Teaching and Learning Focus Group Skills: A Classroom Example Evaluating Map Design

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As a group learning experience in a graduate cartography course, a focus group study was performed of a recently-redesigned map of the Michigan State University campus. The learning process involved two parts. Part one was a 75-minute focus group discussion during regular class time with the instructor as the moderator, one student as the assistant and notetaker, and the other members of the class as the subjects. After instructions were given, everyone studied the map for a brief period and then discussed a set of issues focused on the design of the map. Discussion was orderly but lively and packed with relevant comments. Part two occurred at the next class session. Students discussed the experience, the results, the assigned readings on the method, and relevance of the method to other projects. A written report was then prepared for the producers of the map.

Reactions to the learning experience were highly positive, and several participants have since used qualitative methods in other research. An actual study proved an effective means of learning the fundamentals of focus group research.

Keywords: focus groups, qualitative methods, cartography, campus map.

INTRODUCTION

It is important that students in graduate programs develop a sense of how to approach a variety of research problems. In the graduate curriculum at Michigan State University, students take a course in research design that requires the development of a proposal and covers a number of general elements of research such as problem statements, choice of appropriate methods, and reporting of results. Students are also required to take a research seminar, and the one in cartography and geoprocessing requires the development of an individual research project from proposal to final report of results. Other courses include research skills to varying degrees, and the quantitative methods course is heavily relied upon to teach students the skills that are necessary to develop "true" research, that is, scholarly work that will contribute new knowledge to the discipline.

There is currently no course in the department devoted to qualitative methods, that is, to the techniques of "open-ended interviewing to explore and understand the attitudes, opinions, feelings, and behavior of individuals or a group of individuals" (QRCA, 1998). With the increasing use of and respect for qualitative methods in the social sciences, it became clear that these methods had to be more than "mentioned in passing" in graduate courses. Although some faculty use qualitative methods in their research and convey a degree of knowledge about them to students, the opportunity to gain expertise in their application to cartography and geoprocessing was not available. This paper describes the experience of exploring a qualitative technique-focus groups-in a classroom setting.

We wished to gain competence in the focus group method because of its potential usefulness in our own research. It is a group interview technique

that relies heavily on interaction among the group and that uses the researcher's questions primarily to stimulate discussion and interaction. The products are data and insight that would not readily be available without interaction (Morgan, 1997). The method is of special interest in cartography because maps are highly complex and yet within the realm of experience of a wide variety of people. A quantitative survey might find that X% of people made a specific choice for a specific question, whereas in a focus group discussion, the logic of one participant may immediately be recognized by the group and thus affect group consensus on the question because more information is available to participants. The discussion may stimulate responses that go well beyond what a researcher is able to compose in the quantitatively-treatable questions that could be used on a survey form. The complexity of the map makes it difficult at best to capture in quantitative surveys the potential insight of participants, yet participants are quite able to contribute to discussions of maps and to express a wide array of opinions in their own words and gestures.

"A quantitative survey might find that X% of people made a specific choice . . . whereas in a focus group discussion, the logic of one participant may immediately be recognized by the group and thus affect group consensus . . ."

THE LITERATURE

There is no lack of literature on qualitative methods and on focus groups in particular. Sage Publications alone lists over 50 research methods titles that include the term "qualitative," and a dozen that that include the term "focus group" (Sage Publications, 1998). Among these titles, *Focus Groups: Theory and Practice* (Stewart and Shamdasani, 1990) is a balanced introduction to the method that covers the nature of the method, recruiting of participants, designing and conducting the session, and analyzing results. *Focus Groups as Qualitative Research* (Morgan, 1997) compares focus groups to participant observation and individual interviews, discusses their use in association with other methods and as an independent method, and outlines the procedures and issues in focus group research. *Focus Groups: A Practical Guide for Applied Research* (Krueger, 1994) concentrates on processes, issues, and concerns and discusses them in more depth.

Some of the key elements of focus group research that are distilled from sources such as these are: 1) The focus group is composed of about 8-12 people of homogeneous backgrounds relative to the matter at hand. 2) The researcher plans a list of main issues or questions on which the group will focus. 3) The moderator plays a key role not only in eliciting comments from all members of the group but in formulating probes that follow up on responses to the main issues or questions. 4) The interaction among participants allows and encourages development of thoughts and ideas as the discussion progresses and is a positive aspect of the discussion. 5) A means of recording the content of the discussion must be planned. 6) Treatment of results can range from straightforward reporting of ideas and insights to detailed observation and analysis of content, depending on the needs of the project.

"The interaction among participants allows and encourages development of thoughts and ideas."

In the cartographic literature, the seminal study was an application of the focus group method to dynamic cartography. Monmonier and Gluck (1994) had four sets of participants respond to narrated demonstrations of graphic scripts, i.e., graphic materials that tell a story. The study yielded a wide variety of input that is potentially helpful not only to the specific materials used in the study but to dynamic cartography in general.

Other use of open-ended techniques to gain information in cartography tend to have been embedded in studies that were primarily quantitative in nature. They also tend to have involved individual responses rather than group discussion . Olson (1981), for example, supplemented quantitatively-analyzable questions with open-ended ones that prevented naïve conclusions about map reader abilities with two-variable maps.

We are aware of no literature that discusses qualitative methods in general in the field of cartography. Neither did we find material that tells how qualitative methods, and focus groups in particular, should be taught or learned.

THE CLASS ACTIVITY

To explain our interest in focus groups and the reason we carried out our focus-group learning exercise, we need to explain the nature of our class a bit further. It is not a research seminar but a graduate course entitled "Map Automation". It includes a laboratory component in which the group develops a production project that furthers cartographic and related skills in a collaborative work environment. For the production project we chose to develop some multimedia materials in physical geography, and we discussed some of the ways that both qualitative and quantitative methods might be employed to evaluate our materials. We wanted to be prepared to actually conduct that evaluation (most likely after the completion of the semester), and the question was how we were to develop skills in qualitative methods *before* conducting that project and taking the time of numerous volunteer subjects. The focus group technique was of special interest in evaluating our project because we wanted participants to interact as they provided their reactions and insights, but we needed to develop some experience with the method. None of the students among us had ever participated as a subject in such a project, much less as a researcher. The instructor had been a subject in a focus group but had not used the technique in cartographic research. We decided that an in-class exercise actually using the focus group method would best prepare us.

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In addition to reading a selection of literature on focus groups, the instructor consulted a knowledgeable colleague (Sontag 1996) before selecting the issue, preparing materials, and developing the protocol. She arranged to have a video camera to record the session, as recommended in our sources. One of the students would be the notetaker and also assist the instructor in the planning and in setting up the room. The rest of us would participate as subjects and were told nothing about the content of the discussion other than that it would be some kind of map evaluation that could be completed in our regular seminar-style classroom. The session was to be held during regular class time. Most of us, then, were to be participants, or subjects, on the appointed day; the (student) notetaker and the instructor were to be the researchers. The following class session would be used for a discussion of the experience and results, a sort of meta-evaluation of the map evaluation project, in which we would all become part of the research team.

"The subject for the focus group was a new campus map."

The subject for the focus group was a new campus map. Produced by the Cartography Center (in contrast to earlier editions, which came from the MSU Physical Plant), it was a drastic change in design and would be updated, refined, and reprinted in the relatively near future. The map was new enough that its producers wanted and needed feedback, and no systematic evaluation had been done, nor were there funds for the producers to conduct such a study. It was an ideal topic for us for at least five reasons: First of all, our class knew the area well. We could react to more than mere symbols on paper. Second, although we might have seen the map in passing, no one had a copy of the map at that point, which meant all were approaching the map on the same footing. Had some been using the map for weeks or months while others were seeing it for the first time, we would not have been a suitably homogeneous group and it might have been difficult for everyone to participate at the same level. Third, as a relatively straightforward one-sheet (two-sided) map, it could be discussed fairly thoroughly in the time available but was complex enough to offer fodder for

good discussion and interchange. Fourth, we were a logical selection of subjects to react to the map because we all had experience with maps and map design. And fifth, it was not a "make-work" subject for the discussion; the producers of the campus map wanted the results.

Procedure-Day 1

On the day of the focus group discussion, a video camera was set up before the start of class. All had the opportunity to see how to operate it, a skill needed if we were to use the device later in a project of our own. At the start of class, the moderator (instructor) first had everyone tell just a little about themselves including what area we were pursuing in the graduate program and where we had taken our first cartography course and from whom. The instructor and notetaker gave this information about themselves first, setting the pattern for length and type of statement. This initial information was elicited to be sure everyone had a chance to talk, about something on which we were the experts (our own backgrounds), before anxiety embedded itself as a result of the presence of the video camera. Telling something about our first cartography course also helped to establish the common background we all shared.

"The moderator . . . went through a series of introductory comments that established the value of everyone's participation . . ."

The moderator then informed those of us who were participants that we would be evaluating the new campus map. She went through a series of introductory comments that established the value of everyone's participation and indicated the rationale (shared expertise in mapping and familiarity with campus) for this particular group to be discussing this particular map. No reference was made to the need to learn about the focus group technique; we were acting strictly as participants in the map evaluation that day.

The moderator presented an outline of the procedure to prevent any confusion about what was to happen. She also indicated that the subject matter was not sensitive and no one need hold any content of the discussion in confidence. She assured us that no one would be identified in connection with specific content in the report to the producers of the map and that only our class would have access to the tape, which would be erased when the report was completed. We were asked about previous exposure to the new campus map, again to establish for us that we were all approaching the map critically for the first time.

We then each received a copy of the map and everyone present (moderator and notetaker included) were to study it in silence for about 5 minutes. When people seemed to have had time to acquaint themselves reasonably well with the map, the study time ended, and we were asked to look at a list of issues posted on the blackboard:

Color
Image
Errors
Design Elements
Authority
Strengths and Weaknesses

"By going through the list of items and associated questions, everyone could be comfortable with the "agenda."

The moderator described the items, indicating the major questions associated with each. These focus questions appear verbatim in the report of results that appears in the Appendix.

By going through the list of items and associated questions, everyone could be comfortable with the "agenda." The moderator also indicated that other observations about the map, not fitting in these categories, could be

raised and that comments on any of the listed issues could come up whenever they fit the discussion (comments on weaknesses did not have to wait till the end, for example).

"The discussion was lively and all participants contributed."

The discussion was lively and all participants contributed. The brief study period was sufficient for each of us to have noticed things upon which we wished to comment, and the list of issues helped to order our discussion. We were very much engaged in the experience of participation, not once shifting gears to focus on technique (focus groups) rather than content (the map evaluation). That was important because the intention for that day was that we gain experience as subjects rather than as researchers. Discussion continued for 75 minutes, at which time it felt complete, neither prematurely ended nor stretched beyond usefulness.

As an evaluation of the product, the discussion was a success as well. Over 50 suggestions and comments resulted. They ranged from content issues ("The distinction between administrative and teaching buildings is unnecessary and takes up too much of the color contrast") to errors ("Reservoir is misspelled") to connotative aspects of design ("The green background is very appropriate for MSU") to pragmatics ("Some buildings are multifunction, which is not reflected on the map; . . . get rid of the distinctions . . ."). There was little doubt by the end of the discussion that makers of the map would benefit from a session report.

Shifting Roles-Day 2

"The subject matter for the next class session was the evaluation and discussion of the focus group experience and results."

The subject matter for the next class session was the evaluation and discussion of the focus group experience and results. In other words, we shifted roles and all of us became part of the research team. The reaction to the experience of being subjects was positive and all felt the session had been enlightening both with respect to bolstering knowledge and sensitivity to map design matters and with respect to understanding what a focus group discussion is all about, how it happens, and what it can accomplish. We discussed the various elements of planning that had preceded the session, including the prepared protocol and its importance even though the moderator was not reading directly from it, the role of the notetaker, and the arrangement of the room. By this time the moderator had viewed the tape and could comment on how difficult it would be to extract results from the tape only and yet how helpful the tape had been in the few cases where clarification of an item in the notes had been needed. We discussed the varying uses of the video tape for different kinds of analyses, recognizing that much could be done beyond the use we were making of our tape. We viewed a few minutes of the tape to gain directly a sense of how well it captured the session.

"A common concern about qualitative methods is interpretation of results."

A common concern about qualitative methods is interpretation of results, and we had had such concerns ourselves when we were first considering learning about focus groups. Perhaps map evaluations are particularly untroublesome in this regard, but there had been very little disagreement on points made about the campus map. When there was any hint of such disagreement, the moderator had acknowledged it and encouraged expression of alternate opinions such that the spectrum of viewpoints could be covered in the report (e.g., "There were differences of opinion on whether the inside of the stadium should be solid green . . ."). We were comfortable with the notion of reporting both agreed upon opinions and alternative opinions when they existed. In other words, after actually participating in the focus group exercise, we found ourselves far less concerned with the interpretation issue because we could see that both agreement and disagreement become a part of the results.

Following the two in-class sessions, the instructor compiled a draft report for the Cartography Center. It was sent by e-mail to the rest of us, and we suggested edits and changes in an effort to make the report as complete and accurate as possible. At the end of the designated time for responses, the report was submitted to the Center.

CONCLUSIONS AND COMMENTS

Our main conclusion was that the in-class focus group study was an effective way of becoming acquainted with the focus group method and of learning first-hand about the elements that distinguish it from ordinary classroom or group discussion. It was also convincing of the merits of the method in cartography because the final report was a rich set of suggestions for the makers of the new campus map. The source materials (readings on the method) had been excellent, but the exercise had given insights that cannot be gained from reading. It was a positive experience that gave us enough knowledge to be confident that we could select and use the method when applicable in other research projects.

The first-hand experience also brought home the observation made by Monmonier and Gluck that map design "is a subjective, largely wholistic process; and focus groups appropriately avoid the limitations of inherently narrow subject-testing strategies more suited to evaluating hypotheses than to refining complex presentations" (Monmonier and Gluck, 1994, p. 46). It was inconceivable that any quantitatively-analyzable survey of users would have resulted in the array of information that resulted from the 75-minute focused discussion.

"It is interesting in retrospect to observe how different this learning process is from the processes of learning about quantitative research."

It is interesting in retrospect to observe how different this learning process is from the processes of learning about quantitative research. We learn quantitative methods primarily by working with the measurement and manipulation of data. Being a respondent to a Census form would hardly be a major contribution to our education in the use of survey data. Qualitative methods are considerably more personal; they are designed specifically to observe "attitudes, opinions, feelings, and behavior" (QRCA, 1998). As such, understanding the role of "the observed," the participant in other words, is of utmost importance in understanding the nature of what can be observed.

The study, and hence the learning experience, had its shortcomings. One was that we were looking at a specific map and giving feedback to its makers rather than looking at something with more general application within the field. Even that seemingly limited application, however, led to the highly general and broadly-applicable observation for the class (not for the producers of the campus map) that such focus-group study of specific maps would help cartography students to develop knowledge of design. *Learning* to design, like the map design itself, is also wholistic and in need of approaches other than classroom lecture and hands-on map construction, the traditional mainstays of cartographic instruction. The rich array of comments resulting from the 75-minute discussion suggests, too, that broader application of the focus group technique by commercial and other producers of maps could bring considerable insight and likely improvement of products.

"Learning to design, like the map design itself, is also wholistic and in need of approaches other than classroom lecture and hands-on map discussion."

Another shortcoming was that our use of the method did not take us deeply into the analyses that are possible with qualitative research, and there was no discussion, much less use, of software for qualitative analysis. A more thorough treatment of qualitative research methods would include such discussion and experience.

In addition to our (qualitative) conclusion that it was a worthwhile experience, there is evidence of the success of the experience in activities following that class. Three class members later subjected the laboratory

project carried out by the class (those physical geography multimedia materials) to a focus group study. At least two students are employing the technique as part of dissertation work. One student used, in a subsequent seminar, another of the qualitative techniques covered in the reading materials. And the instructor has conducted curriculum-oriented focus group discussions with three different groups as part of a collaborative study with a colleague. In each case, the method was appropriate for the data needed, data that might well not have been gathered had the researcher not been familiar with the focus group method.

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APPENDIX

Report to MSU Cartography Center from GEO 823 Class (F'96)

Focus group study of the new campus map

Geo 823 conducted a focus group study of the new campus map during the week of November 18, 1996. The study was conducted as a learning experience, as students are interested in using the method later to examine dynamic maps and map-related products. The session was not simply "practice," however. The Cartography Center wanted feedback on the new campus map, and the needs of the class and those of the Cartography Center were both to be served by the exercise.

Ellen White posed the subject to Judy Olson, who, with the help of Amy Lobben (and using Stewart and Shamdasani, *Focus Groups* . . .), planned the questions and procedures to be used. Olson served as moderator and Lobben as notetaker during the procedure. Seven other Geo 823 students (Lesha Broomes, Geoffrey Duh, Lisa Dygert, Jill Hallden, Alison Philpotts, Ian Sims, and Jen Ware [Scott Drzyzga was attending professional meetings out of town that week]) were participants during the focus group session.

All students as well as instructor later participated as "researchers" for the evaluation and writeup of the outcomes. The session was videotaped for experience in using the equipment, but the content is not being (and was not planned to be) subjected to content analysis. Our goal was to write up the main points in organized fashion for use by the Cartography Center.

The session was limited to about 75 minutes. Participants were not aware of what cartographic product would be evaluated until coming to the session. Each participant was given a copy of the map and several minutes were allocated to individual examination of the map. The main items for discussion were then presented. They included:

Color: Are the colors used effectively? Is color appropriately balanced, say between parking lots and buildings?

Image: Does the map give a sense of the campus, or would one be surprised upon reaching campus? Does the map represent MSU positively? Does the map look refined or crude? Does it look modern / old, formal / informal; does campus look inviting / uninviting?

Errors: Do you see any mistakes on the map (as opposed to design flaws)?

Design elements: Other than color, what design improvements could be made? Attention was called to this list of items, with no obligation to cover any or all:

Type
Logo
Title (size / placement / wording)
Indexes
Scale bar
Graphic indications of scale
Campus definition
Use of space
Graphic clarity of the map
Clarity of Symbol meaning
Linework
Figure-ground
Symbol hierarchy
Details
Printing quality
Map size
Paper quality
Content
Spatial coverage

Authority: Does the map look authoritative? Does it look trustworthy?

Strengths and weaknesses: What are the strengths and weaknesses of the map?

The **keywords for main issues** were posted on the wall to keep discussion focused. Comments resulting were as follows:

Color:

- Faculty parking lots look like buildings; the brown is too dark. The classes of parking do need to be distinguished, however.
- The color of student lots is too light; it blends with the background. If an alternative color is not feasible a hairline outline might be used.
- The distinction between administrative and teaching buildings is unnecessary and takes up too much of the color contrast. The difference between them could be subtle if needed at all. The map could have more detail if less building colors were used.
- University apartments look more like parking lots than buildings, and their parking lots look like buildings. Interestingly enough, those who live there did not notice that until it was pointed out; it was those who live elsewhere who brought it up.
- Non-university buildings are a shade of gray not indicated in the legend.
- What are the gray areas near Manly Miles (should be brown maybe, since they have parking lot numbers)?
- Visitor parking stands out well.
- The street outside of the Student Union is white, which makes it look like a parking lot. It is inconsistent with other areas with similar parking.
- Street labels do not show up well when printed over gray.
- Emergency phones seem to "float." Sidewalks would make sense of their location.
- Buildings have no depth. A 3-D effect would be useful.
- Pool outside IM Sports West is not labeled.
- Fields south of Munn look awkward; the whole area should be labeled as a recreational field.
- When asked if the colors were appropriate for campus, one participant remarked that there was a lot of blue and gold, a comment not lost on the rest of the group.
- The green background is very appropriate for MSU.
- The Stadium would look more like Spartan Stadium if it were solid green and the S were white (it happens to be white on the big billboard by the Stadium, too). There were differences of opinion on whether the inside of the stadium should be solid green; the S would show up on the light green anyway, or a small solid green block could be behind a slightly smaller white S.
- On the back of the map, the blue for non-campus area looks like water. Beige is a possible alternative.
- On the Places to Visit map, the black-on-red labels are hard to read (but white circles should definitely not be used).
- Participants were slightly bothered by the use of gray for roads on the front and white on the back.

Image

- The question "Does this 'look' like campus?" brought noticeable silence. It does not give as much feeling of the campus as it might.
- The distinction between housing and other buildings is good. Colors all blend together.
- The 3-D on the old map was good.
- The trees on the old map were good.
- The new map looks clean and stark; it could use detail (notably sidewalks, trees).

- Campus would look friendlier with trails (sidewalks) and trees.
- (In response to a specific question) It looks moderately formal-stark so a sort of "boring formal look" but a lot of things on it so somewhat "informal."
- Definitely looks modern, which is fine, but it doesn't reflect age of campus. (It would be fine to look like a modern map of an older campus.)

Authority

- It looks trustworthy.
- Some buildings are multifunction, which is not reflected on the map; the suggestion is to get rid of the distinctions rather than refine them.

Errors

- The tennis courts have changed location.
- Reservoir is misspelled.
- Change Olin to Olin Health Center as its function IS important. Other emergency buildings should also be more explicitly labeled and perhaps colored red: Public Safety, Fire Dept.
- Why is Central School indicated and not other nearby ones? Is it the only one used as a lab school? Even the one right on campus (in Paolucci) is not labeled.
- Spartan Village School is not part of the University so needs a change of color.
- The far left highway is a different color than other roads.
- Some roads are misregistered on the press.
- On the small-scale map on the back, MSU campus should be under the highways.
- Parking lots 37 and 41 are not faculty / staff.

Design

- Should distinguish grad assistant parking. The group acknowledged that grad students probably use this map quite differently than freshmen.
- It would be nice if the parking map could be incorporated but people recognized that it is probably not feasible to do so.
- Place the highway symbols over the highway and open up the background so the number is readable (use "convert to paths" in Freehand).
- Move the scale down so it does not go over roads.
- Move the north arrow up by the scale.
- Change scale on the back to miles.
- Grid is not proportional so locational grid cell A-1, for example, is a rectangle. Intended?
- Type on smaller roads does not fit within the street.
- The placement of the Grand River label is inconsistent (on or beside the street).
- Direction of labels is not consistent.
- The paper choice was good in that it is high quality and is not as "noisy" as the old one when being folded and unfolded. It does produce some glare, however.
- A different photo from Kresge could be more interesting.
- The area coverage is good.
- Map size is good.
- The Office Index might be relabeled "Selected Offices." (With the current label, one expects to find departments listed, but adding them is probably not feasible.)
- Type size drew favorable reaction from all the young eyes in the group;

the older-eyed moderator found it a bit small for all the space on the map.
- Names on buildings is good.
- Wharton Parking (19) needs color change (or maybe putting "Wharton Parking (ramp) 19" right over the building would clarify it?)
- There is no real figure / ground difference.
- Perhaps the Stadium, Munn, Breslin, Kobs, . . . need some kind of emphasis. All in Spartan Green?
- The presence of the date is good.
- The smaller maps on the back do not need emergency telephone symbols.

Strengths and weaknesses
- Time was running out and we thought they were already covered reasonably well anyway. Although there are numerous suggestions for improvement here, the class reacted favorably to the map and found it worthy of discussion and attention.

Participants were explicitly told that the content of the discussion was NOT confidential but that "who said what" would not be identified in this report nor would the tape be seen by anyone outside of class.

We hope these comments will be useful to the Cartography Center and will appreciate feedback about their usefulness. We will also be happy to clarify if we can.

Geo 823, Fall '96
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