



BIROn - Birkbeck Institutional Research Online

Mitton, Roger (1976) Understanding print: a survey in rural Lesotho of people's ability to understand text and illustrations. Project Report. Lesotho Distance Teaching Centre, Maseru, Lesotho. (Unpublished)

Downloaded from: <https://eprints.bbk.ac.uk/id/eprint/47308/>

Usage Guidelines:

Please refer to usage guidelines at <https://eprints.bbk.ac.uk/policies.html>
contact lib-eprints@bbk.ac.uk.

or alternatively

Understanding Print

A survey in rural Lesotho of people's ability to understand text and illustrations

Lesotho Distance-Teaching Centre, PO Box 781, Maseru, Lesotho

1976



The online version was keyed in by Roger Mitton in 2020. It differs from the printed version in pagination and some other very minor ways, but is essentially the same document.

Understanding Print

CONTENTS

Acknowledgements	3
List of Tables	4
Chapter 1: Background, method, reliability of the results	
a. Background	5
b. How the survey was done	5
c. The respondents	6
d. Supplementary survey	7
Chapter 2: Pictures	
a. Photographs, drawings and block-outs	8
b. Enlargement	14
c. Colour	15
d. Map of Lesotho	16
e. Three dimensions	17
f. Scale	20
g. Comic strip without words	23
Chapter 3: Text	
a. Simple literacy	26
b. Comprehension	28
c. A photo-strip	29
d. Diagrams	31
e. Text with sound	36
f. Books, newspapers and letters	38
g. Reading aloud to illiterates	39
Chapter 4: Radio listening, estimating, measuring, and arithmetic	
a. Radio listening	41
b. Estimating time	42
c. Pints, acres, measuring instruments, record players	43
d. Arithmetic	43
Summary and Conclusions	45
Appendix 1: The sampling method	46
Appendix 2: Instructions to interviewers	47
Appendix 3: Survey costs	50
Appendix 4: References	51

Understanding Print

Acknowledgements

This survey was financed by grants from the Lesotho Government, UNICEF, and World Education.

It was designed, supervised, analysed and written up by Roger Mitton, deputy director of the LDTC with responsibility for the Centre's rural education programme. The fieldwork, coding and tabulating were carried out by Sekonyela Rakhoba and John Tilo. The work was encouraged and assisted by Philip Baker, who was director of the LDTC when the survey began, and Paud Murphy, the next director. The survey also had the support of Mr T.L. Monese, who was Principal Assistant Secretary in the Ministry of Education at the time the work began.

The following people gave advice in the early stages: Prof D. Allen, Mr D. Ambrose, Mr J. Bofelo, Ms S. Burke, Mr L. Cooley, Mr A. Elias, Mr A. Etherington, Mr J. Jenness, Mr H.L. Mokhachane, Mr A.M. Monyake, Mr A. Seager, Ms C. Stephens, and Mr D. Taylor. The participants of two seminars contributed ideas, one organized by the Botswana, Lesotho and Swaziland Correspondence Committee in Gaborone in January 1975, the other by the Faculty of Education of the National University of Lesotho in Roma in September 1975. Judy el-Bushra and Mary Halloran of the International Extension College provided background documents.

The production of the test materials and the clerical work was done by Montseng Mofokeng (typist), Koena Modibedi (artist), and Egert Makoae and Seth Mokotoane (printers). Photographs were taken by Alan Etherington and Mohlominyana Moeletsi. Acting in the photostrip "Thabo's Breakfast" were Mr Moshoeshoe, Mrs Ramakhula, Kalosi Ramakhula and Mrs Mohapi.

The supplementary fieldwork was carried out by Paul Morolong, Bantu Morolong and John Tilo.

Judy el-Bushra, John Gay, John Maime and Paud Murphy read the draft report and made detailed comments.

Finally thanks are due to the principal chiefs, the village chiefs and the villagers of the ten sample villages for their cooperation.

July 1976

Understanding Print

List of tables

1. Reasons for non-response	6
2. Comparison of respondents and non-respondents, age and sex	6
3. Respondents compared with national population, age and sex	7
4. Supplementary survey sample, by age	7
5. Response to photographs, block-outs and line drawings	13
6. Comparison of illiterates and the rest in picture interpretation	14
7. Responses to different-sized drawings of a fly	14
8. Responses to a line drawing in different colours	16
9. Responses to a map of Lesotho	16
10. Two or three dimensions: steer, donkey, house	18
11. Two or three dimensions: woman, man, house	20
12. Idea of scale: the rabbit hutch	22
13. Idea of scale: the potato rows	22
14. Number of frames included in respondents' stories	24
15. Proportion of misinterpretations of the comic strip	24
16. Comic strip: same woman or different women	24
17. Comic strip: where the story began and ended	24
18. Comic strip: how many pictures on the card?	25
19. Understanding the comic-strip-without-words correctly	25
20. Simple literacy rate of the rural population aged over 10	26
21. Simple literacy by sex	26
22. Simple literacy by age	26
23. Simple literacy by school education	27
24. Simple literacy by region	27
25. School education and literacy in English	28
26. Scores on the comprehension test, by school education	28
27. Comprehension test: proportion correct on each question	29
28. How the respondents read the test card	29
29. Time taken to read the test card	29
30. Understanding the photo-strip ("Thabo's breakfast")	31
31. Text with diagrams: how to make a tea strainer	32
32. The effect of diagrams: plant spacing	34
33. The effect of diagrams: ploughing patterns	36
34. Text and sound	37
35. Reading books and newspapers	38
36. Writing and receiving letters	38
37. Reading habits and school education	39
38. Reading aloud to illiterates	39
39. Recalling a text that has been read out loud	40
40. Regional difference in radio ownership	41
41. Listening to Radio Lesotho	41
42. Radio listening and literacy	42
43. Estimating time	42
44. Arithmetic problems	44

Chapter 1: Background, method, reliability of the results

Background

The Lesotho Distance-Teaching Centre was set up early in 1974 to use distance-teaching methods (such as correspondence, booklets, leaflets, radio) to make education more widely available to people in Lesotho. Part of its work is to offer information and instruction of a practical kind to rural people.

The literacy rate was reported to be high, and this suggested that printed materials might be an appropriate medium of instruction. (The “literacy rate” is the proportion of the population, not counting small children, who can read Sesotho. [The people of Lesotho are Basotho and they speak Sesotho.]) Estimates of the literacy rate, however, varied considerably. Though tending to cluster between 40% and 70%, estimates have been as low as 10% and as high as 85% [Ref 1 – references are given in Appendix 4.] There was no information at all about how well people could understand what they read.

Research in other developing countries suggests that rural people with little or no schooling have difficulty understanding pictures. One cannot assume, in other words, that pictures are a universal language, understood by everyone.

Before embarking on large-scale production of instructional printed materials, we needed to find out what proportion of our potential audience could read Sesotho, how well they could read, how well they could interpret pictures and diagrams, and what sort of pictures and diagrams were understood best. We took the opportunity also to find out a little about how much they listened to the radio.

It is important to realize that the survey was intended to be of practical use for designing instructional printed materials. When we borrowed certain hypotheses from research on perception, for example, it was because we thought they might affect the design of our future productions. We were not testing hypotheses just out of interest.

Similarly, when choosing passages to use as reading tests, we collected the kind of items that we might want to produce for instructional purposes in the future, rather than pieces which might test some linguistic hypothesis without giving us much practical guidance. The results may have theoretical interest, but that was not our main consideration.

How the survey was done

Interviews were conducted with a random sample of 245 rural Basotho over the age of ten years. First, a random sample of ten villages was chosen, stratified by size. Within each village, a random sample of households was taken, the interviewer visiting every other household in a systematic way. Within each household, a random sample of household members aged over ten was taken. Details of the sampling method are given in Appendix 1.

Before the interviewers arrived in a village, advance letters were sent from the Ministry of Education to the village chief and to the principal chief, explaining the purpose of the survey and requesting their cooperation. Copies were sent to the District Administrator and to the Department of the Interior. All the chiefs gave us their full cooperation.

Two Basotho interviewers, both men in their early thirties, conducted all the interviews. The questionnaires and interviews were in Sesotho. The research design required that the sample be divided into three in a random way, and a different version of the test materials be given to each group. This was achieved simply by providing the interviewers with three different packets of test materials. On the first day, Mr Rakhoba would use packet A, Mr Tilo packet B; on the second day, Mr Rakhoba would use packet B, Mr Tilo packet C, and so on.

Understanding Print

The interviewers were trained in the sampling method and in the conduct of the interviews. In addition, their first interviews in the field were supervised. As a further check, at the stage of analysis, one interviewer's results were compared with the other's, and the results were discarded on the few questions where their results differed significantly.

Questionnaire design and preparation of test materials began in September 1974. A pilot survey was conducted in one village in January 1975. The pilot results are not included in the main survey results since some modifications were made to the materials and the questionnaire after the pilot.

The main fieldwork was carried out between March and July 1975. The interviewing itself did not take a long time (the interviews averaged 45 minutes, and only two lasted more than 90 minutes) so the interviewers spent about a week in each village. The reason that the fieldwork took nearly five months was that some of the villages were difficult to reach, so long delays were often imposed by the weather and rural transport arrangements. The results were coded and analysed by hand between August and December 1975, the interviewers acting as tabulators and coders.

The respondents

The interviewers aimed to do a certain number of interviews in each village (15 or 30, depending on the size of the village – see Appendix 1). Exactly the right number of interviews would have given a total of 240. In fact they did slightly more and ended up with 245. In order to get this many interviews, they had to draw a sample of 284, the difference of 39 being people who were sampled but who could not be interviewed. The response rate was therefore 88%. The reasons why these 39 were not interviewed are given in Table 1.

The individual was never at home when the interviewer called	77%
The individual refused to cooperate	8%
Other reasons (e.g. illness)	15%
<i>Base total (people who were sampled but not interviewed)</i>	<i>(39)</i>

The main reason for non-response was that the individual was never at home when the interviewer called. (The interviewers called at least three times.) In these cases, the interviewers got some basic information (age, sex, level of education) about these people from other members of the household, so that we have some idea of how the people we failed to interview differ from those we did interview.

The non-respondents were evenly distributed over the ten villages. They are compared in age and sex with the 245 respondents in Table 2.

	<i>Respondents</i>	<i>Non-respondents</i>
Men	33%	59%
Women	67%	41%
Age: 11-20	19%	51%
21-30	21%	22%
31-40	13%	14%
41 or over	47%	13%
<i>Base totals</i>	<i>(245)</i>	<i>(39)</i>

Two-fifths of the non-respondents were males aged between 11 and 20, which accounts for most of the differences in Table 2. This is not surprising. Boys and young men in Lesotho are frequently given the task of herding livestock, which keeps them out of their homes a great deal.

Understanding Print

We were afraid, at the beginning, that some respondents might be helped or hindered by other members of the family in answering the questions. In fact this was not a problem. Other household members were present at 60% of the interviews, but only in two cases did they interfere with the respondents' answers.

Table 3 compares the sex and age breakdown of the respondents with figures from the National Census of 1966, to see how well the respondents represent the total rural population.

	<i>Respondents</i>	<i>National population</i>
Men	37%	36%
Women	63%	64%
Age: 21-30	26%	26%
31-40	17%	22%
41-50	22%	19%
51-60	20%	15%
61 or over	15%	18%
<i>Base totals</i>	<i>(196)</i>	<i>(388,900)</i>
<p><i>(a) Respondents aged 11-20 are excluded from this table because of the systematic age bias introduced into the sample – see Appendix 1.</i></p> <p><i>(b) The national figures are of the de facto African population in 1966, aged 20 or over. Since only 5% of the people live in the towns, the figures can be taken for the rural population.</i></p>		

With a random sample of size 245, one can be fairly confident that a result is accurate to within about 5%. That is to say, if 70% of a random sample of that size had some characteristic, you could say that between 65% and 75% of the population from which the sample was drawn would have that characteristic. (This is based on the formula $2 \times \sqrt{pq/n}$ to derive 95% confidence limits, where p is the percentage having some characteristic, q is 100-p, and n is the sample size.) Since the discrepancies between this survey sample and the population as a whole, in sex and age, are 5% or less, this gives confidence that the sample was in fact a random sample. Therefore, results from this survey, plus or minus 5%, can be taken to apply to the total rural population aged over ten.

Supplementary survey

A few results were discarded from the main survey because there were differences between the results obtained by the two interviewers, which suggested that at least one of them, or possibly both, had been presenting those few questions wrongly, or writing the answers wrongly. In addition, there were some other results that seemed to call for more explanation.

A supplementary survey was carried out in March 1976, just to check on these few points. Three interviewers went out to two villages about 30 kilometres from Maseru, for four days. Sampling was not as systematic as in the main survey since we could not devote a lot of time to it, but a fairly typical sample was obtained nevertheless. The interviewers interviewed 146 people (36% men and 64% women). Their age distribution is shown in Table 4. An explanation is given in the report when results are taken from this supplementary survey.

11-20	36%
21-30	12%
31-40	16%
41-50	12%
51-60	10%
61 or over	14%
<i>Base total</i>	<i>(146)</i>

Chapter 2: Pictures

Photographs, drawings and block-outs

Andreas Fuglesang, in Zambia, compared the effectiveness of line drawings, silhouettes, photographs and photographs with their backgrounds removed (which he calls “block-outs”) [Ref 2]. In that study, a picture of a familiar object, such as a house, was presented to the respondent in the four different styles. The respondent looked at all four pictures together, identified what it was a picture of, and then pointed to one of the four in answer to the question, “Will you point out for us in which picture you saw this first?” The results were striking. The block-outs captured over half of the choices, and the photographs about a third, with the silhouettes and line drawings gaining only a few choices each.

Unfortunately, block-outs have disadvantages. They do not lend themselves to all types of subject matter; line drawings are often much easier to obtain than good photographs, and block-outs present technical problems (an important consideration when one reflects that many media-production agencies have to make do with unsophisticated equipment). It may be, as Fuglesang suggests, that line drawings are not so easily or so readily interpreted, but he has not shown that line drawings are actually misinterpreted. We wanted to know if we would be able to use line drawings in our publications.

Selecting seven test pictures, we produced three versions of each one – a photograph, a line drawing and a block-out. They are shown, reduced in size, in Fig. 1. The test cards used were A-5 size. Some were very simple pictures – a house, a steer, a boy on a donkey, a bus. One – a cabbage – we included because we felt it lent itself less easily to clear illustration. The remaining two – two men planting with an ox-drawn planter, and a woman chopping cabbage leaves into a pot – were more complicated. In the case of the cabbage chopping, we were interested to see whether people had more difficulty because only the woman’s hands were included in the picture. (It has been suggested that leaving out or covering up parts of the picture of a person or animal may puzzle people. [Ref 3])

Each respondent was given seven test cards (i.e. each picture once) one after another. Each respondent looked at examples of all three styles. For instance, the first respondent might get photograph-steer, block-out-house, line-drawing-bus and so on. The interviewer said, “I am going to show you some pictures and I want you to tell me, for each one, what it is a picture of.”

The marking of the answers was fairly strict. A reply of “hands” or “cooking pot” for the woman chopping cabbage was marked incomplete. A reply of “men ploughing” for the men planting was marked partly wrong. Examples of completely wrong answers were “village” for the bus, and “bird without a head” for the cabbage. The results are presented in Table 5.

Understanding Print

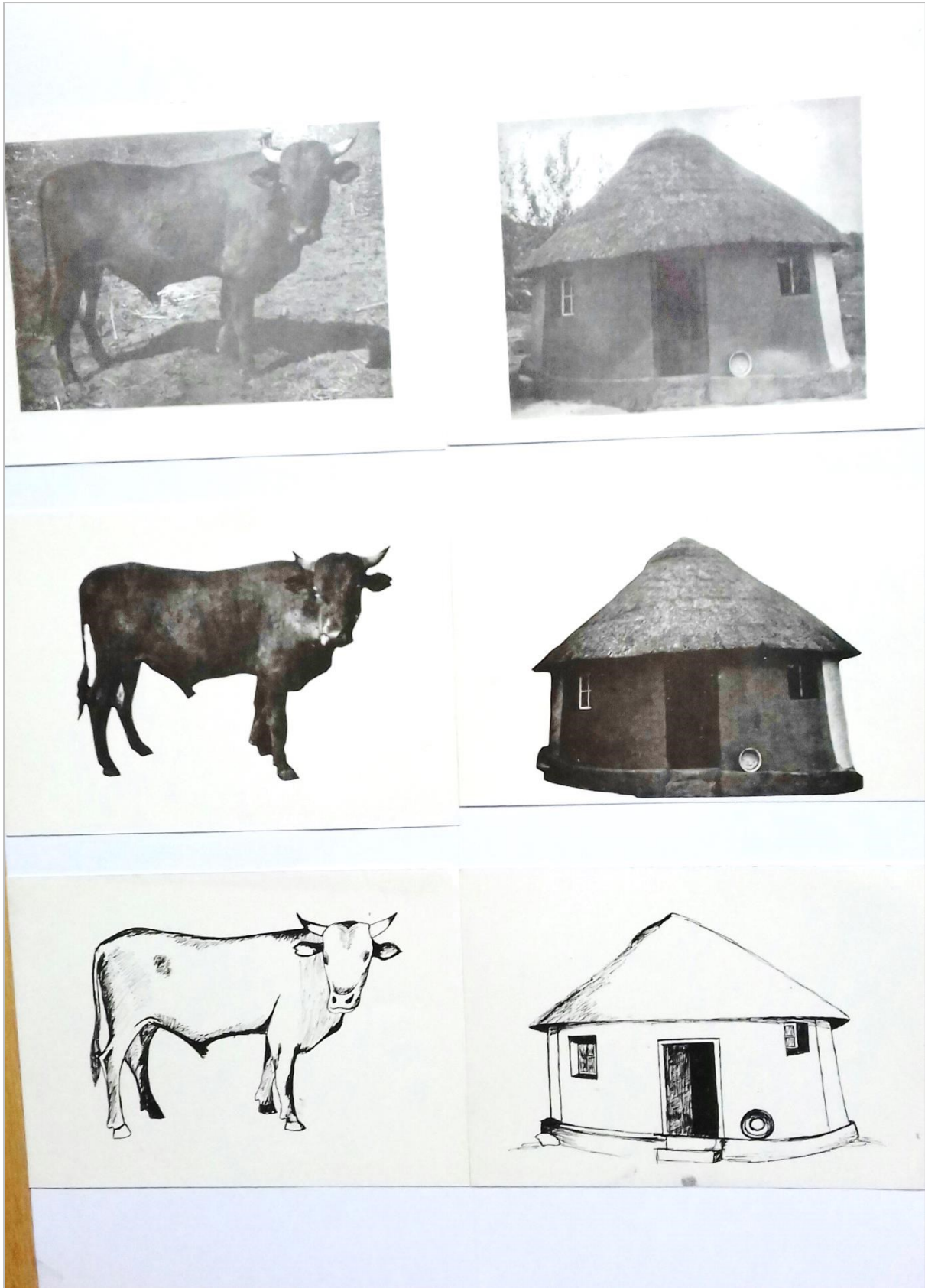


Figure 1a: Photographs, block-outs and line drawings

Understanding Print

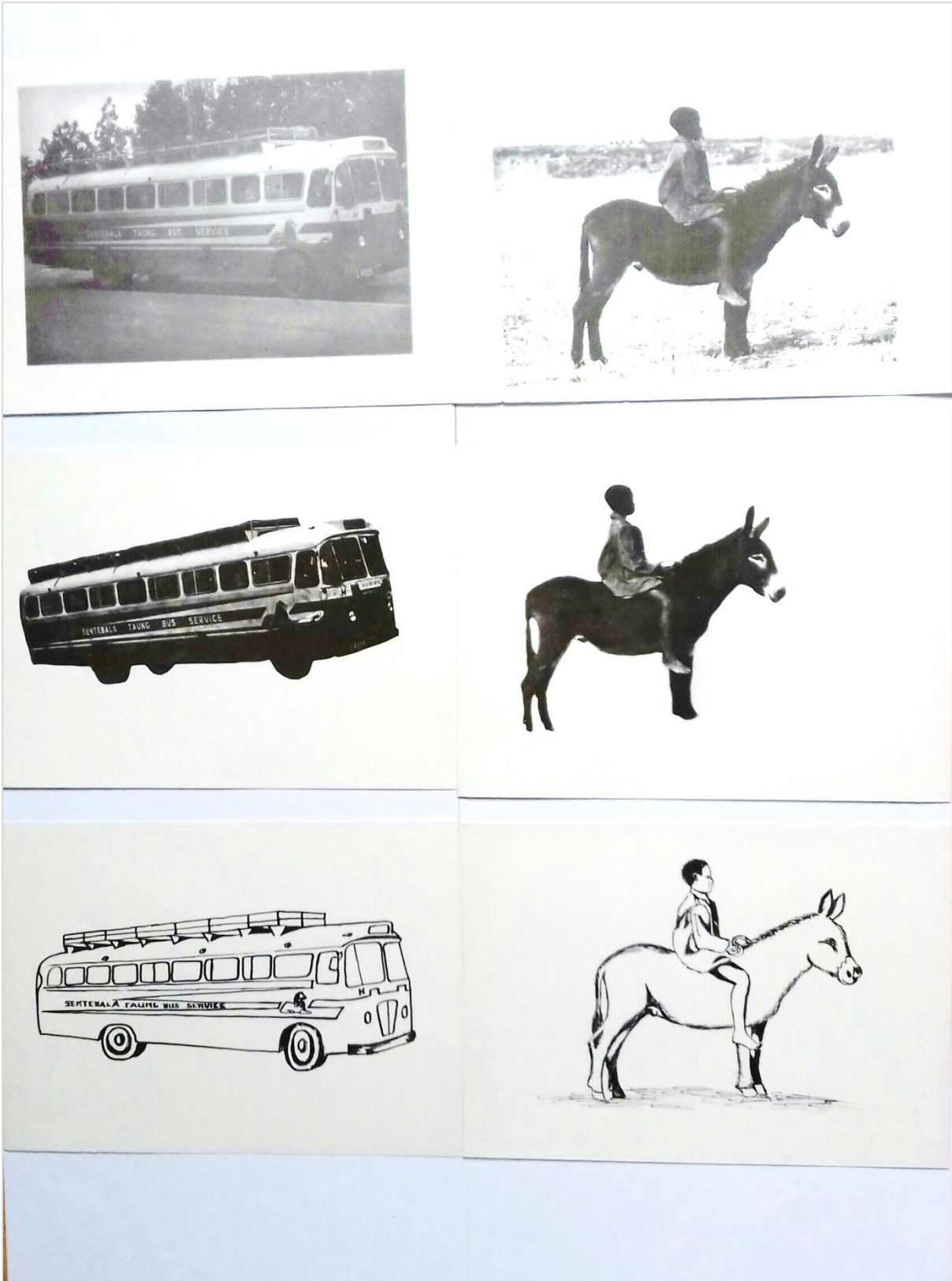


Figure 1b: Photographs, block-outs and line drawings



Figure 1c: Photographs, block-outs and line drawings

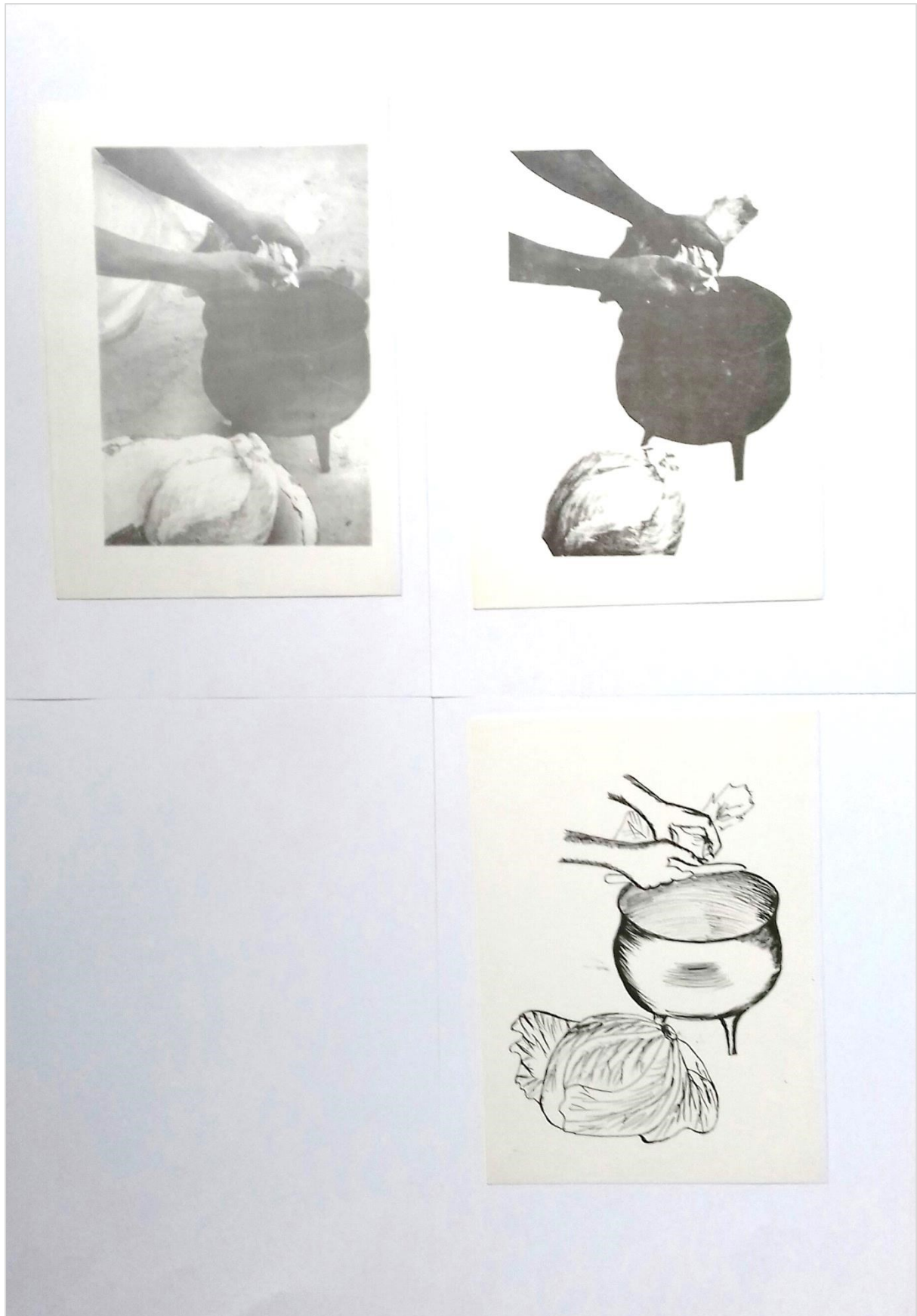


Figure 1d: Photographs, block-outs and line drawings

Understanding Print

<i>Table 5: Responses to photographs, block-outs and line drawings</i>				
		<i>Photographs</i>	<i>Block-outs</i>	<i>Line drawings</i>
1. Steer	Complete and correct	100%	100%	100%
	Incomplete or partly wrong	0%	0%	0%
	Completely wrong or don't know	0%	0%	0%
2. House	Complete and correct	98%	99%	96%
	Incomplete or partly wrong	0%	0%	0%
	Completely wrong or don't know	2%	1%	4%
3. Bus	Complete and correct	79%	89%	81%
	Incomplete or partly wrong	0%	0%	0%
	Completely wrong or don't know	21%	11%	19%
4. Boy on donkey	Complete and correct	91%	88%	69%
	Incomplete or partly wrong	7%	11%	21%
	Completely wrong or don't know	2%	1%	10%
5. Cabbage	Complete and correct	89%	88%	52%
	Incomplete or partly wrong	0%	2%	0%
	Completely wrong or don't know	11%	10%	48%
6. Men planting	Complete and correct	59%	44%	63%
	Incomplete or partly wrong	38%	55%	35%
	Completely wrong or don't know	3%	1%	2%
7. Woman chopping cabbage	Complete and correct	59%	38%	60%
	Incomplete or partly wrong	39%	58%	39%
	Completely wrong or don't know	2%	4%	1%
Responses to all seven pictures	Complete and correct	82%	76%	74%
	Incomplete or partly wrong	12%	19%	14%
	Completely wrong or don't know	6%	5%	12%

Each column of percentages, for items 1 to 7, is calculated out of a base total of not less than 70 and not more than 95.

These results suggest that it would be a mistake to say that one kind of picture is the best, whatever one's favourite kind might be. On pictures 1 to 3, there was no statistically significant difference between the three styles. On pictures 4 and 5, the line drawings were significantly inferior; on pictures 6 and 7, the block-outs were significantly inferior. If anything, photographs were superior, but the difference on all seven pictures, though statistically significant, is small.

If one looks at the actual test materials, these results are not hard to explain. Items 1 to 3 had distinctive characteristics which were clear enough in each style. With item 4, the most common misinterpretation of the boy on the donkey was "boy on a horse" or "boy on a mule". What distinguishes the donkey in the picture from a horse or a mule seems to be the colouring round the nose, which obviously was not there in the line drawing. A cabbage does not have a very distinctive shape or structure, so it is quite likely that recognition is aided if you can see the texture of the leaves; the photograph and block-out have this but the line drawing does not. Items 6 and 7 did not lend themselves to the block-out style and, as regards printing quality, these two block-outs were the least satisfactory, so it is not hard to see why they gave more difficulty. Incidentally the disembodied hands of Item 7 do not seem to have caused special problems; the proportion in the "Completely wrong or don't know" category is very small.

These conclusions encourage a pragmatic attitude to the question, "Which style is the most effective?" It depends on what the picture is of and what quality you can produce with your printing equipment. A good drawing may do better than a poor block-out. If there is some doubt, try them out in advance.

A final observation is that picture recognition does not seem to be a great problem for rural Basotho. Three quarters of the responses were complete and correct, despite the severe marking. Certainly, some items

Understanding Print

present difficulty, but one can be confident that a clear and simple picture will be completely understood by the majority.

Illiterates, as one might expect, interpreted the pictures less well than the others, as is shown in Table 6.

Table 6: Comparison of illiterates and the rest on picture interpretation

	<i>Illiterates</i>	<i>Readers</i>
Proportion who got 0 to 4 pictures complete and correct	42%	11%
Proportion who got 5 pictures complete and correct	25%	21%
Proportion who got 6 pictures complete and correct	23%	39%
Proportion who got all 7 pictures complete and correct	10%	29%
<i>Base totals</i>	<i>(92)</i>	<i>(153)</i>

The lower score of the illiterates was fairly constant over the different styles and pictures, i.e. they did not differ from the others in finding any of the three styles consistently easier to interpret.

Enlargement

Alan Holmes, working in Health Education in Kenya [Ref 4], suggested that, whereas people may be accustomed to small pictures of large things, they are not accustomed to large pictures of small things, such as a picture of a fly magnified several times.

Unfortunately, the test materials he used in his survey did not test this hypothesis adequately, though the results of later surveys suggested that he was right. We produced our own drawings to test this hypothesis – see Fig. 2. Each was printed on white card A5 size (i.e. larger than in Fig 2). Each respondent saw only one of the three cards.

The results, given in Table 7, confirm the hypothesis clearly.

Table 7: Responses to different-sized drawings of a fly

<i>Test item</i>	<i>Responses</i>	<i>Illiterates</i>	<i>Readers</i>	<i>All respondents</i>
Life-size fly	Fly	46%	69%	61%
	Other	36%	27%	30%
	Don't know	18%	4%	9%
	<i>Base totals</i>	<i>(28)</i>	<i>(48)</i>	<i>(76)</i>
7cm fly	Fly	44%	48%	47%
	Other	42%	47%	44%
	Don't know	14%	5%	9%
	<i>Base totals</i>	<i>(36)</i>	<i>(56)</i>	<i>(92)</i>
17 cm fly	Fly	18%	33%	27%
	Other	57%	40%	47%
	Don't know	25%	27%	26%
	<i>Base totals</i>	<i>(28)</i>	<i>(49)</i>	<i>(77)</i>

The responses coded "other" were mostly "bee", "butterfly", "grasshopper" or "cricket".

Evidently, scaled-up drawings, if they are to be used at all, will need careful explanation, especially for illiterates.



Figure 2: Drawings of a fly (the actual test materials were larger, the three flies being 1cm, 7cm and 17cm)

Colour

Seth Spaulding concluded from research in Mexico and Costa Rica that colour, if used in a non-natural way, made interpretation of a picture difficult [Ref 5]. In one of the pictures he tested, chickens were picked out in green; in another picture, a fire was coloured green. This use of colour caused confusion. This seemed to us so obvious that we felt we could decide not to use colour in a non-natural way without testing the hypothesis further. If you want people to understand a coloured picture of tomatoes, for example, you should obviously colour them red, not blue. Printing a whole line drawing in coloured ink, however, would be a different use of colour. Would this cause any difficulties?

We produced a line drawing of a simple rural scene (Fig.3) and printed three versions of it, one black, one green and one red. All were printed on white card. The results, given in Table 8, show that the coloured versions caused no confusion.



Figure 3: Picture used in colour test

Table 8: Responses to a line drawing in different colours

	<i>Black</i>	<i>Green</i>	<i>Red</i>
Correct interpretation	100%	97%	98%
Something misinterpreted	0%	3%	0%
Don't know	0%	0%	2%
<i>Base totals</i>	<i>(96)</i>	<i>(73)</i>	<i>(76)</i>

Map of Lesotho

A simple map of Lesotho (Fig. 4) was handed to respondents and they were asked what they thought it was. Recognition by the people who could read was high – Table 9.

Table 9: Responses to a map of Lesotho

	<i>Illiterates</i>	<i>Readers</i>	<i>All respondents</i>
Map of Lesotho	38%	84%	66%
Map of somewhere else or just "map"	16%	10%	13%
Other	8%	1%	3%
Don't know	38%	5%	18%
<i>Base totals</i>	<i>(92)</i>	<i>(153)</i>	<i>(245)</i>

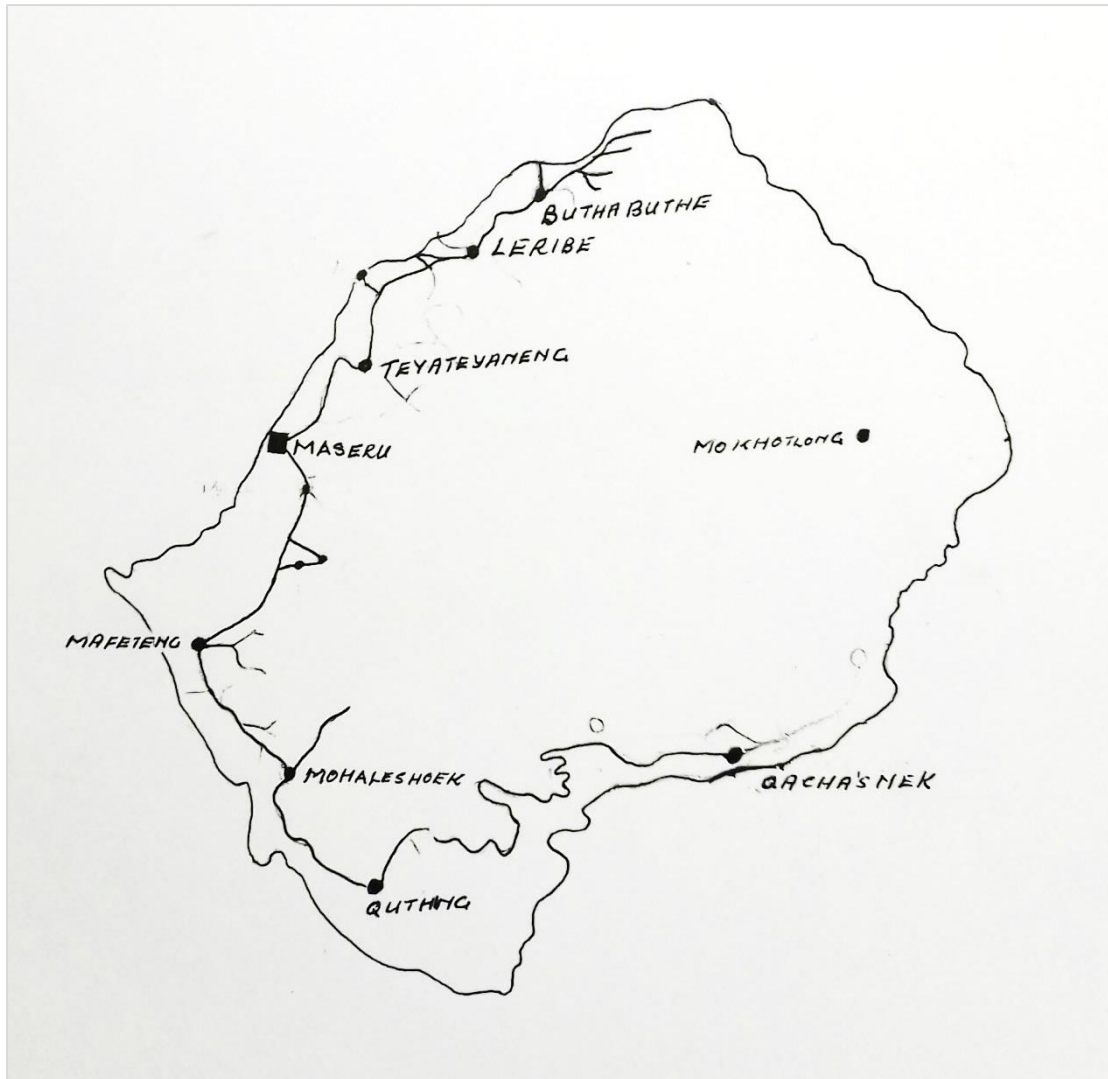


Figure 4: Map of Lesotho

Three dimensions

Most pictures are a two-dimensional representation of a three-dimensional object or scene. In a picture like the first one in Fig. 6, for example, the artist is trying to convey the impression to the viewer that the steer is in the foreground and that the house is in the background, quite a long way behind it.

In a series of experiments, W. Hudson has shown that less-educated people in general, and illiterate African labourers in particular, tend not to see such pictures in the three-dimensional way that the artist intended [Ref 6].

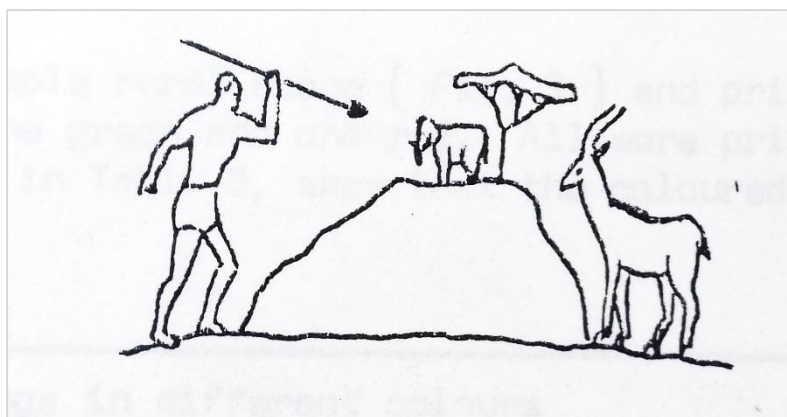


Figure 5: Hudson's test card

Hudson's basic test card is shown in Fig. 5. Three-dimensional perceivers think that the elephant is a long way away, and that, if the hunter threw his spear, it would hit the buck. Two-dimensional perceivers think that the elephant is standing between the hunter and the buck and that, if the hunter threw his spear, it would hit the elephant. If the majority of rural Basotho were two-dimensional perceivers, this should obviously be taken into account when designing pictures for them.

We decided not to use Hudson's test card for two reasons: it depicts a scene one would never see in Lesotho, and it is highly stylised, designed to sort out the two-dimensional perceivers rather than to help them to see it three-dimensionally. Our two sets of test cards (Fig. 6 and Fig. 7) were designed to find out, first, how many people would see them two-dimensionally, and second, whether certain features of a picture would encourage a three-dimensional interpretation. They were printed in black ink on A5 size cards.

Each respondent looked at only one version of each test item. With the first item, the interviewer pointed at the steer, then the donkey, then the house and asked of each one "What is this?" Almost everyone recognized them correctly. He then said, "Show me how far it is from the house to the donkey," indicating that they should give an answer by pointing to something such as a tree or a wall and saying, "It's from here to that wall." He wrote down his estimate of their answers in paces. He did the same with "Show me how far it is from the house to the steer." Then, as a check, he asked, "Which is closer to the house – the donkey or the steer?" The purpose of this procedure was to make it clear that we were talking about the "real" donkey, house and steer, which were paces apart, and not the drawings on the card, which were only centimetres apart.

Some respondents gave inconsistent replies – for example, "Six paces house to donkey; two paces house to steer; the donkey is closer to the house than the steer is." These inconsistent replies (18% of all the replies) were excluded. This test item was included in the supplementary survey as well as in the main survey. The results were very similar, so they were combined.

Table 10: Two or three dimensions – steer, donkey, house

	<i>Fig. 6 - plain (left, top)</i>	<i>Fig. 6 - overlap (left, middle)</i>	<i>Fig. 6 - detail (left, bottom)</i>	<i>All three cards Illiterates</i>	<i>All three cards Readers</i>
3-D perceivers	12%	8%	38%	9%	28%
2-D perceivers	88%	92%	62%	91%	72%
<i>Base totals</i>	<i>(89)</i>	<i>(66)</i>	<i>(115)</i>	<i>(110)</i>	<i>(207)</i>

With those respondents who had the more detailed drawing – bottom left in Fig. 6 – the interviewer also pointed to the path and the mountains and asked "What is this?" Forty-eight percent recognized the path, but only 21% interpreted the background lines as mountains.

Understanding Print



Figures 6 (left) and 7(right): Three dimensions

Understanding Print

The results in Table 10 suggest that the majority of rural Basotho perceive pictures two-dimensionally. The overlap picture, where the steer partly covers the house, was not seen three-dimensionally more than the plain picture. The picture containing some extra detail was seen three-dimensionally by more people. However, before jumping to the conclusion of “the more detail, the better”, one should consider the results of the next test item.

The procedure with this item (Fig. 7) was similar to the last one. Having established that the picture showed a woman, a man and a house, the interviewer asked, “Show me how far it is from the woman to the man,” and “Show me how far it is from the woman to the house,” and then, “Which is closer to the woman – the man or the house?” Again, inconsistent replies (38% of all replies) were excluded, and the results of the supplementary survey were added to those of the main survey.

Table 11: Two or three dimensions – man, woman, house

	<i>Fig 7 – plain (right, top)</i>	<i>Fig. 7 – detail (right, middle)</i>	<i>Fig.7 – photo (right, bottom)</i>	<i>All three cards Illiterates</i>	<i>All three cards Readers</i>
3-D perceivers	16%	16%	28%	16%	21%
2-D perceivers	84%	84%	72%	84%	79%
<i>Base totals</i>	<i>(86)</i>	<i>(80)</i>	<i>(67)</i>	<i>(67)</i>	<i>(166)</i>

These results confirm the ones from the steer-donkey-house test in showing that three-dimensional perceivers are in the minority. However, they conflict on whether detail makes any difference; the more detailed drawing of this scene was not seen three-dimensionally by more people than the plain drawing. We have only one small clue to explain this discrepancy.

One respondent, looking at steer-donkey-house card, when asked “Show me how far it is from the house to the steer,” said, “Do you mean by the road?” Since the road meanders, it is possible that a number of 2-D perceivers (who thought the steer was closer to the house “as the crow flies”) said the steer was *further* from the house because they meant the distance by the road. In other words, the apparently high rate of 3-D perception of the detailed steer-donkey-house drawing might be spurious. More research is needed to show whether detail makes a difference to 3-D perception, but these results suggest that it does not make a lot of difference.

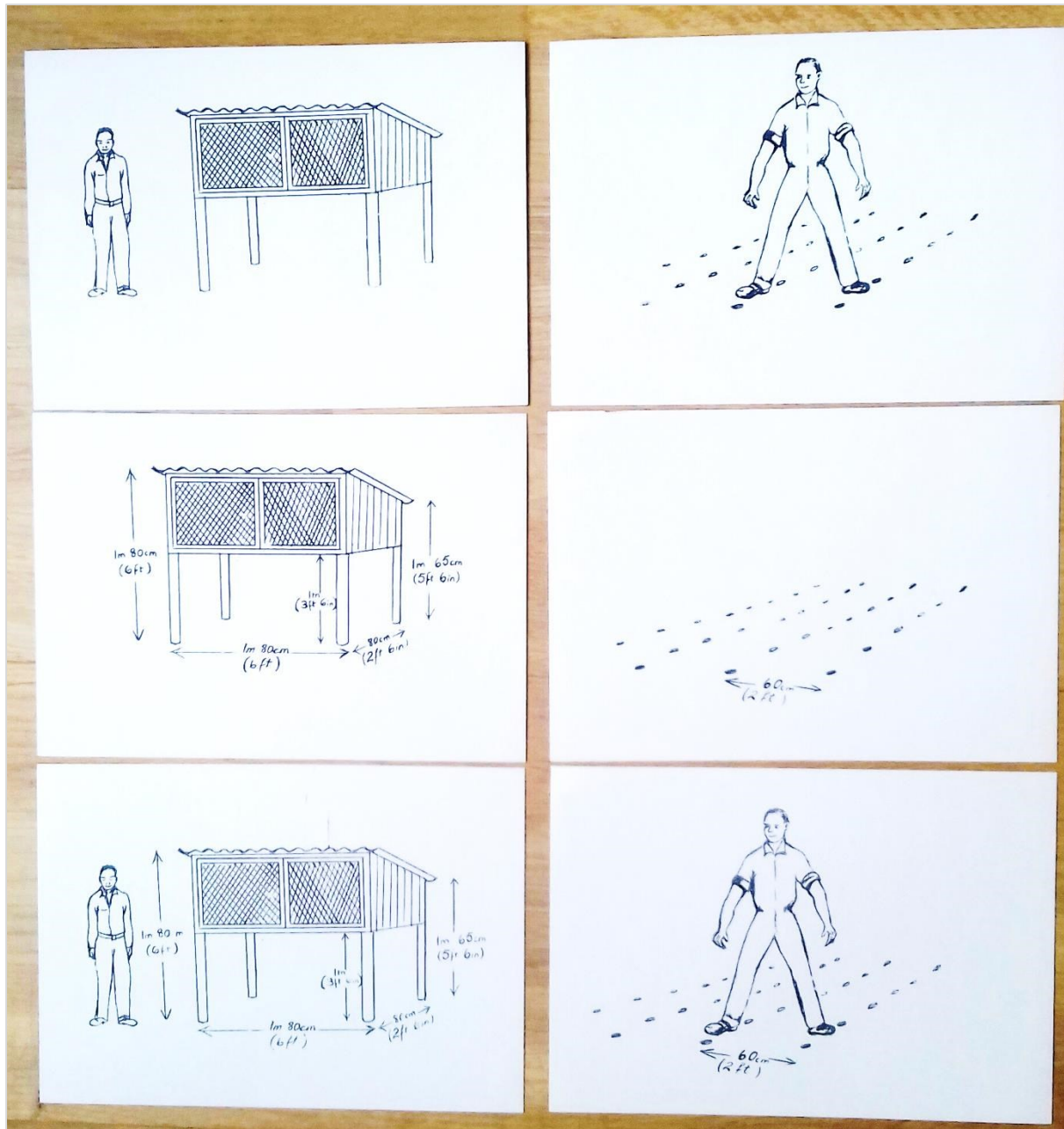
This conclusion is supported by the results for the photograph. The photograph obviously contained the greatest amount of true-to-life detail, and yet was seen three-dimensionally by less than a third of the respondents.

As one might expect, literate respondents perceived the pictures three-dimensionally more than illiterates, though the difference on the second test item was not large.

Scale

It is sometimes important in a picture or a diagram to indicate how large the object in the picture is supposed to be. You can do this by including measurements in the picture or by showing something familiar alongside the object. We tried to find out how well people could get an idea of scale from a picture and which method of conveying the idea was more successful.

Understanding Print



Figures 8 (left) and 9 (right): Idea of scale

The two test items are shown in Fig. 8 and 9. The first was a picture of a rabbit hutch. Each respondent was given only one version of the picture. The interviewer said, "In many countries, people keep rabbits the same way as chickens. This is a picture of a kind of box for keeping rabbits in. Can you tell me how far above the ground is the floor of the box? Show me with your hand." The respondent indicated how far above the ground he thought the floor was. (The interviewer pointed to the floor of the hutch in the picture.) The interviewer held a measuring string against the respondent's hand and marked down the height above the ground.

Understanding Print

The results, given in Table 12, are from the supplementary survey only.

	<i>Fig. 8 – man (left, top)</i>	<i>Fig. 8 – measure (left, middle)</i>	<i>Fig. 8 – both (left, bottom)</i>	<i>All 3 cards Illiterates</i>	<i>All 3 cards Readers</i>
Over 4'6" (135 cm)	8%	5%	0%	3%	5%
3'10"-4'6" (115-135 cm)	12%	15%	16%	7%	16%
3'2"-3'10" (95-115 cm)	22%	24%	8%	27%	15%
2'6"-3'2" (75-95 cm)	25%	24%	13%	23%	20%
Under 2'6" (75 cm)	33%	32%	63%	40%	44%
<i>Base totals</i>	<i>(36)</i>	<i>(37)</i>	<i>(38)</i>	<i>(30)</i>	<i>(81)</i>

It is clear that all three versions of the picture failed to get across the idea of how high off the ground the floor of the hutch should be. The version with both the man and the measures (Fig. 8.3) did the worst. Literate respondents did no better than illiterate ones.

The interviewers have suggested that the reason for the high proportion of underestimates is that respondents were thinking of how high a rabbit could jump, to get into the hutch, and were using this rather than the picture as the basis of their estimate. Perhaps the only firm conclusion is the uninteresting one that it was a poor test item. Nevertheless, it is worth knowing that, if any of these pictures had been used in a booklet about keeping rabbits, few of the readers would have built hutches to the right size.

The other test item (Fig. 9) was a picture to show how far apart rows of potatoes should be planted. The interviewer said, "You are planting potatoes in rows, and you are instructed to plant them as shown in the picture. If this is the first row [the interviewer drew a line on the ground], show me where you would put the second row." Again, the interviewer measured the respondent's estimate with the measuring string. The results are from the supplementary survey only.

	<i>Fig. 9 – man (right, top)</i>	<i>Fig. 9 – measure (right, middle)</i>	<i>Fig. 9 – both (right, bottom)</i>	<i>All 3 cards, Illiterates</i>	<i>All 3 cards, Readers</i>
Under 1'6" (50 cm)	16%	24%	30%	28%	19%
1'6" – 2'6" (50-75 cm)	40%	35%	34%	26%	40%
Over 2'6" (75 cm)	44%	41%	36%	46%	41%
<i>Base totals</i>	<i>(43)</i>	<i>(51)</i>	<i>(47)</i>	<i>(39)</i>	<i>(99)</i>

This test item did a little better than the last one, but still more than half the respondents were more than six inches away from the correct estimate. There were no differences between the three versions. Literate people were generally closer to the right answer.

The main conclusion from all this is that getting across the idea of scale is a problem, since neither the reference object (i.e. the man in these pictures) nor the measurements seemed to help very much. Probably more than a picture is required. Perhaps the solution is to include a measuring string as part of the materials, with instructions on how to use it.

Comic strip without words

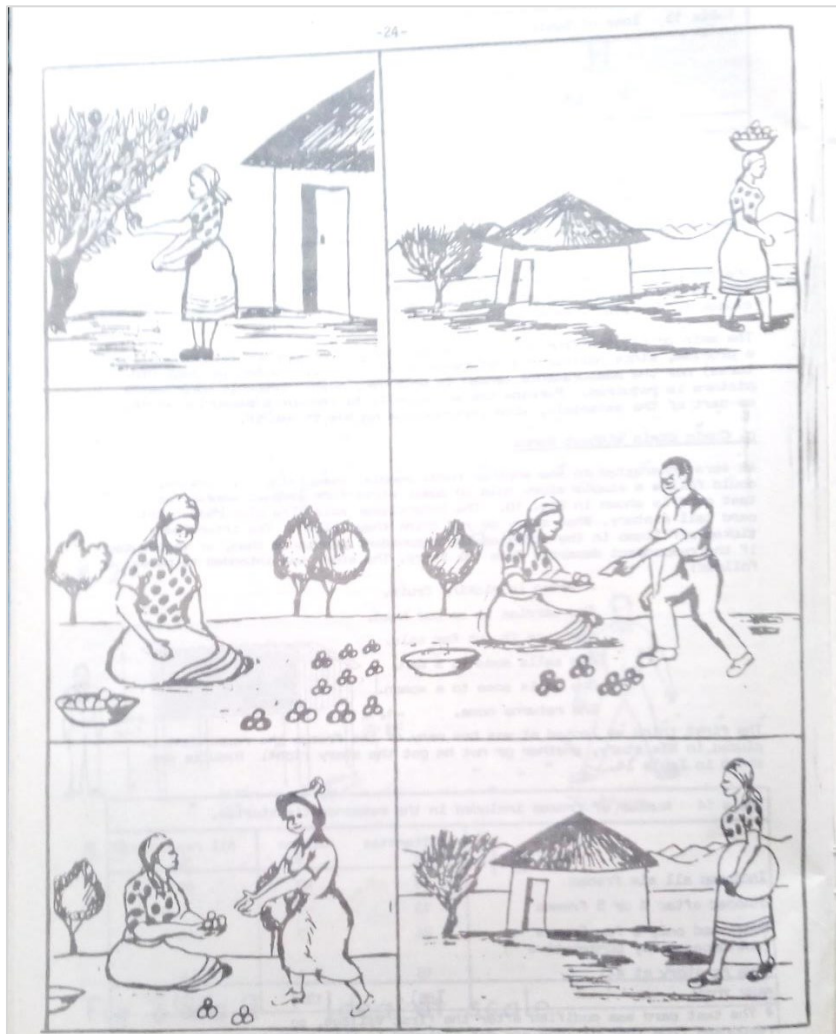


Figure 10: Comic strip without words

We were interested to see whether rural people, especially illiterates, could follow a simple story told in comic strip form without words. The test card is shown in Fig. 10. The interviewer said, "The pictures on this card tell a story. What story do you think they tell?" The interviewer ticked off items in the story as the respondent mentioned them, or made notes if the respondent departed from the story. The story was intended to be as follows:

- A woman is picking fruit.
- She carries it on her head.
- She sets it out for sale.
- She sells some to a man.
- She sells some to a woman.
- She returns home.

The first thing we looked at was how many of the frames the respondents included in their stories, whether or not they got the story right. Results are shown in Table 14.

Understanding Print

Table 14: Number of frames included in the respondents' stories

	<i>Illiterates</i>	<i>Readers</i>	<i>All respondents</i>
Included all six frames	48%	82%	69%
Stopped after four or five frames	13%	7%	9%
Mentioned only a few frames (not necessarily consecutive)	24%	7%	14%
Gave no story at all	15%	4%	8%
<i>Base totals</i>	<i>(85)</i>	<i>(133)</i>	<i>(216)</i>

The test card was modified after the first village, so responses from that village are not included in the table.

The second thing we looked at was whether, in their stories, respondents had misinterpreted anything. Examples of misinterpretations were "She is selling eggs," and, "A man is stealing money from her." Results are shown in Table 15.

Table 15: Proportion of misinterpretations of comic strip

	<i>Illiterates</i>	<i>Readers</i>	<i>All respondents</i>
Some misinterpretation	23%	9%	13%
No misinterpretation	77%	91%	87%
<i>Base totals</i>	<i>(43)</i>	<i>(113)</i>	<i>(156)</i>

This table is confined to those respondents who included all six frames in their stories.

Thirdly, we were interested in whether respondents realized that the main character was meant to be the same woman throughout, or whether, at some point in their story, they began to refer to the woman as though she was a different one. If they referred to her as though she was a new woman, they were probably describing each frame separately without appreciating that the frames formed a story. Results are in Table 16.

Table 16: Comic strip: same woman or different woman

	<i>Illiterates</i>	<i>Readers</i>	<i>All respondents</i>
Same woman in all frames	80%	80%	80%
Began speaking as if it was a different woman in frame 2	15%	15%	15%
Began speaking as if it was a different woman after frame 2	5%	5%	5%
<i>Base totals</i>	<i>(40)</i>	<i>(108)</i>	<i>(148)</i>

This table is confined to those respondents who included all six frames in their stories.

As a further check on respondents' understanding, we asked, "Where did the story begin?" and "Where did the story end?" Results are in Table 17.

Table 17: Comic strip - where did the story begin and end?

	<i>Illiterates</i>	<i>Readers</i>	<i>All respondents</i>
Where did the story begin?			
Proportion pointing to frame 1	85%	97%	94%
Proportions pointing to frames 2 to 6	5%	2%	3%
Don't know	10%	1%	3%
Where did the story end?			
Proportion pointing to frame 6	60%	72%	69%
Proportion pointing to frames 1 to 5	35%	27%	29%
Don't know	5%	1%	2%
<i>Base totals</i>	<i>(40)</i>	<i>(108)</i>	<i>(148)</i>

This table is confined to those respondents who included all six frames in their stories.

Understanding Print

One way to misunderstand the comic strip would be to see it as one big picture rather than six separate ones. We tried to find out how many people saw it in this way by asking, "How many pictures are there on the card?" Results are given in Table 18.

	<i>Illiterates</i>	<i>Readers</i>	<i>All respondents</i>
Six pictures	47%	79%	67%
One picture	0%	1%	0%
Two to five pictures	14%	4%	8%
More than six pictures	29%	15%	21%
Don't know	10%	1%	4%
<i>Base totals</i>	<i>(85)</i>	<i>(130)</i>	<i>(215)</i>

A word of explanation is required for the high proportion who gave answers higher than six. There was a translation problem with the question. In the pilot, we used the word "setsoantso" for "picture", and found many people answering 27 or 35 or some such number. They were counting a picture of a tree as one picture, a picture of a house as another picture, and so on. We then used the word "foto" for the main survey, hoping that this would make it clear what we meant. For most respondents, it did, but there were still some who gave answers higher than six. With these respondents, we still do not know how many pictures (in our sense) they saw.

How useful, then, is a comic strip without words as a way of telling a little story? Table 19 shows the proportion of respondents who understood it correctly, by which is meant that they included all six frames in their stories, they made no misinterpretations, they referred to the main character as the same woman throughout, and they pointed to frame 1 as the point where the story began and to frame 6 as the point where the story ended.

	<i>Illiterates</i>	<i>Readers</i>	<i>All respondents</i>
Proportion understanding it correctly	16%	47%	35%
Proportion getting something wrong	84%	53%	65%
<i>Base totals</i>	<i>(85)</i>	<i>(130)</i>	<i>(215)</i>

This experiment suggests that a comic strip without words is not a very promising medium. There are several ways in which one might misunderstand a comic strip, and a high proportion, especially of the illiterates, misunderstood it in one way or another. It may be, of course, that the fault lies with the particular test item we designed rather than the medium itself, so it would be a mistake to abandon the whole idea on the basis of this one test. All the same, it is clear that the design and pretesting of such an item would have to be exceptionally careful and thorough.

Chapter 3: Text

Simple literacy

After the picture items, the interviewer said, “Now I’m going to give you some things to read, and I will ask you simple questions about each one. The answers are in the text. If you cannot read, tell me so and we will miss out this part of the interview. Do you know how to read?” If the respondent said Yes, he was handed a short text in Sesotho. The text was printed in 10-pitch type on a white A4 card. The translation is as follows:

“The University of Botswana, Lesotho and Swaziland began in 1945 as a Catholic College at Roma, with only five students. Many of the buildings were built in the 1950’s. In 1964, it was agreed that the college should become a university and take students from Botswana and Swaziland as well as Lesotho. Since then, it has grown large. In addition to the principal site at Roma, there are also parts of the University at Gaborone in Botswana and Kwaluseni in Swaziland. There are about 400 students in Roma today.”

We chose this topic because the University is a well-known institution in Lesotho, so this topic was not wholly strange to the respondents. On the other hand, they were unlikely to know details about it, such as the date of its foundation. (The Roma campus has since become the National University of Lesotho, but, at the time of the survey, it was still part of UBLS.)

Before looking at the question of how well the readers understood the text, it is interesting to look at the simple literacy rate, i.e. the proportion of people who said they could read and who did read the test card. After making small adjustments to the figures to correct the sample bias, and rounding off to the nearest 5%, the simple literacy rate is as presented in Table 20. (Since the corrections actually made only a slight difference to the figures, this is the only table for which we attempted this correction.) The simple literacy rate is then analysed by sex, by age, by education, and by region, in Tables 21, 22, 23 and 24.

Table 20: Simple literacy rate for the rural population over ten years of age

Do not know how to read Sesotho	40%
Know how to read but cannot, usually because of poor eyesight	5%
Can read Sesotho	55%
<i>Base total</i>	<i>(245)</i>

“Can read Sesotho” means simply that they said they could read, and did read, the test card.

Table 21: Simple literacy by sex

	<i>Men</i>	<i>Women</i>
Can read	46%	64%
Cannot read	54%	36%
<i>Base totals</i>	<i>(83)</i>	<i>(162)</i>

Table 22: Simple literacy by age

	<i>11-20</i>	<i>21-30</i>	<i>31-40</i>	<i>41-50</i>	<i>51-60</i>	<i>61 or over</i>
Can read	72%	82%	70%	49%	45%	14%
Cannot read	28%	18%	30%	51%	55%	86%
<i>Base totals</i>	<i>(46)</i>	<i>(51)</i>	<i>(33)</i>	<i>(43)</i>	<i>(40)</i>	<i>(29)</i>

Understanding Print

	<i>No school education</i>	<i>Stds 1 to 4</i>	<i>Stds 5 to 6</i>	<i>Std 7 or over</i>
Can read	8%	77%	92%	100%
Cannot read	92%	23%	8%	0%
<i>Base totals</i>	<i>(40)</i>	<i>(30)</i>	<i>(39)</i>	<i>(20)</i>

Prior to 1968, primary schooling began with grades A and B and then went from Std 1 to Std 6. In 1968, the classes were renamed Stds 1-8. In 1970, Std 8 was abolished. In tables by education, the old levels have been converted to the new. For example, someone with Std 3 prior to 1968 is considered as Std 5.

Unfortunately, one of the interviewers assumed that all illiterates had no education, so he did not ask them about their education. This table is confined to the results of the other interviewer.

	<i>Lowlands</i>	<i>Highlands</i>
Can read	66%	54%
Cannot read	34%	46%
<i>Base totals</i>	<i>(122)</i>	<i>(123)</i>

The difference, by chi-squared test, is statistically significant at the 0.1 but not at the 0.05 level.

The figure of 55% for the simple literacy rate accords well with the UNESCO estimate of 59% [Ref 7]. The first observation to be made on these results, then, is that they support Lesotho's claim, which is implicit in the UNESCO figures, to have one of the highest literacy rates in Africa.

A second remark to be made is that women in Lesotho tend to be more literate than men. This is most unusual. UNESCO figures show that the reverse is true in almost all other developing countries. The reason for Lesotho's difference in this respect is probably the herdboys tradition. Only the men are allowed by custom to tend the family's livestock. Since very many of the adult men are absent from Lesotho, working as migrant labourers in the Republic of South Africa, the herding is often left to young boys. Tending livestock is a full-time job, so this prevents many boys from attending school. More research would be needed to find out if this is in fact the reason why boys get less basic education than girls, but it seems a likely explanation. [More research was in fact carried out in a later survey, which both confirmed this explanation and provided more detail about it – see "Reading, Writing and Arithmetic in Lesotho" published by the LDTC.]

The relationship of literacy to age and education is as one would expect. School education is the main factor – the majority of those who have had three or four years of school education are literate, while the majority of those who have had no school education are not. (We are still talking simply of the ability to read; we are not yet considering levels of comprehension.) It follows that younger people are more literate than older people since there has been great expansion in the primary-school system over the last fifty years.

The importance of school education is underlined by the answers to the question, "Where did you learn to read?" Ninety-five percent of those who could read said they had learned at school, 3% at the mines, and 2% at home.

One slightly disturbing finding is that, out of the seven respondents who had had some school education but still were illiterate, six were in the 11-20 age group. This explains why the 11-20 age group has a slightly lower literacy rate than the 21-30 age group (though the difference is not statistically significant). It would be rash to draw firm conclusions from such small numbers. However, it looks as though, 20 or 30 years ago, all pupils who left primary school, even at the lower levels, could read (and still can today), whereas in the last ten years, a few pupils have left school, even at standards 4 or 5, unable to read.

There is probably a regional difference in literacy, the lowlands people being more literate, but the difference is not very large.

Understanding Print

LDTC's publications for rural people will be in Sesotho, which is why the survey concentrated on Sesotho. The other official language of Lesotho is English. To those who could read Sesotho, we put the question, "Can you read English?" Fifty-one percent of those who could read Sesotho said they could also read English, which makes 22% of the total sample. We did not give a reading test in English. As one would expect, there is a clear relation between level of school education and literacy in English (Table 25).

	<i>Standard 1 to 6</i>	<i>Standard 7 or over</i>
Can read English	38%	77%
Cannot read English	62%	23%
<i>Base totals</i>	<i>(47)</i>	<i>(22)</i>

This table is confined to those who could read Sesotho. The question "Can you read English?" was added to the questionnaire only after three villages had been surveyed, so this table is based on a sample from seven villages only.

Comprehension

Over half the respondents could read, by which is meant merely that they said they could read, and did read, the test card. It would be a mistake, however, to assume that they all understood perfectly what they read.

When the respondents had finished reading the passage, they were asked these five questions:

1. When did the Catholic college at Roma begin?
2. How many students did it have at the beginning?
3. When did the college become a university?
4. In what town is Swaziland's part of the University?
5. How many students are there at Roma today?

The respondents kept the card while the interviewer asked the questions, and they could refer to it if they wanted. The interviewers report, however, that respondents did not often refer to the card; they estimate that over four-fifths of the answers were given without reference to the card.

Table 26 gives the respondents' scores on these five questions, and shows their relationship to school education.

	<i>No school education or only Std 1-4</i>	<i>Std 5 or 6</i>	<i>Std 7 or over</i>	<i>All respondents</i>
Five replies correct	12%	15%	30%	18%
Four replies correct	9%	23%	33%	23%
Three replies correct	26%	29%	21%	27%
Two replies correct	32%	25%	7%	20%
One reply correct	15%	6%	2%	8%
No replies correct	6%	2%	7%	4%
<i>Base totals</i>	<i>(34)</i>	<i>(61)</i>	<i>(43)</i>	<i>(142)</i>

This table is confined to those who read the test card.

As one would hope, comprehension improves with school education; only 21% of those with Standard 4 or below got four or five of the answers correct, whereas 63% of those with Standard 7 or over got four or five answers correct. Several years of school education, however, does not guarantee a good reading competence; 16% of those with Standard 7 or over got less than three of the answers correct.

Understanding Print

Although the answers to the questions were all in the text, the questions evidently varied in difficulty, as can be seen from Table 27.

Table 27: Comprehension test – proportion correct on each question

	Q. 1	Q. 2	Q. 3	Q. 4	Q. 5
Right answer	82%	73%	43%	35%	77%
Wrong answer	17%	14%	50%	28%	8%
Don't know	1%	13%	7%	37%	15%
<i>Base total</i>	<i>(142)</i>	<i>(142)</i>	<i>(142)</i>	<i>(142)</i>	<i>(142)</i>

Question 3 (“When did the college become a university?”) caused difficulty because of the mention, in the text, of the 1950’s – many respondents gave this as the answer. For question 4 (“In what town is Swaziland’s part of the University?”), some gave Gaborone as the answer, but they were probably puzzled by the unfamiliar name Kwaluseni. Since there is no “w” in the Sesotho orthography that is used in Lesotho, it was foolish of us to include it in the text.

What one considers to be an adequate level of comprehension is obviously rather arbitrary. We feel that, to understand an instructional booklet, people would need to be able to answer at least four of our test questions correctly. Using this criterion, we arrive at the figure of about a quarter of the rural adult population who can understand a text adequately. Another quarter can understand some sentences. There is also a small proportion (about 5% of the rural population) who claim to be able to read but who understand so little of what they read that they would be, for most practical purposes, illiterate.

The interviewers were asked to note certain aspects of the manner in which respondents read the text, and to estimate how long it took them. These results are given in Tables 28 and 29.

Table 28: How the respondents read the test card

		<i>Base totals</i>
Proportion who read aloud	27%	<i>(78)*</i>
Proportion who mouthed the words	53%	<i>(78)*</i>
Proportion who moved a finger along the lines	2%	<i>(139)</i>

**One interviewer misunderstood what was meant by these; these figures are from the other interviewer only.*

Table 29: Time taken to read the test card

Under one minute	5%
One to three minutes	75%
Three to five minutes	17%
Over five minutes	3%
<i>Base total</i>	<i>(139)</i>

These results point to the same conclusion as the comprehension test, namely that many of the readers are not good at reading.

Photo-strip

The photo-strip is a medium used mostly for entertainment. Several Sunday newspapers from the Republic of South Africa, which are read in Lesotho, carry serials told in this form, and complete stories are available as magazines. The stories are mostly about lovers or gangsters.

Understanding Print



Figure 11: Photo-strip

In some countries (e.g. Ecuador, Namibia) photo-strip booklets have been produced for educational purposes, for example to dramatize the value of family planning. We wondered how well rural readers would understand a story told in this form, so we produced a little photo-strip as a test. It is given in Fig. 11. The message of the story is that you should give your child a good breakfast before school. The text is as follows:

1. Thabo is always sleeping in class.
2. His teacher wakes him angrily.
3. The teacher speaks to Thabo's mother: "Mother of Thabo*, your son won't pass his exams if he doesn't pay attention in class."
4. Thabo's mother is worried. She discusses the problem with her friend.
5. Friend: "Try giving Thabo a good breakfast before he goes to school."
6. Now Thabo gets mealie porridge, milk and beans before he goes to school.
7. Now Thabo is top of the class.

*It is the custom in Lesotho for a mother to take the name of her first-born child, prefaced by "M'a", which means "Mother of". So, although it sounds strange in English for the teacher to address Thabo's mother as "Mother of Thabo", it is not at all strange in Sesotho.

The interviewer asked, "Can you tell me what story these pictures tell?" and then noted down the respondent's version of the story. Then he pointed to characters in the pictures, e.g. Thabo's mother in the fourth frame, and asked, "Who is this?" Finally he asked, "What does this story teach you?" Results are presented in Table 30.

Understanding Print

<i>Table 30: Understanding the photo-strip ("Thabo's breakfast")</i>	
Proportion who gave the full story	96%
Proportion who misinterpreted something in the story*	0%
Proportion who identified Thabo in the first frame	99%
Proportion who identified Thabo in the last frame	98%
Proportion who identified the teacher in the third frame	98%
Proportion who identified Thabo's mother in the fourth frame	93%
Proportion who identified Thabo's mother's friend in the fifth frame	80%
What does the story teach you?	
Give a child a good breakfast before school	72%
Other	19%
Don't know	9%
<i>Base total</i>	<i>(139)</i>
<i>This table is confined to those who could read.</i>	
<i>*It would have counted as a misinterpretation if, for example, they had said that Thabo was in church, or that the teacher was Thabo's father.</i>	

The high level of comprehension of this photo-strip is striking. Conventions such as "balloons" to convey the characters' speech evidently caused no difficulty. It is interesting that, although most people followed the story well, a quarter of the respondents did not see the intended moral of the story; when asked what the story taught them, they gave answers such as, "School discipline is very strict." When using such stories it would probably be worthwhile to include a headline spelling out the moral of the tale.

Diagrams

Chapter 2 considered people's comprehension of pictures without words. In most instructional materials, however, pictures are used to accompany text. Sometimes the purpose is just to brighten up the printed page, but generally it is hoped that they will make clearer what is being said in the text.

We designed three test pieces to assess the value of diagrams. The first was a set of instructions on how to make a tea-strainer out of a beer can; the purpose here was simply to see how well people could understand this. The test card is shown in Fig. 12. The text is as follows:

HOW TO MAKE A TEA STRAINER

Take a beer can (such as Lion, Castle or Black Label).

Draw a line around it, as in the diagram.

Cut the can along the line, using a knife or a can-opener.

Make a handle out of wire.

Bend the sharp edges of the can over the wire.

Make holes in the bottom using a hammer and a 2" (two inch) nail.

Understanding Print

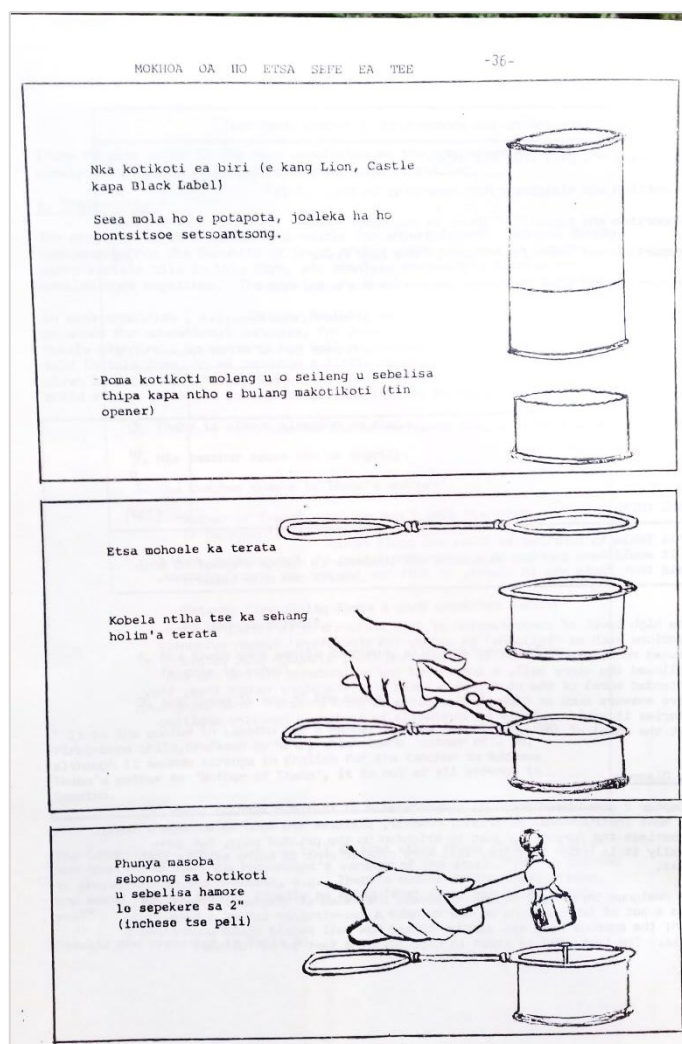


Figure 12: How to make a tea strainer

The test questions and people's responses (confined to those who could read) are given in Table 31.

Question	Response	Percentage
What do these pictures show?	How to make a tea-strainer	80%
	Other	9%
	Don't know	11%
The interviewer handed a beer can to the respondent and said, "Show me where you would draw the line on this can."	About right	74%
	Too low	7%
	Too high	18%
	Don't know	1%
What would you use to make the handle?	Wire	95%
	Other	4%
	Don't know	1%
What would you use to make the holes?	Hammer and 2" nail	65%
	"Hammer and nail" or "Nail"	27%
	Other	7%
	Don't know	1%
Do you think you could make a tea-strainer in the way shown on the card?	Yes	89%
	No	7%
	Don't know	4%
Base total (excludes illiterates)		(136)

Understanding Print

Without asking the respondents to actually make a tea-strainer (which would have taken too long), we cannot be sure how many could carry out the instructions, but, so far as one can judge from their answers to the questions, it looks as though about three-quarters of the readers understood the instructions sufficiently well. This test does not show to what extent the diagrams helped but it suggests that the diagrams did not cause confusion.

The other two diagram test items were designed to assess how far the diagrams helped. Both were on agricultural topics. They were adapted from the well-known courses produced by INADES in the Ivory Coast ("Cours d'apprentissage agricole"). The first, on plant spacing, was taken from Booklet 1 of that course; the second, on ploughing, was taken from Booklet 7.

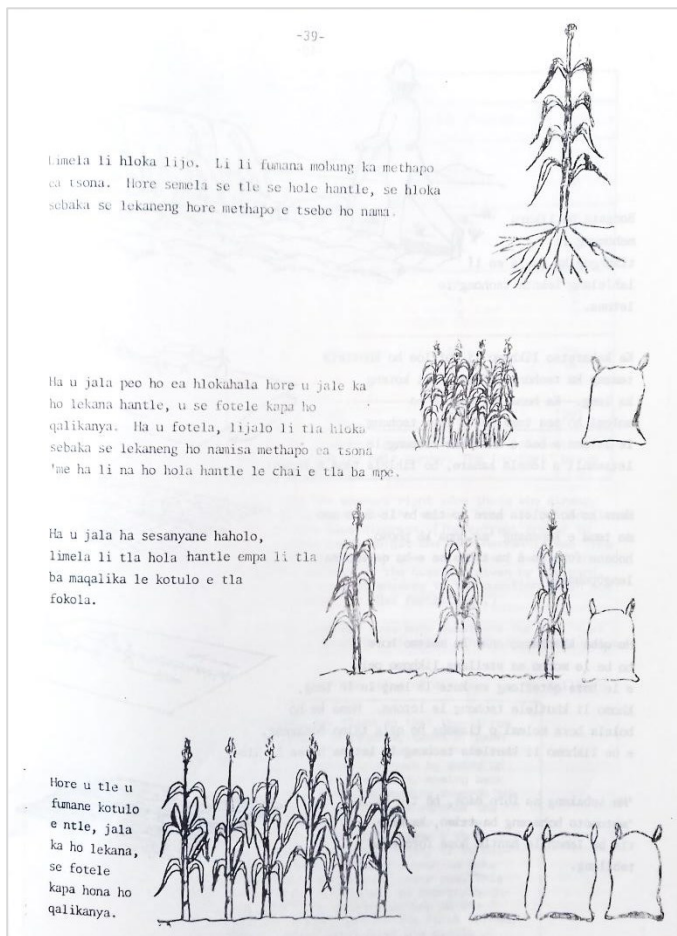


Figure 13: Text with diagrams: plant-spacing

For each item, two versions were produced. In one version, text and diagrams were presented; in the other version, the text was presented alone. For each item, some of the respondents were given the text-plus-diagrams; the others were given the text only. The versions with diagrams are shown in Figs. 13 and 14. The first text, in English, is as follows:

Plants need food. They get food from the soil through their roots. To grow tall, plants need enough space to spread out their roots.

When you plant seeds, it is important to plant them the right distance apart. Do not plant them too close together or too far apart. If you plant too close, the plants will not have enough room to spread out their roots. They will not grow well and the harvest will be poor. If you plant too far apart, your plants will grow well, but there will be too few of them. The harvest will be poor. To get the best

Understanding Print

harvest, you have to plant them the right distance apart – not too close together and not too far apart.

After the respondent had read this card, the interviewer asked these questions:

1. Do plants need food?
2. What part of the plant takes food from the soil?
3. What will happen if you plant seeds too close together?
4. How should you plant seeds to get the best harvest?

The results from the main survey seemed to show that the diagrams made no difference at all. Reluctant to believe this, we included the same items in the supplementary survey but we made a small change to the procedure - some of the respondents were not given either of the cards; they were just asked the questions. Results from both surveys are given in Table 32.

	<i>Text only</i>	<i>Text plus diagrams</i>	<i>No card</i>
Q.1 Right	87%	75%	83%
Other	9%	20%	7%
Don't know	4%	5%	10%
Q.2 Right	63%	63%	72%
Other	14%	12%	3%
Don't know	23%	25%	25%
Q.3 Right	90%	85%	97%
Other	5%	11%	0%
Don't know	5%	4%	3%
Q.4 Right	94%	92%	79%
Other	1%	2%	18%
Don't know	5%	6%	3%
<i>Base totals</i>	<i>(136)</i>	<i>(65)</i>	<i>(29)</i>
<i>The "text-only" and "text-plus-diagrams" groups from the supplementary survey are combined with those from the main survey. The "no card" group is from the supplementary survey only.</i>			

It is clear that those who got the answers right were those who already knew the answers. Those who did not know the answers were not helped either by the text alone or by the text plus diagrams. (The correct answer to question 4 – “How should you plant seeds to get the best harvest?” – was, “The right distance apart.” The “no card” group gave this answer less often because they did not have the context of the question given by the card. Those of their answers that were coded “Other” were mostly correct answers to the question taken out of context, such as “Use a planter,” or “Use fertilizer.”)

In the supplementary survey we included some more questions for the “text-plus-diagrams” group specifically about the diagrams. The diagrams themselves were all well understood.

Understanding Print

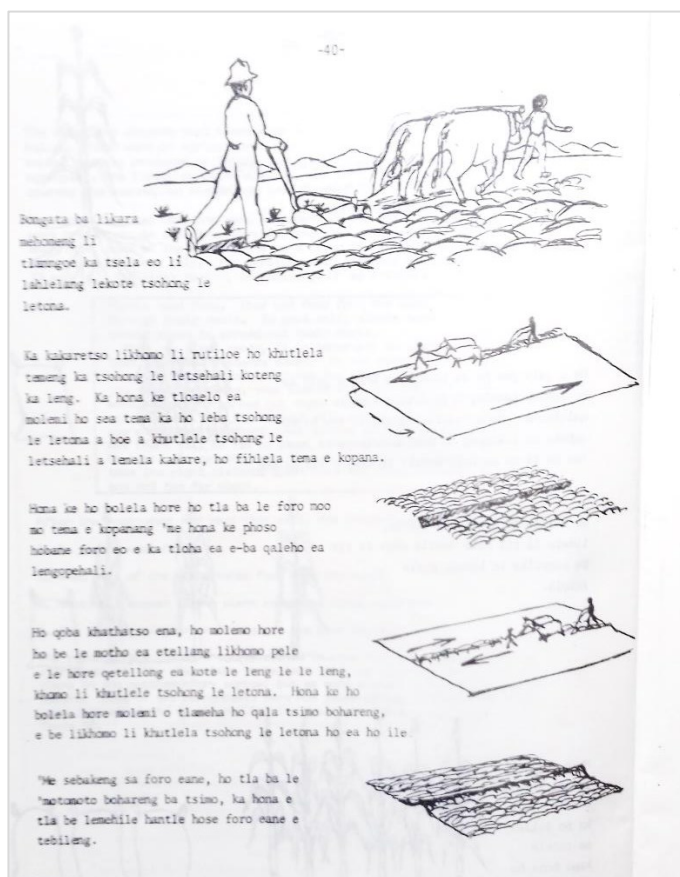


Figure 14: Text with diagrams: ploughing

The text of the other item to test the value of diagrams was as follows:

Most ploughshares are fixed so that they throw soil to the right. In general, teams of oxen are trained to turn left at the end of the row. A farmer usually begins to plough by going up the right-hand side of the field, coming back down the left-hand side and working towards the middle. This means that, when he reaches the middle, there will be an extra-deep furrow. This is bad because it might become a donga [an erosion gully]. To avoid this, it is better to have someone leading the oxen to make them turn right at the end of every row. This means that the farmer has got to start ploughing a field down the middle, turning to the right and coming back next to the first furrow. This makes a heap of soil down the middle of the field. When he finishes, the field is well ploughed and there is no extra-deep furrow.

We selected this passage because some effort is required to visualise what it is saying, and, therefore, one would expect the diagrams to help.

After the respondent had read the card, the interviewer took out a large, rectangular piece of card (35cm by 25cm) and explained that this was to represent a field. The interviewer asked the respondent to show him, on the piece of card, any ploughing pattern he had seen. If he could do that, the interviewer asked him to show the pattern recommended in the text. The interviewer also asked, "Did you know the recommended pattern before you read the card?"

Only one of the interviewers in the main survey had administered and marked this test correctly, so it was included in the supplementary survey also. In the supplementary survey, a third group of respondents was added. These people did not read either of the cards; they were just asked, "Can you show me a ploughing pattern which is recommended by the Ministry of Agriculture?"

Understanding Print

A few of the respondents (18%) could not show any ploughing pattern at all on the card. Table 33 is confined to those respondents who were able to show some ploughing pattern.

	<i>Text only</i>	<i>Text & diagrams</i>	<i>No card</i>
Can you show me the pattern recommended on the card?			
Showed recommended pattern correctly	48%	60%	
Showed some other pattern	40%	33%	
Don't know	12%	7%	
<i>Base totals</i>	<i>(42)</i>	<i>(55)</i>	
Of those who showed it correctly, percentage who knew the pattern before reading the card	85%	80%	
Can you show me a ploughing pattern that is recommended by the Ministry of Agriculture?			
Showed the pattern recommended on the card			17%
Showed some other pattern			38%
Don't know			45%
<i>Base total</i>			<i>(29)</i>
<i>The difference between "text only" and "text with diagrams" is not statistically significant.</i>			

For those who had the text plus diagrams, some extra questions were asked specifically about the diagrams. The diagrams themselves were well understood.

The conclusion is much the same as for the plant-spacing. Most of those who showed the correct pattern already knew it and the card reminded them of it. If people did not already know it, neither the text alone nor the text-plus-diagrams was very effective in teaching them. The diagrams for both plant-spacing and ploughing-patterns, though they did not reduce comprehension, did not improve it very much, if at all.

Text with sound

Instructional printed materials are often used as an accompaniment to a radio broadcast or tape-recording. There are obviously many ways in which text and sound might interact. We tried to test just one aspect of this.

Half the readers were given a plain text to read and were then asked some test questions on the text. The other half were given the same text to read and were then played a tape-recording of a man reading that text; they were then asked the same questions. (The respondents were divided into two groups simply by having one interviewer use the cassette player one day, the other interviewer the next day, and so on.) We were interested in knowing whether hearing the information, as well as reading it, would improve people's comprehension. The text was as follows:

A credit union is a group of people who decide to save their money together. Each member pays some money into the Credit Union regularly, so, in a short time, the Credit Union has large funds. Every year, the members gather together to elect a committee which will run the affairs of the Credit Union. If a member wants to borrow some money, he can ask for a loan from the Credit Union. If the Committee agrees, the Credit Union will lend him some money. He is given a long period of time to repay the loan. Because the Credit Union exists to give a service to its members, it does not make large profits, and it charges low interest rates. Any group of people who decide to save their money together can form a credit union. There are more than forty credit unions in Lesotho.

Understanding Print

The test questions were these:

1. Does a credit union exist to make large profits or to provide a service?
2. Who elects the committee of a credit union?
3. Does a credit union charge high or low interest rates?
4. How many credit unions are there in Lesotho?

The results are presented in Table 34.

	<i>Text only</i>	<i>Text with tape</i>
Q.1 Right	62%	62%
Wrong	36%	31%
Don't know	2%	7%
Q.2 Right	52%	46%
Wrong	30%	21%
Don't know	18%	33%
Q.3 Right	78%	68%
Wrong	19%	28%
Don't know	3%	4%
Q.4 Right	77%	65%
Wrong	10%	13%
Don't know	13%	22%
<i>Base totals</i>	<i>(69)</i>	<i>(71)</i>

There were no statistically significant differences between the answers of those who had heard the tape and the answers of those who had not, so it appears that listening to the tape did not improve comprehension. It has been suggested that the tape-recorder itself might have been a distraction. A tape-recorder is not a common sight in rural Lesotho, so it is possible that respondents were more interested in looking at the tape-recorder than in listening to the words that were coming out of it.

Understanding Print

Books, newspapers and letters

We were interested to find out about people's reading habits – what do people read? how often do they read? and how often do they read and write letters? The results are presented in Tables 35 and 36.

Question	Results		Base totals
a.-What was the last book you read?	Fiction Bible Non-fiction Other, e.g. poetry Can't remember Don't read books	31% 21% 12% 7% 15% 14%	(140)
b.-What language was it in?	Sesotho English Other	93% 6% 1%	(99)
c.-When did you read it?	Yesterday In the last week In the last month In the last year	26% 59%* 80%* 95%*	(99)
d.-What was the last newspaper that you read?	Moeletsi Leselinyana Other Can't remember Don't read newspapers	28% 19% 4% 19% 30%	(140)
e.-What language was it in?	Sesotho Other	99% 1%	(70)
f.-When did you read it?	Yesterday In the last week In the last month In the last year	9% 44%* 74%* 95%*	(70)
<p>*These percentages are cumulative; for example, the 80% who had read a book in the last month includes the 59% who had read one in the last week. Tables 35 and 36 are confined to those who could read. Questions b and c were put only to those respondents who could say what book they had last read (question a). Questions e and f were put only to those who could say what newspaper they had last read (question d).</p>			

Question	Results		Base total
When did you last write a letter? (*indicates cumulative percentages)	In the last week In the last month In the last year Over a year ago Can't remember Don't write letters	33% 75%* 82%* 4% 7% 7%	(140)
When did you last receive a letter?	In the last week In the last month In the last year Over a year ago Can't remember Don't receive letters	33% 67%* 80%* 4% 7% 9%	(140)

It is clear that the majority of those who can read make use of their reading ability. Well over half had read a book or a newspaper in the previous month and had written or received a letter.

Understanding Print

The relationship between reading and school education seems paradoxical. While the more educated read newspapers more often, which is what one would expect, it is the less educated who read books more often. These results are given in Table 37.

	<i>Std 6 or below (inc. no education)</i>	<i>Std 7 or over</i>
Last read a book:		
Yesterday	23%	10%
In the last week	46%*	30%*
In the last month	59%*	52%*
In the last year	66%*	67%*
Over a year ago	2%	7%
Can't remember/ don't read books	32%	26%
Last read a newspaper:		
Yesterday	4%	4%
In the last week	13%*	30%*
In the last month	32%*	37%*
In the last year	44%*	46%*
Over a year ago	2%	4%
Can't remember/ don't read newspapers	54%	50%
<i>Base totals</i>	<i>(92)</i>	<i>(46)</i>
*Cumulative – see note to Table 35. The table is confined to those who could read. The differences between the two groups are statistically significant by chi-squared test at the 0.05 level.		

Reading aloud to illiterates

People who cannot read are not necessarily cut off from all communication in writing; other people can read aloud to them. To those respondents who could not read (either because they did not know how or because their eyesight was poor) we put a few questions about this. Their answers are given in Table 38.

<i>Question</i>	<i>Answers</i>		<i>Base totals</i>
Do other people in your household know how to read?	Yes	87%	<i>(99)</i>
	No	13%	
Do people read to you?	Yes	91%	<i>(100)</i>
	No	9%	
What was the last thing you had read to you?	Letter	64%	<i>(86)</i>
	Bible	8%	
	Other book	19%	
	Newspaper	9%	
When were you last read to?	Yesterday	6%	<i>(77)</i>
	In the last week	45%*	
	In the last month	76%*	
	In the last year	96%*	
*Cumulative percentages. This table is confined to those respondents who could not read. "Don't know" responses were excluded, which is why the base total varies.			

Understanding Print

In the supplementary survey, we added a small test to see how well people could recall something that was read out to them. We used the passage about credit unions and the same questions (see preamble to Table 34). To half of the respondents, the interviewer read out the passage aloud and asked the questions. To the other half, the interviewer just asked the questions. The procedure was the same for both literate and illiterate respondents. Respondents were not allowed to read the card themselves. The results are in Table 39.

		<i>Illiterates</i>		<i>Readers</i>		<i>All respondents</i>	
		<i>Quest's only</i>	<i>Text aloud</i>	<i>Quest's only</i>	<i>Text aloud</i>	<i>Quest's only</i>	<i>Text aloud</i>
Q.1	Right	37%	68%	47%	52%	44%	56%
	Wrong	16%	21%	37%	33%	31%	30%
	Don't know	47%	11%	16%	15%	25%	14%
Q.2	Right	16%	37%	26%	34%	23%	35%
	Wrong	37%	47%	32%	33%	33%	37%
	Don't know	47%	16%	42%	33%	44%	28%
Q.3	Right	37%	63%	47%	75%	41%	69%
	Wrong	26%	26%	33%	21%	34%	25%
	Don't know	37%	11%	20%	4%	25%	6%
Q.4	Right	0%	16%	18%	40%	13%	34%
	Wrong	28%	53%	39%	29%	36%	35%
	Don't know	72%	31%	43%	31%	51%	31%
<i>Base totals</i>		<i>(19)</i>	<i>(19)</i>	<i>(51)</i>	<i>(52)</i>	<i>(70)</i>	<i>(71)</i>

These results are from the supplementary survey only.

As one would expect, people did learn from having the text read aloud to them. It is possible that the illiterates learned more from it than the others, but one cannot base a conclusion on such a small sample. A comparison of the "Readers" column in Table 39 with the results in Table 34 suggests that literate people learn a little more from reading a text than from having it read to them.

Chapter 4: Radio listening, estimating, measuring, and arithmetic

Radio listening

Radio is used in many countries as a means of conveying information to rural people. We asked a few questions to find out how many people had radios, how well those radios received Radio Lesotho, how often people listened to the radio, and what programmes they listened to.

In answer to the question “Is there a radio in your home?”, 17% said there was, and only 5% of these radios were not in working order. There is a small regional difference in radio ownership (Table 40).

<i>Table 40: Regional differences in radio ownership</i>		
	<i>Lowlands</i>	<i>Highlands</i>
Those who have a radio at home	22%	12%
Those who do not have a radio at home	78%	88%
<i>Base totals</i>	<i>(122)</i>	<i>(122)</i>
<i>The difference is statistically significant by chi-squared test at the 0.05 level.</i>		

Lesotho is a mountainous country and it has many thunderstorms at certain times of the year. These factors affect radio reception. In answer to the question, “How well does it receive Radio Lesotho?”, only 39% of the people with radios said that their radios received Radio Lesotho well; 41% said that they received Radio Lesotho badly, and 20% said that they did not receive Radio Lesotho at all. (We did not ask about reception of other stations.) This means that eight percent of the total sample of respondents had radios that received Radio Lesotho well. As one would expect, there was a marked regional difference. Half of the radios in the lowlands villages received Radio Lesotho well, but only two out of the 14 in the highlands villages.

Responses to the remaining questions about radio listening are presented in Table 41.

<i>Table 41: Listening to Radio Lesotho</i>		
Listened to Radio Lesotho the previous day	5%	
Listened to Radio Lesotho the previous week (out of total sample)	19%	<i>(242)</i>
Last listened to Radio Lesotho at own home	43%	
Last listened to Radio Lesotho at friend’s home	16%	
Last listened to Radio Lesotho somewhere else (out of those who had listened in the previous week)	41%	<i>(47)</i>
Listened in the previous week to an educational programme* (out of those who had listened in the previous week)	13%	<i>(47)</i>
		<i>Base totals</i>
<i>*i.e. the educational programmes for adults on health, nutrition, agriculture etc. School broadcasts are not included here.</i>		

The audience for Radio Lesotho as a proportion of the adult population is not large, and the audience for the adults’ educational programmes is very small. Expressed as a proportion of the total sample, those who had listened to any of these educational programmes in the previous week was between two percent and three percent. Since these educational programmes are broadcast five evenings a week, the audience for any single programme is probably under one percent of the adult population, i.e. between 1000 and 5000 people.

Understanding Print

Table 42 shows the association between radio listening and literacy.

	<i>Can read</i>	<i>Cannot read</i>
Had listened to Radio Lesotho in the previous week	24%	11%
Had not listened to Radio Lesotho in the previous week	76%	89%
<i>Base totals</i>	<i>(152)</i>	<i>(90)</i>
<i>The difference is statistically significant by chi-squared test at the 0.05 level.</i>		

It is often said in favour of radio that it provides a means of communicating with illiterates. These results suggest that, in fact, radio in Lesotho has an audience composed largely of people who can read. It is of some interest that, of the few people who had listened to an adult education programme in the previous week, not one was an illiterate. This is not to say, of course, that illiterates cannot or will not learn from radio. But one cannot assume that one is communicating with illiterates simply because one uses radio.

Estimating time

It is often said that rural people have little understanding of clock time, so that they would not be able to follow instructions such as, "Boil the spinach for five minutes," or "Listen to the radio at 7.30." [Ref. 9]

We asked two questions to find out how far this was true. The interviewer noted down the exact time at the beginning of the interview to the nearest minute. Then, when he had completed the picture questions, he noted down the exact time again and asked, "Before we go on, can you estimate how many minutes this interview has lasted so far?" (Respondents were not warned in advance that they would be asked this question.) We could then calculate, for each respondent, how long the interview had taken up to that point. It varied, of course, from one respondent to the next, but it was generally between ten and fifteen minutes. We could calculate the difference between the respondent's answer and the correct answer.

The next question was, "Can you tell me what time it is?" Again, we calculated the difference between the respondents' estimates and the correct answer. Responses to both questions are summarized in Table 43.

	<i>Illiterates</i>	<i>Readers</i>	<i>All respondents</i>
How long has the interview lasted?			
Estimates within 2 minutes of correct answer	2%	10%	7%
Estimates 3-5 minutes away from correct answer	2%	12%	8%
Estimates 6-10 minutes away from correct answer	5%	14%	11%
Estimates 11-20 minutes away from correct answer	2%	12%	8%
Estimates more than 20 minutes away from correct answer	4%	7%	6%
Don't know	85%	45%	60%
What time is it?			
Estimate within 5 minutes of correct answer	2%	9%	7%*
Estimate 6-15 minutes away from correct answer	3%	10%	8%
Estimate 16-30 minutes away from correct answer	5%	16%	12%
Estimate 31-60 minutes away from correct answer	3%	14%	11%
Estimate 1 to 2 hours away from correct answer	9%	10%	10%
Estimate more than 2 hours away from correct answer	2%	1%	2%
Don't know	76%	40%	50%
<i>Base totals</i>	<i>(91)</i>	<i>(153)</i>	<i>(244)</i>
<i>*Five of these sixteen people had a watch.</i>			

Understanding Print

We also asked “Do you have a clock in your house?”, sixteen percent said they had.

These results tend to bear out the view that rural people in general, and illiterates in particular, are not good at estimating clock time. When asked to estimate a short lapse of time, only a quarter gave an estimate within ten minutes of the correct answer; when asked to estimate what time it was, only a quarter gave an estimate within half an hour of the correct answer. Half the respondents would not hazard any guess to either question. (It should be admitted that, since there were no urban people in the sample, we do not know if urban people would do any better.)

These results are not surprising. Clock time is not usually of much importance in rural life, so there would be no reason for the majority of rural people to develop the skill of estimating hours and minutes.

Pints, acres, instruments, record players

Units of measurement are often important when giving instructions. Without going into detail on this subject, we included a few questions about units of measurement.

One was about the pint. (Officially, Lesotho has gone metric, but it was clear from the pilot that metric measurements are not yet used in the villages.) The interviewer handed the respondent a tin mug, which would hold about half a pint, and asked, “Does this mug hold a pint, more than a pint, or less than a pint?” Sixty-two percent gave the correct answer; 18% said it held a pint, and 20% said they did not know.

A survey of 31 tractor owners was conducted by the Thaba Bosiu Rural Development Project. They found that about half used the traditional definition of a Sesotho acre (12 paces by any length) [Ref 10] and half used a more recent definition (12 paces by 100 paces) [Ref 11].

We were interested in which definition rural people used. We asked, simply, “What is a Sesotho acre?” Forty-four percent said they did not know; 38% said it was 12 paces by any length, while 18% gave various other definitions. Nobody said it was 12 paces by 100 paces.

We asked the question “In your house, do you have a ruler?” and similar questions for tape-measure and weighing scales. Twenty percent said they had a ruler, 12% had a tape measure, 1% had weighing scales.

Cheap gramophone records have occasionally been used elsewhere for educational purposes, for example with a short song about going to the clinic or learning to read. We asked respondents whether they had a record player. Only one respondent said he had.

Arithmetic

Instructions given in print often assume that the reader can do simple arithmetic. For example, “Use two pockets of fertilizer per acre,” assumes, first, that the reader knows what an acre is and how many acres he has and, secondly, that he can calculate how many pockets he needs. We gave respondents two small problems to solve. They were as follows:

1. A farmer sells three sheep at an auction. He sells the first for R20, the second for R15 and the third for R10. How much money does he get altogether?
2. A housewife is preparing bean soup. The recipe book says that, to make enough for four people, you use one cup of beans and two onions. The housewife wants to make enough for eight people. How many cups of beans and how many onions should she use?

The results are given in Table 44, broken down by level of education and by literacy.

Understanding Print

Table 44: Arithmetic problems

		<i>No education</i>	<i>Std 1-4</i>	<i>Std 5-6</i>	<i>Std 7 or over</i>	<i>Illiterates</i>	<i>Readers</i>	<i>All respondents</i>
Sheep	Correct	36%	57%	68%	81%	46%	70%	60%
	Wrong	25%	24%	25%	19%	20%	24%	22%
	Don't know	39%	19%	7%	0%	34%	6%	18%
Beans	Correct	37%	73%	69%	76%	43%	75%	62%
	Wrong	12%	7%	18%	19%	18%	16%	17%
	Don't know	51%	20%	13%	5%	39%	9%	21%
Onions	Correct	31%	64%	62%	74%	38%	69%	55%
	Wrong	14%	12%	25%	21%	19%	21%	22%
	Don't know	55%	24%	13%	5%	43%	10%	23%
<i>Base totals</i>		<i>(44)</i>	<i>(42)</i>	<i>(65)</i>	<i>(43)</i>	<i>(102)</i>	<i>(142)</i>	<i>(244)</i>

53% of all the respondents gave correct answers to both Beans and Onions.

For the first problem (the farmer's sheep), the interviewer noted down how long it took the respondent to give an answer. Thirty-one percent took less than a minute, 55% between one and three minutes, and 14% more than three minutes.

One interesting finding was that two-fifths of the respondents converted the Rands into pounds (at the old rate of R2 to £1), added up the pounds, and converted back to Rands. Although this made the calculations a good deal more complicated, 70% of the people who did it this way got the right answer. (Lesotho stopped using the pound in 1961.)

Most of the people who could read could also do these arithmetic problems, although a large minority could not. School education is clearly important in giving people arithmetic skills, though it is not as crucial as it is for literacy skill (compare Table 44 with Table 23). It looks as though the first four years of schooling make the most difference. About a third of those with no education got the answers right, as against two-thirds of those with just three or four years of school; the proportion did not increase significantly with extra years of schooling. (Of course, extra years of primary schooling might have other effects which this survey did not test.)

Understanding Print

Summary and conclusions

Before producing large quantities of printed material for rural education, LDTC needed to know how many rural Basotho could read, how well they understood what they read, how well they understood illustrations, and what kinds of illustrations they understood best.

Interviews were conducted with a random sample of 245 rural people over the age of ten. Each respondent was shown a set of test cards and was asked questions about them.

If a printed text was circulated in the villages, between a fifth and a half of the people (depending on how difficult the text was) would be able to read and understand it. If a clear picture of something familiar was shown to them, between half and all of them would understand it.

Only about 10% of the adult population is not reached at all by the written word. In addition to the 50% who can and do read, there are another 40% who cannot themselves read but who are read to by others.

Certain kinds of pictures might present difficulties. An enlarged drawing of a fly, a drawing and a photograph of a three-dimensional scene, and drawings to convey an idea of scale were not well understood. A comic strip without words was misunderstood in various ways.

Two ways of improving people's comprehension of a text – adding diagrams and reading out the text on a tape-recorder – did not seem to have any effect.

To sum up, the results show that rural people's level of comprehension of print is high enough to give this medium considerable potential for rural education in Lesotho, but that details in the text or certain aspects of illustrations can cause difficulty so that thorough pre-testing would be necessary for all publications.

Appendix 1: The sampling method

Inspection of the village lists (Vol. 2 of the 1966 Population Census Report) showed that a quarter of the rural population live in villages of fewer than 120 people, a quarter in villages of 120 to 220 people, a quarter in villages of 220 to 500 people, and a quarter in villages of over 500 people.

Enumeration areas were selected randomly, with the aid of a table of random numbers, and villages selected randomly within each selected enumeration area. This procedure was continued until we had a sample of ten villages – four of the kind containing fewer than 120 people, two of the 120-220 size, two of the 220-500 size, and two of the 500+ size. (Villages of fewer than 50 people, which contain about 5% of the rural population, were excluded. This was because the number of successful interviews we might carry out in such a small village would not warrant the expense of getting to the village.) We aimed to carry out 15 interviews in each of the four smaller villages, and 30 in each of the other six, to give 60 respondents from each village size group, making a total sample of 240 respondents.

When the interviewers began to work in a village, they divided the village between them. Each one, starting from a household on the edge, worked his way through the village, taking every other household in the manner explained in Appendix 2.

Within a household, the interviewer explained the purpose of the survey to a senior member of the household. If the senior member cooperated, the interviewer wrote down on his household listing form those members of the household aged over ten. He wrote them down as “head”, “wife”, “eldest son” and so on. No names were taken. (This was an advantage, since some people do not like to give their names.) So his listing form looked something like this:

001	Household 1	Head
002		Wife
		Eldest son
003		Younger son
004	Household 2	Head
		Head’s mother
005		Wife
006		First daughter
		Second daughter
007		Third daughter

Those people who went down next to code numbers were in the sample as people to be interviewed. (The code numbers were written on the listing forms in advance.)

The reason for not taking all members of the selected households was that, in large households, the responses of the last person to be interviewed could be affected by his having overheard other members of the household being interviewed. The sampling method did not eliminate this possibility, but it reduced the frequency. The reason for not taking one person from each household was that using this method results in a sample biased towards people from small households.

Lesotho, like most developing countries, has a broad-based age pyramid, i.e. a very much larger number of young people than old people. We therefore systematically biased the sample by rejecting every other person aged 11 to 20 who came into the sample. By rejecting some of the teenagers, we thus made more room in the sample for older people. Since the bias was systematic, we could correct for it again when calculating the results, if we wanted to.

Appendix 2: Printed materials survey: Survey A: Instructions to interviewers

1. Visiting the chief

If possible, visit the principal chief before you go to the village, to explain about the survey. When you arrive in the village, visit the village chief first. He should have received a letter from us in advance. Give him an LDTC card. Explain to him that LDTC is a non-profit-making organisation which produces educational leaflets and booklets for the general public and might produce radio programmes also. You can show him, as examples, the fertilizer leaflet we did for the Thaba Bosiu Project and the CRS recipe book we are currently preparing. If he asks if we are Government, explain that we are not a branch of Government, but we are working with the Government's knowledge and approval. Tell him that we are carrying out this survey in ten villages in different parts of Lesotho. The villages have been selected so as to give us examples of all the different types of village in Lesotho – some large, some small, some in the lowlands, some in the mountains. We hope that the information we derive from the survey will help us to design better booklets and leaflets. Explain what each interviewee will be required to do. Show him the test materials if he wants to see them. Tell him that you want to interview about 30 people aged over ten. (In six of the ten villages, you will interview 30 people; in the other four villages, 15 people.) Explain that these 30 people must contain all kinds of people – young and old, educated and not educated – so that we get the whole picture. Explain that, to make sure that we get all types of people, you will be visiting many households, but selecting only certain people from them. Explain that, when you interview a person, you will keep the information to yourself. You will not go around telling other people what you have found out about that person. The person's name is not written on the questionnaire. In fact, there is no need for you to know a person's name at all. Make it clear that, although LDTC is attached to the Government, participation in the survey is not compulsory, though, of course, we hope that people will cooperate. Ask the chief if he has any questions he wants to ask you. Finally, ask him if he agrees to your carrying out the survey in his village. Do not proceed with the survey without his consent. If you are asked to address a meeting, explain all these points at the meeting.

2. Selecting the households

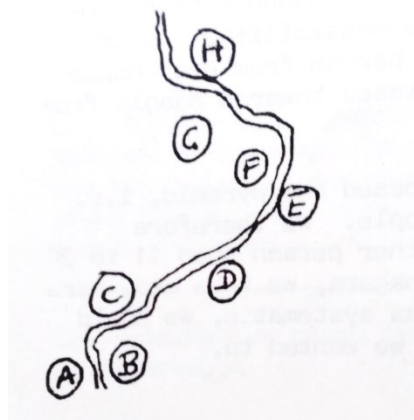
Take a sample of households in the village in the following way.

(a) Large villages

Take the first house that you come to as you approach the village. Toss a coin. If it is Heads, take that as your first house. If it is Tails, take the next house as your first house. When you have visited your first house (see section 3 of these instructions), decide which two houses are nearest to that house. Choose the further of the two. When you have visited that house, decide which two houses are nearest to it, not counting any of the houses you have considered already. Choose the further of the two. Carry on like this.

Example: (A) is the first house you come to. You toss a coin. It's tails, so you take (B) as your first house to visit.

(C) and (D) are the nearest houses to (B), so you take the further one – (D). The nearest to (D), not counting (A), (B) or (C), are (E) and (F). You take the further one – (F). The nearest to (F), not counting (E), are (G) and (H). You take (H).



Understanding Print

If you cannot decide which of two houses is the further away, toss a coin to choose between them. If you end up at the edge of the village again with no new houses nearby, take a different approach to the village and start again. If the village is in separate parts (it might be divided by a donga, for example), take a sample of houses from each part.

(b)_Small villages

Visit every household in the village.

3._Selecting the respondents

When you visit a household, ask to see the person who is acting as head of the household at present. If that is not possible, talk to some other senior member of the household; if no-one suitable is present, arrange to come back later. When you meet a senior member of the household, explain what LDTC is and what the survey is about, as you did with the chief. Give him/her an LDTC card with your name on it. If the person agrees to cooperate, ask him (or her) to list, in any order, all the members of the household living there at present *over the age of ten*, i.e. all the people over the age of ten who slept there the previous night, excluding temporary visitors. Write them down on your listing sheet (yellow form) in the order you are given them. It is not necessary to have their names. They can be identified as "Head", "Grandmother", "Eldest son", "Second daughter" and so on. When you have the list, read it out to make sure that you have every member of the household over the age of ten. If a mistake has been made (a young child included, for example), cross out the mistake and move all the others up. There must be no gaps in the list. Mark on the listing form where one household ends and the next begins.

Some of the people will now be listed beside numbers. If a person is listed beside a plain number, ask if you can interview that person. If he is listed beside a number marked "Over 20?", ask if he is over the age of 20. If he is over 20, interview him; if he is not over 20, do not interview him.

It is possible that none of the people listed from one household will have a number. If that happens, select any member of the household for interview. Interview this person, but only ask questions 1 to 7 and 42 to the end, and leave the boxes for "Respondent's code number" empty.

It may happen that you cannot enter a household – because of a recent birth, for example – or that the head of the household is never at home when you call, or that he/she keeps asking you to come another time or that he/she refuses to cooperate. In other words, you may be unable to get a list of household members over ten years old. If that happens, fill in a FAILURE FORM (HOUSEHOLD) – one side of the pink form.

If you visit a house when there is no-one present, or no senior member to talk to, make a note of this house to remind yourself to call back. You must visit a house at least three times before you give up.

4._Conducting the interviews

If the people you want to interview are there when you have finished the listing, ask if you can interview them immediately. If they are not there, arrange a time when you can return to interview them. If they are not there at the agreed time, arrange another time. *Do not* interview someone else instead. You must interview only those people whose names go on the list next to numbers. If you fail to interview a person, fill in a FAILURE FORM (PERSON) for that person – the other side of the pink form.

At the beginning of the interview, explain briefly the purpose of the survey, as indicated on the questionnaire itself. If the person seems unwilling to take part, explain in more detail what we are doing and ask the person if s/he wants to ask you any questions first. Proceed with the interview only when you think the respondent is willing to be interviewed.

Understanding Print

Try to interview the respondent privately. Explain to other people there that you would prefer to interview the person alone. If it is not inconvenient, try to arrange a place where you can do this. If other people have to be present, emphasize that only the respondent must answer the questions. If other people answer for him/her, or help him/her, or give their opinions, the value of the interview is lost. (If you think another person's contributions are affecting the respondent's answers, note this on the questionnaire.)

You have three sets of test cards, all slightly different. Use a different set each day. Swap the cassette recorder each day, i.e. one interviewer has it one day, the other the next day and so on.

Throughout the interview, you must not influence the respondent's answers in any way. Just ask the questions and write down the answers. You may repeat a question if the respondent asks you to. Do not say "Right" or "Wrong". Do not let the respondents know what you think of their replies. If, for example, you give them a picture of a cabbage and they say, "It's a chicken," do not show surprise. Simply note down their answer and go on to the next item.

If, on the picture questions, the respondent gives only a partial answer (e.g. "cooking pot" where the picture shows a pair of hands chopping cabbage into a cooking pot), you may prompt by asking, "Anything else?" But do not point to items on the card unless the questionnaire gives instructions for you to do so.

Detailed instructions on the interview are printed on the questionnaire itself. Try to write the answers quickly but clearly. If you do not have enough space to write down an answer, or if you think you should make extra notes, write on the back of the previous page.

When you have completed the interview, thank the respondent and ask them if there is anything they want to ask you. If the respondent seems worried about the survey, try to find out what is worrying him/her and put his/her mind at rest before you leave. Fill in additional details on the questionnaire (length of interview etc) after you have left; it is rude to keep the respondent waiting while you do this.

5. Leaving the village

When you leave the village, visit the chief again and thank him for his cooperation.

Appendix 3: Survey costs

Costs are given in South African Rands. This was the currency of Lesotho at the time of the survey. One Rand was approximately equal to 1.4 US dollars and 0.6 pounds sterling.

<i>Survey costs</i>	
<i>Personnel</i>	
LDTC Deputy Director, 6 months*	1,380
Fieldworkers, coders, 19 man-months	1,850
<i>Travel</i>	
LDTC vehicle, 1900 miles at 10c	190
Landrover hire	350
Air travel	70
<i>Fieldwork expenses</i>	320
<i>Supplementary survey</i>	140
<i>Clerical and printing</i>	
Preparation of test materials	200
Printing of report	400
<i>Total</i>	4,900
*The Deputy Director spent only a part of his time on the survey. This is an estimate of the proportion of his time from September 1974 to July 1976.	

Understanding Print

Appendix 4: References

1a	Williams, John C. - <i>Lesotho: Three Manpower Problems</i> , Africa Institute Communication No 16, p 22
1b	Wallman, Sandra - <i>Take Out Hunger</i> , The Athlone Press, 1969, p 44
2	Fuglesang, Andreas – <i>Applied Communication in Developing Countries</i> , Dag Hammarskjold Foundation, 1973, pp 90-93
3a	Fuglesang, <i>ibid.</i> , p 77
3b	Spaulding, Seth – “Communication Potential of Pictorial Illustrations”, <i>Audio-visual Communication Review</i> , Vol 4, No 1, Winter 1956, p 41
4a	Holmes, Alan C. – <i>A Study of Understanding of Visual Symbols in Kenya</i> , Overseas Visual Aid Centre, 1963, pp 18-19
4b	Shaw, Bernard – <i>Visual Symbols Survey</i> , Centre for Educational Development Overseas, 1969, pp 13, 14, 44
5	Spaulding, <i>ibid.</i> , pp 41, 42
6	Hudson, W. – “Pictorial Depth Perception in Subcultural Groups in Africa”, <i>Journal of Social Psychology</i> , 1960, Vol 52, pp 183-208
7	<i>UNESCO Statistical yearbook 1973</i> , Table 1.4
8	UNESCO, <i>ibid.</i>
9	Wallman, Sandra – “The Communication of Measurement in Basutoland”, <i>Human Organisation</i> , Vol 21, No 3, Fall 1965, pp 239-240
10	Wallman, <i>ibid.</i> , p 236
11	Lexander, A. and Monyane, N. – “Results from Tractor Owner Survey”, Thaba Bosiu Rural Development Project internal document