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Direct matrix ranking (DMR) in Kenya and West Bengal

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• Introduction

When Gordon Conway and I went on from Ethiopia to Kenya, we continued to work on ranking methods. We took the criteria elicited from pairwise choices and made a table, with the criteria down the side and the items (in this case species of trees) across the top. The informant was then asked to rank the items according to each criterion in turn. Table 1 is an example of the result.

Later, in West Bengal, with Robin Adhikari and other staff of the Indo-British Fertiliser Education Project, a further change was introduced. We ran into the problem of incomparability. A respondent objected that "I cannot compare these two varieties of paddy because I plant them on different sorts of land". We had to improvise another method for eliciting criteria other than pairwise choices, so we asked directly what was good and what bad, about each item. We then used this method for varieties of paddy/rice, for types of vegetables, and for types of fertiliser (Tables 2-4). 'Direct matrix ranking' or DMR describes the method because it moves quickly from early discussion and questioning to recording respondents' views directly onto a table or matrix. It is simple, quick, and informative, and everyone seems to learn something from it.

How to do it: seven steps

As it stands, the procedure has seven steps:

1. Choose an individual or group.

2. Choose, or ask people to choose, a class of object (tree species, paddy varieties, vegetables, fertilisers etc.) which are important to them and about which they know.

3. Ask them to name the most important. The list could be anything from 2 to 7 or more. So far 4, 5 or 6 have proved best.

4. Elicit criteria. For each item in turn ask: What is good about it? and continue asking until there are no more, and then what is bad about it? and similarly continue to exhaustion.

5. List all the criteria. Turn negative criteria (e.g. vulnerable to pests) into positive ones (e.g. not vulnerable to pests) so that all are positive.

6. Draw up a matrix with the objects across the top, and the criteria down the side.

7. Ask which object is best by each criterion. With six objects, I have found that the following sequence works quite well:

- which is best?
- which is next best?
- which is worst?
- which is next worst?
- of the two remaining, which is better?

Record the rankings directly onto the matrix. Force a final choice with questions on the lines of: "If you could only have one of these, which would you choose?" Which next? Which next? etc.

Experience and reflections

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1. With whom? We have used the method, or something like it, with both individuals and groups. Both worked well. Groups have several advantages:

- a wider range of experience is brought to bear;
- responses tend to be quicker;
- if one person gets tired, others can take over;
- more criteria are likely to be elicited, and more quickly; and,
- arguments which develop can be revealing, and identify issues for further investigation.

Groups also have the usual disadvantage that some people may dominate while others stay quiet.

A homogeneous group (eg. all men, or all women) may be easiest and most informative. Our groups in West Bengal were mainly male marginal and small farmers, although our party did manage to do one ranking of paddy varieties with women. Whether mixed groups, e.g. of men and women, would reveal more through arguments and disagreements needs to be tested.

2. By whom? Two people may be best, one to ask the questions and conduct the interview, and the other to keep notes and do most of the work collating and listing the criteria. The second person can also observe what goes in a group, noting potential key informants for follow-up, and listing points for further probing.

3. Whose criteria? It is tempting for interviewers to introduce their own criteria. This should be done only at the end, and the criteria should be clearly marked off from those of the respondents.

4. Listing and weighting the criteria. Listing can be tricky. I made a mess of the vegetable ranking (see Table 4). Brinjal comes out badly on many criteria, but ends up ranked number one. There seem to be two reasons for this. The first is that the method at present does not include any weighting for different criteria. The second reason is that in the hurry of listing the criteria I failed to include high cash returns. This was because of a complicated discussion about the relative importance of stable prices, but also of seasonally high prices if you can market while they prevail. The lesson is to be careful at the listing stage, and to discuss the criteria with respondents and other team members wherever there is any doubt. The final forced choice question came into its own here, and proved its value as a check.

5. Credits and sharing. Unless informants prefer not to be named, it will be a good practice to give them credit by listing them. In any case, they can be sent a copy of the output.

Weaknesses and strengths

DMR has or could have weaknesses:

- it does not handle weightings, yet; and,
- it is limited to rankings of classes of objects, so far.

(but there seems no reason why different types of relationship, conditions or practice should not be ranked such as types of patron-client relationship, types of occupation, types of diseases, methods of cooking, treatments for an illness etc.).

- it is subject to most of the usual biases and weaknesses of individual and group interviews; and,
- it could become an end in itself. It is not. It is an optional stage in a process of learning from and with people.

On the other hand, it is strong on:

- *speed*. It has usually taken no more than an hour
- *interest*. All concerned have so far found it interesting and participants themselves can learn something through the discussion and through making choices explicit

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- *reversals*. It requires outsiders to learn, and to respect and record the knowledge, judgements and preferences of rural people according to their own criteria.

- as a means for senior and busy officials and others to quickly and enjoyably learn from and develop rapport with, groups of rural people.

Appeal

Potential

Ranking methods in general appear a versatile tool, suitable for use in RRA. Potential uses include:

- rapid understanding of people's technical knowledge;
- rapid understanding of how values and use of items vary by gender, occupational group etc;
- identification of priorities for research e.g. as a stage in finding out what people perceive as their needs and priorities;
- as an ice-breaker, leading to further interviews and discussion;
- as a means of identifying key informants;
- as a training tool, reversing the learning process by providing a procedure which elicits a wide range of knowledge from people; and,

Ranking methods are not new. We are probably rediscovering the wheel. There is a considerable psychological literature on ranking and personal construct theory some of which gets complicated and difficult. DMR, in contrast, is simple. Similarly, Barbara Grandin's wealth ranking method is straightforward, using the sorting of cards, each of which represents a household, by respondents who place them in piles of similar wealth. Jeremy Swift has used a system for progressive ranking of problems using holes in the ground and stones, asking people to make a hole for each problem identified, put a stone in each, and then progressively eliminate the least important, transferring their stones to more important holes. If you know of other methods, or have developed any of your own, or if you gain experience with something like those described above, do please write in.

Table 1. Ranking of characteristics of four tree species by Mrs. Zena Ibrahim, Mumias Division, Kakamega District, Kenya, 7th March 1988

	Eucalyptus	Grevillea	Sesbania	Mululusia
Speed of growth	3	4	1	2
Timber	1	2	don't know	don't know
Firewood	1	4	2	3
Improves soil	3 =	3 =	1 =	1 =
Ok with crops	3 =	3 =	1 =	1 =
Kitchen smoke	1	4	2	3
Status/popularity	1	4	2	3
Market value	1	don't now	nil	nil
Beauty	3	1	4	2
Resists termites	1	don't know	2 =	2 =

1 = Best   4 = Worst

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Table 2. Comparisons of five types of fertiliser by four farmers in village Kuchiakole, District Bankura according to their criteria, 28th April 1988

	FYM	DAP	Gromor 28-28	MOP	Urea
Low cost	5	1	4	2	3
Price rises little	1	3	4	2	5
Easy to apply	5	2 =	2 =	4	1
Good nutrient proportions	1	3	2	4 =	4 =
High N concentration	4	3	2	nil	1
Micronutrients	1	-	-	-	-
N availability to plant	4	1	2	nil	3
Lasts well in soil	1	2	3	4	5
Improves soil fertility	(+) 1	(-) 3	(-) 4	(-) 2	(-) 5
Soil holds water better	1	2 =	2 =	2 =	2 =
Acidity not increased	1	dk	dk	dk	5
Effect on pests/diseases	1 =	3	4	1 =	5
Market availability*	2	1 =	1 =	1 =	1 =
Storing quality*	2	3	4	1	5

* = suggested by interviewer   FYM = Farmyard manure
1 = Best   2 = Worst   DAP = Diammonium phosphate
                                              MOP = Muriate of potash

Table 3. Criteria and ranking for paddy varieties by 14 farmers (4-10 bighas) at village Mamaipur, District Bankura on 29th April 1988

	Paddy varieties					
	Rasi	IR-50	IR-36	Hiramoti	Masuri	Nagrasal
Farmers' criteria:						
Resistance to pests	1	6	5	4	3	2
Drought resistance	1	3	4	2	5	6
Length of straw for thatching	4	6	5	3	2	1
Market price	4	3 =	3 =	4	1	2
Suitable for light soil	1 =	3 =	1 =	3 =	-	-
Eating quality	5	2 =	2 =	4	6	1
Suitable for both Kharif and Rabi	1 =	1 =	1 =	-	-	-
Recovery of aged seedings	4 =	4 =	4 =	3	2	1
Interviewers' criteria:						
Tolerance to deep water	5	4	3	6	2	1
Height of straw	4	6	5	3	2	1
Milling recovery percentage	2	5 =	5 =	4	3	1
Seed available locally	4 =	3	2	4 =	4 =	1
Yield per Bigha	4	3	1	6	2	5
Length of pannicle	6	5	4	1 =	1 =	1 =
Suitable for high fertiliser dose	3 =	3 =	1	5 =	2	5 =

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Table 4. Ranking of six vegetables according to farmers' criteria – undertaken by Tarapada Ghosh and 8 other marginal and small farmers in village, Purulla District, West Bengal, April 1988

	Tomato	Brinjal	Radish	Potato	Cauli-flower	Cabbage
Low investment	2	4	1	6	3	5
Stable price	4	3	6	5	1	2
Continuous production	2	1	-	-	-	-
Short duration	5	6	1	3	2	4
Useful byproducts	6	3	4	5	1 =	1 =
Needs less irrigation	1	6	2	3	4	5
Can stand flooding	2	3	1	6	4	-5
Less pests/diseases	3	6	1	2	4	5
Produce keeps well	2	4	5	1	6	3
Low fertiliser cost	2	5	1	6	3	4
Less pesticide needed	2	6	1	3	4	5
Easy to harvest*	2	3	1	6	4 =	4 =
Low labour cost*	2	5	1	6	3	4
If you could only grow one, which would you choose?	4	1	5 =	5 =	2 =	2 =

1 = Best   2 = Worst
* Suggested by interviewer

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