes on who was speaking; participants tried to remember to use their participant number each time they spoke; and participants additionally introduced themselves at the beginning of the tape to aid voice recognition.

Drawing the Sociogram

To draw the diagram a count is needed of each time conversation flows from one person to another. This can be achieved by preparing a table listing every possible direction of the conversation flow (e.g. P1 to P2; P1 to P3; etc.), then scrolling through the focus group transcript making a tally of every time the conversation moves on from one person to another. A decision is needed as to whether to include instances where a person utters attentive words (such as "yeah" or "okay") whilst someone else is speaking, without affecting the conversation flow. The calculations in the present examples omitted instances where the moderator uttered such words of encouragement. Once the count of turns is

accomplished, drawing the diagram can be achieved using a word processor. An icon for each member involved in the focus group discussion can be mapped in the seating position during the focus group. Arrows representing conversation exchange can then be plotted, editing the weight of each arrow drawn to align with the tally of turns (e.g. for every change of turn increase the arrow weight by 0.5 points). Therefore, if the conversation never passes from one person to another, no arrow will be present, and thicker arrows will indicate more exchanges between those individuals. Tabulating the number of words contributed by each focus group member will add a further dimension when presented alongside the diagram.

For demonstration purposes a summary sociogram for each of two focus groups is presented here. An astute analyst, either for the purposes of personal development or for the import of the research question, may want to go one step further and create a series of sociograms to represent different phases of the focus group in order to assess how the conversation developed over time.

Interpreting the Sociogram

Although every focus group will be unique, there are a number of patterns the analyst may observe more easily using the sociogram. These patterns may include the following: evenly weighted and distributed arrows (a "perfect" group); non-symmetrical irregular arrows (a "normal" group); heavily weighted peripheral arrows (a "proximal turn-taking" group); and heavily weighted moderator-to-participant arrows (a "serial interviewing" group). Each of these patterns will be discussed in turn. Observing patterns of interaction can serve a variety of functions in the analysis, to include conceptualising group dynamics, drawing comparisons between focus groups, and reflecting on moderator technique.

Observing patterns of interaction. A sociogram will show irregularities, and it is important for the focus group analyst to explore these quirks to understand why they emerged and how they may have affected the themes arising from the discussion. One

would expect that a focus group with "perfect" group dynamics (in which each member contributed equally and there was a healthy exchange of views) would produce a sociogram showing evenly weighted arrows criss-crossing symmetrically around the diagram. It is not a perfect world however, and a non-symmetrical sociogram would by no means undermine the worthiness of the findings. It may be quite normal for example, to see irregular patterns arise from having individuals that were shy or isolated from the discussion, or who may only have responded to the moderator; alternatively more dominant or central members of the group might be associated with heavily weighted arrows coming in and out from around the group. Assessing the sociogram in conjunction with the word counts for each individual may reveal other insights, such as individuals that talk at length but have relatively few turns, or visa-versa.

A sociogram may reveal other patterns, such as heavily weighted peripheral arrows and thinner arrows dissecting across the group. This would indicate a dynamic of "proximal turn-taking", whereby individuals were more inclined follow on from the person sat adjacent to them, and possibly indicating that participants were patiently waiting their turn as the conversation was orderly passed around the group (serial turn-taking). To understand this pattern, the analyst will need to assess the transcript to see the order in which conversation was passed around the group; is there a possible relationship between the physical seating arrangement of participants and the subsequent participant interaction? One might expect *serial* turn-taking to occur at the beginning of the focus group session or at the end during a summing-up period; but if this occurred throughout a focus group, the analyst should explore the reasons behind this through analysing what was said. Did the topic not inspire debate? Was it a reflection of the personalities of focus group participants? Was it a reflection of how the moderator guided the group discussion?

One further pattern may arise of heavy arrows flowing to and from the moderator and each individual participant, with less exchange occurring between participants. This depiction will reflect a "serial interviewing" dynamic with the conversation heavily reliant on the moderator. In this situation, the analyst will need to explore the verbal content to understand why the focus group was steered in this way, and how this may have affected the thematic content arising from the discussion.

<div align="center">Results and Discussion</div>

An Example of Using a Sociogram

The sociograms from two focus groups moderated by the same individual are presented in Figures 1 and 2. Both groups comprised individuals who had participated in a randomised controlled trial on the use of nature sights and sounds during minor surgery; all participants had experienced the audiovisual distraction during the trial and this was to be the main focus of conversation. The following section explores some of the issues that the sociograms can bring to light.

Conceptualising Group Dynamics

In Figure 1, it can been seen how P8 is little engaged in conversation flow with other participants, with most conversation involving P8 directed to and from the moderator (who was left responsible for engaging P8). Few focus group members followed up on what P8 had to contribute, and P8 rarely directly followed up on other people's contributions. In fact, the word count of P8 only contributed to 6.3% of the total group participants' conversation, so she was a particularly quiet member of the group. Other participants were embedded much more in the conversation flow; for example the turns in conversation that preceded and followed P5's contributions were distributed much more evenly across the group. Once identified through the sociogram, an exploration of the verbal content of this focus group sheds further light on this dynamic. The first question put to the group was broad and

inadvertently enabled participants to define their background and experience in the area of hospital environments. By outlining their expertise participants either differentiated themselves from the group, or facilitated group cohesion.

Five of the participants positioned themselves as frequenters of hospitals and highlighted their knowledge of hospital environments through describing the hospitals they had visited. Homing in on the cohesion formulating amongst group members' through their substantial experiences, P8 then differentiated herself as a 'non-expert' by stating "I haven't been in and out of hospital". To this comment, other group members merged with responses such as "lucky you", further consolidating themselves as a group and P8 as an outsider. The individual status' emanating in part from this preliminary 'demarcation' process, appear to impact the interaction process throughout the ensuing conversation, as depicted in Figure 1.

Drawing Comparisons between Focus Groups

When a series of focus groups are conducted there is usually a need to compare the interaction within as well as between the different group discussions. Although verbatim transcriptions can provide contextual information (or words) to describe the interaction, the use of the sociogram can provide additional information to visualise the interaction that took place and support the analyst's write-up. Indeed, in the writing up of such interaction, the visual representation of the interaction can provide an instant description that a thousand words cannot portray. By comparing Figures 1 and 2 side by side, instantly, the differences between the two focus groups are apparent and the reader's understanding of the group dynamics that took place when the data were being collected is facilitated.

Figure 2 stands in stark contrast to Figure 1; these two groups had very different dynamics. On reflection the moderator felt that the second group was quieter and harder to moderate; this "feeling" was confirmed when studying the sociograms of conversation flow and taking a look at the word count for participants. The moderator was central to the data

generated by this second group, as seen by the thick arrows in the sociogram flowing to and from the moderator, and the relatively slim arrows flowing between participants (Fig.2). The participants rarely followed on from one another, although P4 in particular appeared to integrate more with what other people had to say (despite not speaking as at length as P1 and P2).

This pattern of "serial interviewing" continued throughout the discussion. The conversation later revealed that the topic of the focus group did little to inspire the participants. This group complacency, which greatly affected the group dynamics (resulting in the moderator having to constantly probe participants and introduce ideas that had been generated by the previous group), had important implications for the findings of the research. The very fact that these participants were not motivated to pick up on each others' comments and continue the conversation is demonstrative of the low value they placed on the conversation topic. The first focus group generated many themes through the process of interaction, which added much breadth to understanding the experiences of patients who took part in the trial; the second focus group's complacency towards the study's intervention offered a poignant explanation of perhaps why the trial's findings were non-significant (i.e. the intended distraction may not have been sufficiently engaging).

Reflecting on Moderator Technique

The role of the moderator is to facilitate the discussion, encourage participation, and listen to what is said. Recommended principles of moderating (such as showing positive regard, playing to your strengths, and not becoming actively involved in the discussion) have been outlined by Krueger (1998b, p.3-8). The sociogram can prove a useful tool for reflection, particularly in the early or pilot stages of the research when the moderator is gaining confidence. Whilst the analysis of the script can provide a sense of how the moderator verbally steered the conversation, and counting of text units can provide evidence

of moderator domination, the sociogram can provide a visual representation of the moderator technique, which can then be explored in more depth. Did the moderator engage more with those directly beside or opposite him/her? Did the moderator encourage a dynamic of serial turn-taking or serial interviewing? Did the moderator respond after each participant turn, or did s/he allow other participants to react first and foremost? The sociogram provides a discussion point for the trainee moderator to analyse and reflect on his/her own actions. In the example sociograms presented here, the moderator is noted as taking a central role in both discussions (particularly the second; Fig.2). On reflection the moderator was able to determine that in future she should attempt to leave longer and more frequent pauses (even if they do appear uncomfortable) to encourage more participant engagement, and to try and with-hold from intervening after each participant's contribution to enable participants to follow conversation leads that they find interesting.

Conclusion

The use of the sociogram is offered here as one tool that a focus group analyst and moderator can use to formulate impressions and thoughts and reflect on group dynamics. Interpreting the sociogram requires further investigation and understanding of the verbal content of the discussion it represents. Dynamics influence the themes arising from a group discussion, and may leave some thoughts unheard. The use of a sociogram can aid the conceptualisation of these dynamics to help the analyst 'see' how the themes emerged.

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Figure legends

Figure 1. Conversation flow during first focus group.

Figure 2. Conversation flow during second focus group.