THE LIKERT SCALE GOES MARATHI: A "NEW" TECHNIQUE FOR SURVEY RESEARCH IN THE DEVELOPING WORLD

Dr. Thomas Arcaro, Associate Professor of Sociology, Elon College, Elon College, North Carolina 27244 USA

Paper presented at the XXXII Congress of the International Institute of Sociology "*Dialogue between cultures and changes in Europe and the World*" held in Trieste, Italy, July 3-7, 1995.

Reflexive Statement

In the summer of 1994 I had the wonderful experience of traveling to the Comprehensive Rural Health Project in Jamkhed, India. This was my fourth trip to CRHP, located 180 miles east of Bombay in rural Maharashtra, and my third trip with Elon College students. On this most recent trip I and two students worked closely with an official of CRHP who is equally fluent in English and the local version of Marathi, the state language of Maharashtra. Our main research goal was to learn more about CRHP in general but more specifically how being Village Health Workers (VHW's) impacted the self esteem and overall lives of a group of women. In the course of working out the logistics of our data collection we decided to experiment with a "new" technique for doing surveys. This trip was rewarding on many levels, not the least of which was the sense that we had pioneered a new and useful research technique which may someday allow villagers an additional tool to learn about themselves. The goal of maximizing social justice in all settings is served by developing more ways to hear the voices of the illiterate, and my hope is that the following discussion of the technique we used will be a useful step in that direction.

Introduction

The traditional method for gathering survey data from rural villagers in India has historically been to employ a team of interviewers who travel to their designated sites and randomly pick (every fifth dwelling, for example) households in which to complete surveys. Questions are asked and the responses are recorded according to preestablished categories. In short, open ended answers are categorized so that quantitative analysis can take place when data from many households and villages are combined. The interviewer does record qualitative data, and this is used to augment description and analysis. This technique has many drawbacks, perhaps the most dramatic of which are the lack of inter-interviewer reliability and the cost in time and travel. Completing more than a handful of surveys in any one day is difficult for many reasons, not the least of which is the time consumed in the course of gaining rapport and conforming to prevailing norms surrounding being a visitor in a household (being served tea and a snack, for example). One interview can easily consume an entire morning or afternoon. The remainder of this paper will discuss the "new" technique we employed to gather data on the self esteem of the Village Health Workers at CRHP. This technique is, of course, "new" only in the sense that it had not been used in this kind of context before. The mistakes we made, the difficulties we encountered and the hindsight we can offer are presented below.

CRHP and the Self Esteem of VHW's

The Comprehensive Rural Health Project located in Jamkhed (population 35,000) was established in 1971 by Drs. Raj and Mabelle Arole. Although a CRHP run hospital has been in place in Jamkhed since the early 1970's, curative health care has never been the primary focus of CRHP. Women from approximately 175 surrounding villages have been trained over the years to be Village Health Workers, the central component of the CRHP system of addressing the health and justice issues in this area. (For more information concerning the history, structure and philosophy of CRHP and how VHW's fit into this structure see Arole 1994, Arcaro 1992, 1994.) VHW's do respond to the curative health needs of the villagers, but their main focus is on preventative health care and related justice issues such as gender and caste. As part of a doctoral study in social work the self esteem of the VHW's had been measured in 1987 (Brenden, 1988). We were interesting replicating this study to determine if there had been any change in VHW self esteem over time, but had only three weeks in which to gather the data. Literally replicating Brenden's study by doing one-on-one interviews with the VHW's was too labor and time intensive, especially considering the language barriers, hence the idea of doing "group" surveys was born. Our methodological decisions were admittedly confused at times; we wanted to accomplish perhaps two mutually exclusive goals, i.e., remeasure the self esteem of the VHW's and test out a new methodology.

Over a period of three weeks our team completed surveys of 64 women in six group settings. The survey team varied, but present at all groups were the Elon College team plus our translator, Ravi Arole. Additional CRHP staff assisted in various groups and in the last three sessions Muktabai, herself a VHW and one of the first to be surveyed, was of great assistance in communicating examples and clarifying directions.

In Brenden's original study he used the "Jamkhed Index of Self Esteem" or JISE which he adapted from the ISE or Index of Self Esteem (Hudson, 1982). Using a variety of cultural and linguistic experts both in the United States and in India, Brenden had the ten items which comprise the ISE translated in such a way as to maintain the integrity of the instrument while at the same time making the questions meaningful to the local village women. (The nature of this original translation and that of the questions our team added will be discussed in a later section of this paper.) In order to maximize the opportunity to gather data and to answer additional questions we had concerning other related issues we added ten questions, making the total survey 20 questions long. Brenden's survey (see appendix) asks questions and then puts the responses into five categories. We modeled our additional questions after this format.

We had originally thought that collecting demographic data to be used as potential independent variables would be crucial. We devised a survey sheet with what we thought was a standard array of demographic questions. (see appendix). We anticipated a need to maximize the perception of anonymity, and planned to hand out the demographic sheet after the survey was completed and, with a simple code, match the proper demographic sheet with the response sheet from that person. In conversations with CRHP staff and several veteran VHW's, it was decided that this idea would be scrapped, the reasoning was that these questions would be too sensitive to be asked publicly. The procedure we eventually used on all groups was as follows. After the survey was complete our translator would collect the surveys one by one, asking each woman her caste/religion, how many years she had been a VHW (if relevant), and how many years of education she had received. This information was written on the completed forms.

Getting the VHW's all together at one time was known to be impossible from the beginning. As most field researchers learn very quickly (especially in rural areas of the developing world) you take what you can get, when you can get it. In our case that meant using serendipitous gatherings in addition to "called" meetings. It is no small point to say that serendipity played a big part in much of what we did, with one of our main accomplishments being able to adapt to changing circumstances and turn them to our advantage. An example relevant here is a visit from a group of health workers from the urban area of Pune which had come to CRHP for some training. We were able to survey this group during their visit and further refine our technique.

The "pilot" group

As a first step we decided to pilot test the survey on a group of local women from a mixed harijan and tribal neighborhood close to CRHP. It was assumed that if we could complete surveys with these illiterate and very submissive women, the more highly trained VHW's would be possible as well. The group of seven women which were invited to the CRHP compound were a challenge. It was immediately obvious that our pencil and paper survey would be difficult, even with the supreme patience of our translator and other CRHP staff. The act of holding a pencil and making a mark was alien to them, let alone putting their responses in a space which represented their views. Our effort to communicate what we were doing and how they were to respond lasted for almost two hours, with not even one survey question answered. From this session with these women we did move forward in our trial and error effort to make this technique work. The necessity of going through a series of practice questions became apparent.

Here a brief anecdote may serve to further illustrate the complexity of doing pencil and paper research among illiterate persons. The question, "What kind of mark should I make?" was asked by these women. I had assumed any mark would do, and that an "X" would be sufficient. The letter "X" is of course English and has no similar sign in Marathi, so these woman would have not even a passing sense of what is was. Same for a "check" mark. They were very concerned about exactly what kind of a mark, wanting to get it right for their visitors. Finally Muktabai (who was observing in this session having helped to gather this first test group) suggested that they "make a round" that is, a small circle. Hence for the remainder of the sessions the mark became a "round." A circle is a common, comfortable symbol for them to use, having resonance in the local culture. One main point of this anecdote is that even the smallest of details cannot be overlooked, a lesson we learned and relearned many times throughout our research.

Practice questions

Before our first session with VHW respondents our research team devised several practice questions which we felt would (1) allow the respondents to become familiar with the concept of making a mark on a sheet of paper which represented their view or a fact about themselves, (2) teach the respondents how to follow instructions with regard to the entire process, and (3) test the degree to which the entire process was working, e.g., specifically, whether or not the women could remember all of the five potential responses. The use of the practice questions had some unintended consequences and was very useful on many levels. For example, we found that this period of practice was essential in establishing an overall feeling of ease in what otherwise was a fairly bizarre situation for the women. A second useful outcome was the identification of the "trouble" respondents in each group. We found that in each of the six groups we tested there were always two or three women who had a great deal of difficulty grasping the basic idea. These respondents frustrated those who picked up the idea quickly and became bored with the repetition of the explanations and questions. Eventually we learned to give more staff attention to these women. In the first session with VHW's Muktabai was very quick to pick up and become enthusiastic about the basic idea. Since she lived close by and was available she became a valuable member of our research team and was typically "assigned" to shepherd through those problem respondents in several sessions.

The practice questions were ordered in such a way as to be progressively difficult. The first question asked was simply, "How many earrings do you have on?" (In this population virtually all women wear earrings.) All respondents, we felt, would be competent to answer this question and would have no problems with our five categories for response: one, two, three, four, five or more. We quickly found that in even such a simple question there can be difficulties. The idea of "five or more" had to be explained in detail ("why so precise in number and then so general?"), but eventually made sense. We did have yet another translation problem with this question. In this local version of Marathi the word "earring" infers a pair, so that when we were counting two pieces of jewelry, the women were thinking one. If this practice question on number seemed in need of more clarification we would proceed to a similar question about number of tattoos.

After we were satisfied that all respondents had understood, we went on to the next type of question. We asked, "What is your favorite color?" with the five responses being blue, yellow, red, orange and green. This question had two functions. First, since it is likely that someone's favorite color is not in that short list, the question of how to respond is raised. We allowed for the question to arise and then would answer with the question, "Which color in the list is closest to your favorite color?" For example, if their answer was pink then the response they should indicate is red, and so on. A second function of this question was to raise the point that there are no "right" or "wrong" answers to any of the questions, just honest (i.e., "valid") ones. This was point reinforced with the next practice question concerning "ladoo," a local food which people tend to either like a great deal or hate. The response categories for this question now began to mirror that which would be the pattern for the actual survey questions, i.e., on a five point Likert scale from "strongly agree" to "strongly disagree." A similar question about their taste for mangos was used to reinforce this type of response.

Practice questions were used in all groups, with the actual number ranging from 4 to 8, depending upon how quickly it was determined that everyone in the group knew how to respond correctly. Asking these relatively innocuous questions served additional latent functions in that during this period all were made to feel more at ease with the setting.

At this point, before the actual self esteem questions were asked, the translator made special pains to (1) determined that all participants were as ready that they could be, (2) locate potential "trouble" respondents and make sure that they were given special attention by himself or other CRHP staff members when needed, and (3) give a lengthy statement concerning validity and anonymity. The women were told that there was absolutely no reason to tell anything other than the complete truth. Additionally, they were told to not look to each other with regard to how to respond to questions. In rural Indian culture there is a tendency to "stay with the group" with regard to views on the world, especially among women. The point that they should be honest and not look at other's answers was continually underlined throughout the questioning. Just like with students taking an exam in class, we had the women spread out as much as space allowed in order to minimize the temptation to glance at a neighbor's paper. In talking with the women in focus groups after the survey sessions we found that some of them

initially had viewed the experience as some sort of a test or examination. (More concerning results from the focus group discussions later in the paper.)

Separate from grasping the idea of indicating with a "round" one's opinion or a fact about themselves was the basic concept of how to deal with putting these responses in the proper location on the grid answer sheet we provided. In all groups there were many women who had to be reminded that the numbers of questions ran vertically down the page and the range of responses appeared horizontally. This remained a problem with even the brightest of women in all groups.

As mentioned above, our final survey contained 20 questions, all 10 ISE questions had five responses possible, and 6 of the 10 questions our research team added had five as well. Three had four responses possible and one had only three. This break in the pattern came in the final four questions (16-20), and did not seem to confuse the respondents. These questions were constructed in this form on the advice of our translator who felt that the fewer responses were sufficient; the rule of parsimony won over that of symmetry and consistency.

Overview of the procedure

Having come to the CRHP compound for a variety of reasons, each of the six groups of women were taken to a large meeting room where they were asked to spread out on the floor as much as possible. The translator would introduce the Elon College research team and give a general overview of what was to be expected. The Elon team's role, as was explained to the women, was to observe and record the process on still and video cameras, take notes, and generally assist in any way we could. The women were told that we were researchers interested in the views of the women and would use this information to tell others in our country about the VHW's and CRHP.

After all of the initial questions were answered, we passed out pencils, erasers and response sheets to each woman. Using a blow-up replication of the response sheet on a flip chart, the translator next explained in detail the process: statements or questions would be read, possible responses would be given, and the women were to put down their response. The practice questions were used at this point, then after these were completed we

collected the practice response sheets and passed out fresh ones to each woman. Finally we began with the actual 20 survey questions.

After the survey was completed, the response sheets were collected and relevant demographic data were noted on each sheet. When all the forms had been collected we thanked the group for their help and invited them to talk about what they had just experienced. Frequently not all of the group could or desired to stay (fatigue being a factor at this point), but we were able to get a good discussion of the process following all of the sessions. Whenever possible, several of the women were asked to meet at a later time to be part of a more intensive discussion of the survey and the overall procedure. Their feedback and help, they were told, would be very helpful in understanding the information and refining the process.

Group size	Explanation time	20 question time	Total time	Time/Question	Staff (Staff hours)
8	30 min.	150 min.	180 min.	7.5 min.	4 (12)
16	15 min.	90 min.	105 min.	4.5 min.	3 (5.3)
14	45 min.	105 min.	150 min.	5.3 min.	2 (5.0)
5	20 min.	75 min.	95 min.	3.8 min.	2 (3.2)
13	20 min.	55 min.	75 min.	2.8 min.	1 (1.3)
20	45 min.	45 min.	110 min.	3.8 min.	3 (5.5)

Below is a chart which summarizes the results of our efforts:

Results: how efficient was the "new" technique?

We surveyed 5 groups of VHW's and one group of non-VHW women as a control group for comparison purposes in looking at the self esteem of the women. Because we only needed this control group to compare scores on the first ten (JISE) questions, and because with this group fatigue was a major factor, we stopped the session after question 12. The chart above shows the data we recorded concerning each session. The "Explanation time" refers to amount of time consumed during the introduction of the idea to the group and the administration of the practice questions. The "Time/Question" was calculated by dividing the number of minutes consumed questioning by 20. "Staff" refers to the number of CRHP staff which helped during the session, with Ravi Arole (our translator) always counted as one. As mentioned above, Muktabai, herself a VHW, helped out in several sessions, and during the Control group session three VHW's assisted.

The final number in parentheses "Staff hours" is of crucial importance and was calculated by multiplying the "Total time" by number of staff and dividing the result by 60 minutes. This number represents the overall efficiency of the technique.

In describing his methodology Brenden does not indicate how long his team took to complete individual interviews, but CRHP staff who were present at the time estimated that on average members of his team were able to complete 2-3 interviews per day using the traditional interview and code technique. This figure of 2-3 interviews per day was seen as fairly typical by a group of Pakistani and Nepali United Nations health care professionals who were visiting CRHP at the same time we were completing out study and had worked on or had administrated village surveys in their countries using the traditional technique.

Under the assumption that one person would be able to do 2.5 interviews per 8 hours, it would take that person 204.8 hours to do 64 interviews (2.5 interviews per 8 hours would mean one interview would take 3.2 hours per interview, hence 64 interviews would take 204.8 hours approximately). With our "new" technique we were able to complete 64 interviews with a total of 32.3 staff hours. Phrased in the most favorable way possible, the "new" technique was over 6 times more efficient than the traditional technique (204.8 divided by 32.3 equals 6.34).

(insert chart here)

The comparison of techniques is much more complex than outlined above in several ways. Although our survey asked twice as many questions than did Brenden's, he and his team were able to collect qualitative data from each of the women they talked to. With our technique, the qualitative data consisted in the ethnographic notes taken before, during and after the sessions and in the focus group sessions with small groups of VHW's. Despite major differences, the fact remains that in a very limited amount of time we were able to gather enough data to take a reasonable remeasurement of the self esteem of the VHW's. Not inconsequentially, our data for the mean JISE score for both the VHW's and the Control groups is remarkably similar to Brenden's (see Arcaro 1995 for a presentation of these data). In fact, our mean JISE score for the Control group was exactly the same as Brenden's (3.1 on a 5 point scale with the higher number indicating higher self esteem).

The validity and reliability issues

In any research the questions of reliability and validity are crucial, and the research team takes all measures possible to minimize any sources of bias. However the extent to which the researcher can take these measures is balanced by an array of factors typically including time, money and staffing limitations. Given the charge of generating survey data in a reasonable amount of time from, for example a block of 10 villages of 2000 inhabitants each, the traditionally employed technique would be to train a team of surveyors and then send them to individual villages to do random household surveys. This technique has many drawbacks including the fact that it is very time intensive to train the survey team and to physically travel to all of the sites. Yet the major drawbacks have also to do with validity and reliability.

Doing an in home interview can frequently mean respondent inattention and/or distraction, especially when the subjects are female. The needs to children and food preparation, for example, could not be ignored for long, and interruptions most likely would serve to diminish both reliability and validity. Since the conditions could never be exactly the same from one visit to the next, reliability would always be in question and, given the logistical problems involved, would, practically, never be measured and hence known. The ploy of using repeat questions to test for internal reliability would be confusing to the respondents. With regard to validity the situation is as tentative. Given the more or less public nature of village life (thin walls, open doorways, young ears all about, etc.), a typical respondent might have reservations about being totally open. This is especially true in the case of females when being asked personal and/or sensitive questions. The issue of inter-interviewer validity and reliability is always a problem, and when linguistic subtleties can present major problems of communication, this problem is exasperated. It is certainly the case in rural India and to a large extent in rural areas all over the developing world that speech communities develop idiosyncrasies over time, and that a researcher fluent in the regional language may assume a question is understood when in reality it was not. (Recall the example above during our practice sessions concerning number of earrings.)

The "new" survey technique we tested certainly has the potential for significant bias, however it does negate the two major problems of interinterviewer reliability and time, travel and labor costs. In talking with the women in the focus groups after the sessions we asked them about how "truthful" they were able to be in this setting, how much they were effected by those around them, and whether or not they would have answered differently in a one-to-one setting in their village with an interviewer. The answers we consistently got to these questions were that although they were a bit disoriented by the paper and pencil technique, they felt more free to tell the truth in this group setting. Several times it was pointed out rather vigorously that when they had had occasion to be interviewed in their homes they felt they had to give the "traditional" answer, i.e., the one that their husband or mother-in-law would expect them to say. As to the issue of reliability, we did not retest any group, but with this technique accomplishing that step would not be prohibitively difficult or costly.

Hind sight is always 20-20

There are many aspects of what we did with this experience that, looking back, could and maybe should have been changed. First, our survey was too long, especially given that fact that we had to add on from 4-8 practice questions before the actual survey. Even though our research team (especially the translator who learned which types of explanations worked best as time went on) had a fairly quick learning curve, and we became more efficient as the sessions proceeded, we had no group finished in under an hour and fifteen minutes and the average time for the six groups was about two hours. Concentrating for that length of time is difficult for anyone; fatigue and lack of concentration became a challenge even for the most motivated groups near the end of the 20 questions.

A second problem with our survey was inherited in the sense that we had the goal of replicating Brenden's study and hence had to use his original questions. Even though we certainly had the liberty of formatting our additional ten questions in any alternate form, we made the questionable (retrospectively) decision to carry on in a fashion parallel to Brenden. Our reasoning at the time was the a change in format would cause undo confusion and necessitate additional explanation. An alternative format would have been much simpler for all involved would have been to use a standard "Strong agree" "Agree" "Unsure" "Disagree" Strongly disagree" set of responses. Had we done this, the translator could have explained this response set clearly once, and then simply read the prompt statement or question and waited for the women to write their response. Our translator has estimated that simplifying the response categories in this fashion would have cut our survey time by approximately half, at least. Under this assumption, we predict that this technique is potentially 12 times more efficient than the traditional method (recall the numbers mentioned in comparing the techniques cited above).

Recommendations and conclusions

It is not suggested that this "new" technique replace extensive use of one-to-one interviews and other qualitative methods which have historically been employed to gather data from illiterate populations. The best use of this technique will be to augment and follow from these methods. It is assumed that using this method will be potentially very useful in gathering longitudinal data. Once the general idea of taking a survey in this way is learned by a group of villagers, subsequent surveys of the same population will be even more efficient.

Several caveats need to be expressed to those having the opportunity to use this technique in developing world populations. First and most importantly, language and translation problems must be dealt with effectively. As pointed out above, speech communities can be somewhat idiosyncratic, and mistakes are easy to make a potentially catastrophic in scope. For example in our practice group of women when we were still attempting to collect the demographic data via written responses our translator asked "how many children do you have?" The Marathi word for "children" is technically inclusive of males and females, and would be recognized as such by most urban speakers. However in this location the word children was interpreted to mean only *male* children. Our mistake was only discovered after Muktabai saw the obvious mistake and pointed it out to us. This anecdote illustrates not only the importance of being sensitive to translation subtleties, but also the value of using highly motivated local villagers to aid in the process of translation and communication. This person should be carefully selected and she/he and the main translator (be that the researcher, as in our case, a third party) should be able to develop complete rapport and trust.

This person from the village should be used to help gather a practice group from that village on which the instrument could be tested for any potential linguistic difficulties.

The optimum location for the group surveys is a "neutral" site away from the ears and eyes of other villagers. Our good fortune at having the facilities of CRHP for our use will not be the case for most other researchers. Possible sites which could be used include school buildings, warehouses or even open areas outside. All which is need is pencils, the paper forms and something hard on which to write. We had the women use the floor, but simply providing clip boards or something similar would make it possible to conduct the survey anywhere were privacy could be assured.

The use of feedback from the participants is crucial. Focus groups should be organized and questions about the process of the procedure should be asked. In this setting useful information regarding the validity of the data can be collected and feedback concerning how to better proceed in other settings. *Investing in people* instead of things is one of the main thrusts of CRHP which should be employed in as many other settings as possible. Making use of local people to aid in the research may take more time initially, but it will pay dividends on many levels, especially with regard to follow-up surveys in the same village.

A final suggestion is that the results of the survey are communicated back not only to the leaders of the village but also to any who are interested. This was done at CRHP last summer only in a haphazard way; no "formal" presentation was made to the VHW's. In retrospect, this is one of the major failures of our research experience. Presenting the data to the villagers in a way that makes sense will be a challenge and there will be a tendency to assume that "they just won't be able to understand the concepts." I disagree. Through the use of effective analogies and reasonable simplification of some concepts, the basic data results can be communicated. Framing the survey as something done *for* instead of *to* the villagers initially will make this step seem appropriate and natural.

The long term plan with regard to this technique at CRHP is to have the VHW's themselves generate the questions and eventually take over the administration of the surveys. With practice and training it is hoped that eventually the VHW's could be used to gather important data from their villages by doing group surveys at Farmer's (men's) and Women's Clubs meetings. At CRHP a tradition has been developed that whatever the VHW's learn at their fortnightly seminars they bring back and teach to their fellow villagers, and so it should go with this survey technique. The task of tabulating and interpreting these data would initially fall on more highly trained CRHP staff, but eventually it would be possible that this too could be done by the VHW's or other educated villagers.

The *sine qua non* of true grassroots action is communication from all segments of a community. Experimentation with the use of this "new" technique in other developing nation settings is strongly recommended. The goal of social justice is served by developing more valid and efficient means of hearing the voices of the illiterate and traditionally powerless. In a situation where the villagers would be able to eventually conduct extensive village wide surveys, the typical pattern outside entities (most commonly the government but at other times aide agencies) coming in and paternalistically dictating that "this is what the village needs," having survey data amounting to a community needs assessment produced internally would turn the power relationship upside down.

In no way is this technique a "silver bullet." It is, modestly, an offering to consider an additional possible path of empowering and hearing those with the most to gain from uncovering the truth.