DOCUMENT RESUME

ED 057 310 AC 012 157

AUTHOR Smith, G. A.
TITLE Communication: Literacy and Development. Some Aspects of Literacy and Its Relation to the Development of Subsistence Agriculture in Rhodesia.
PUB DATE 71
NOTE 38p.; Paper for presentation to the Second Rhodesian Science Congress (Umtali, September 5-11, 1971)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Adult Basic Education; African Culture; *Agricultural Personnel; *Developing Nations; *Illiterate Adults; *Literacy Classes; Rural Development
IDENTIFIERS Africa; *Rhodesia; Tribal Trust Lands

ABSTRACT

A preliminary discussion is presented of the relationship between literacy and rural development in the Tribal Trust Lands (TTL) of Rhodesia. The discussion is comprised of three sections: a consideration of the literacy continuum among the African population of Rodesia; results of a small study of literacy retention in a TTL; and a brief account of a related study of literacy effect on the development of subsistence agriculture. Adults who have never been to school comprise 40% of the total African adult population and 34% of the TTL population. Using 1962 data, it can be assumed that the highest proportion of absolute illiteracy is in the European Farming Areas, particularly among alien workers. (DB)

1

COMMUNICATION : LITERACY AND DEVELOPMENT

(Some aspects of literacy and its relation to the development of subsistence agriculture in Rhodesia).

Paper for presentation to the Second Rhodesian Science Congress, Umtali, 5th to 11th September, 1971.

by

G.A. Smith,

Lecturer,
Institute of Adult Education,
University of Rhodesia.

Estimates of illiteracy.

A minimum estimate of adult illiteracy can be calculated by taking the number of adult males and females who have never been to school (1962 estimates are given in parantheses). This gives a minimum estimate of 35% (47%) of all adult males and 46% (59%) of all adult females being totally illiterate, i.e., 920,000 (959,000) adult Africans have never been to school and can be considered as completely unable to read or write.

A maximum estimate of adult illiteracy can be calculated by adding together the figures for (1) those who have never been to school, to (2) those who left school in Standard 3 or below. This gives a maximum estimate of 61% (83%) of all adult males and 71% (91%) of adult females as being illiterate.

In attempting to reach a realistic estimate of the extent of illiteracy the SRCC Survey Report (Thorpe, 1964) suggested that a proportion of those who left school at Standard 3 (i.e., five years' primary education) or below can be considered as illiterate. An overall arbitrary figure of 18.1% was calculated for those who left school at Standard 1 (i.e., three years of primary education) and below - this was added to the figure of 52.5% who never went to school and the figure of 70.6% which was arrived at was taken as the figure for adult illiteracy ("over 70% and the figure may be higher").

The trend is for an increasing proportion of African primary school pupils to complete Standard 3: from approximately two-thirds to three-quarters of those who enrolled during the period 1962 to 1969. (C.S.O. 1971b).

Owing to the fact that comparative data with that used by Thorpe is not available, the author has arbitrarily taken 50% of those who left school in Standard 3 or below as being functionally illiterate, i.e., 360,000. This has been added to the total number of adults who have never attended school to give a realistic estimate of 1,280,000 (1,281,000) adults who are functionally illiterate, i.e., 56% (70%).

Estimates of functional illiteracy based on the completion of number of years' primary schooling is a crude yardstick. Factors affecting this estimate include: the quality of education received, the degree of literacy retention, and the balance between increased primary school enrolment and population growth. The functional aspect of literacy depends to a great extent on the situation in which the individual finds himself - urban or rural.

However, despite the crudeness in these estimates, they do show a general pattern; that, although the percentage of illiteracy amongst the African population has decreased during the period 1962 to 1969, the absolute number of illiterates has probably remained static.

This paper is a preliminary discussion of the relationship between literacy and rural development in the Tribal Trust Lands of Rhodesia. Reference is made to field work in two TTLs which has previously been reported (Smith: 1969, 1970a, 1970b, 1971).

The author is concerned to point out some limitations in the paper: the final 1969 census data is yet to be published - estimates based on interim published figures are only approximations; literacy retention figures have been calculated from informal non-standardised test instruments; and there are major problems in the collection of quantitative data related to literacy effect, extraneous variables and adoption of improved agricultural practices. These research problems in an action setting have not been described in detail, but the author is very conscious of their limiting effect and has thus drawn only a few broad tentative conclusions.

The paper consists of three sections: a consideration of the literacy continuum amongst the African population of Rhodesia, results of a small study of literacy retention in a Rhodesian Tribal Trust Land, and a brief account of a related study of literacy effect on the development of subsistence agriculture. These three aspects of literacy are treated separately.

AFRICAN ADULTS: STANDARDS OF EDUCATION/LITERACY CONTINUUM

The 1969 Population Census Interim Report (C.S.O. 1971a) gives the standard of education for African adults in all areas of Rhodesia (Tables 20 and 21).

Adults are defined as those born in 1952 or earlier, i.e., those $16\frac{1}{2}$ old or older at the time of the census in April, 1969.

The 1962 census figures (C.S.O. 1964) (Pages 27-30) are given in parantheses in the table below for comparison. In this census adults were defined as those born before 1946, i.e., those $16\frac{1}{2}$ years old or older at the time of the census in April, 1962.
(Note: Census figures have been rounded to the nearest 1,000).

African Adults : Education, all areas

made to field work in two TTLs which has previously been reported (Smith: 1969, 1970a, 1970b, 1971).

The author is concerned to point out some limitations in the paper: the final 1969 census data is yet to be published - estimates based on interim published figures are only approximations; literacy retention figures have been calculated from informal non-standardised test instruments; and there are major problems in the collection of quantitative data related to literacy effect, extraneous variables and adoption of improved agricultural practices. These research problems in an action setting have not been described in detail, but the author is very conscious of their limiting effect and has thus drawn only a few broad tentative conclusions.

The paper consists of three sections: a consideration of the literacy continuum amongst the African population of Rhodesia, results of a small study of literacy retention in a Rhodesian Tribal Trust Land, and a brief account of a related study of literacy effect on the development of subsistence agriculture. These three aspects of literacy are treated separately.

AFRICAN ADULTS: STANDARDS OF EDUCATION/LITERACY CONTINUUM

The 1969 Population Census Interim Report (C.S.O. 1971a) gives the standard of education for African adults in all areas of Rhodesia (Tables 20 and 21).

Adults are defined as those born in 1952 or earlier, i.e., those 16⅔ old or older at the time of the census in April, 1969.

The 1962 census figures (C.S.O. 1964) (Pages 27-30) are given in parantheses in the table below for comparison. In this census adults were defined as those born before 1946, i.e., those 16⅔ years old or older at the time of the census in April, 1962.
(Note: Census figures have been rounded to the nearest 1,000).

African Adults : Education, all areas

	Males	Females	Total
Never attended School.	406,000 (449,000)	513,000 (510,000)	920,000 (959,000)
Left in Std.3 or below.	349,000 (344,000)	371,000 (280,000)	720,000 (624,000)
Left school above Std.3.	328,000 (133,000)	182,000 (56,000)	510,000 (189,000)
Still at school (1969 figures include correspondence education).	42,000 (38,000)	18,000 (21,000)	60,000 (59,000)
Not stated.	32,000	33,000	66,000
	1,158,000	1,117,000	2,275,000

Tribal Trust Lands: Standards of Education.

The 1969 figures for education in the TTLs are not directly comparable with the 1962 figures because they include both children and adults. These are as follows:- (Information from Central Statistical Office).

Education: Children and Adults. Tribal Trust Lands.

	Males	Females	Total
Never attended school.	671,000	872,000	1,543,000
Left in Std.3 or below.	213,000	328,000	541,000
Left school above Std.3.	135,000	121,000	256,000
Still at school.	288,000	234,000	522,000
Not Stated.	20,000	29,000	49,000
	1,327,000	1,584,000	2,911,000

The numbers of adults in TTLs in 1969 (i.e., those 16⅓ years or older) are as follows:- (Information from Central Statistical Office).

Adults in Tribal Trust Lands

Males	Females	Total
485,000	721,000	1,206,000

A rough estimate of the minimum number of adults in the TTLs who have never been to school can be calculated by adding those who have left school in Standard 3 or below to those who have left school above Standard 3 (making the assumption that these are now adults) and subtracting this total from the total number of adults in the TTLs; 1962 figures - which include Purchase Areas - aregiven in parentheses for comparison.

Estimated minimum number of adults in TTLs who have never been to school

Males	Females	Total
137,000	271,000	409,000

(Information from Central Statistical Office).

Education: Children and Adults. Tribal Trust Lands.

	Males	Females	Total
Never attended school.	671,000	872,000	1,543,000
Left in Std.3 or below.	213,000	328,000	541,000
Left school above Std.3.	135,000	121,000	256,000
Still at school.	288,000	234,000	522,000
Not Stated.	20,000	29,000	49,000
	1,327,000	1,584,000	2,911,000

The numbers of adults in TTLs in 1969 (i.e., those 16⅔ years or older) are as follows:-
(Information from Central Statistical Office).

Adults in Tribal Trust Lands

Males	Females	Total
485,000	721,000	1,206,000

A rough estimate of the minimum number of adults in the TTLs who have never been to school can be calculated by adding those who have left school in Standard 3 or below to those who have left school above Standard 3 (making the assumption that these are now adults) and subtracting this total from the total number of adults in the TTLs; 1962 figures - which include Purchase Areas - aregiven in parentheses for comparison.

Estimated minimum number of adults in TTLs who have never been to school

Males	Females	Total
137,000	271,000	409,000
(160,000)	(321,000)	(481,000)

It must be emphasised that this is only a crude estimate of the minimum number of adults who have never attended school - the population of the Tribal Trust Lands is a very young one, and a number of those who have left school must still be considered to be juveniles in terms of the census definition of 'adult'. (More accurate figures may be available when the final report of the 1969 Census is published).

Calculations from Tables 10 and 19 of the 1969 Census (C.S.O. 1971) show that over two-thirds of the total African children of primary school age - 7 to 14 years old, were actually in primary school in 1969.

African standards of education - implications for literacy programmes.
(Note: 1969 figures quoted for TTLs do not distinguish between children and adults who have left school).

Adults who have never been to school.

The number of adults in this group appears to have declined slightly since 1962:

Total	TTLs	
920,000	409,000	(It should be noted that the 1969 figure for TTLs is a minimum estimate).
(959,000)	(481,000)	

However, it is a sizeable group comprising 40% of the total African adult population and 34% of the TTL population (using 1962 data it can be assumed that the highest proportion of absolute illiteracy amongst African adults is in the European Farming Areas - particularly amongst alien workers. The influx of uneducated alien African workers considerably worsens the illiteracy figure). It is suggested that the educational need of this group is 'simple' literacy in the vernacular at an 'elementary' level (c.f. Bowers, 1969).

Adults who left school in Standard 3 or below.

The number of adults in this group appears to have increased since 1962.

Total	TTLs
720,000	541,000
(624,000)	(342,000)

This group comprises about 33% of the total African adult population and 44% of the TTL population. It is suggested that this group can benefit from literacy revision in the vernacular and can easily assimilate and benefit from functional written material. It may well be that this group which is now the largest in the TTLs should receive priority in literacy programmes.

Adults who have never been to school.

The number of adults in this group appears to have declined slightly since 1962:

Total	TTLs	
920,000	409,000	(It should be noted that the 1969 figure for TTLs is a minimum estimate).
(959,000)	(481,000)	

However, it is a sizeable group comprising 40% of the total African adult population and 34% of the TTL population (using 1962 data it can be assumed that the highest proportion of absolute illiteracy amongst African adults is in the European Farming Areas - particularly amongst alien workers. The influx of uneducated alien African workers considerably worsens the illiteracy figure). It is suggested that the educational need of this group is 'simple' literacy in the vernacular at an 'elementary' level (c.f. Bowers, 1969).

Adults who left school in Standard 3 or below.

The number of adults in this group appears to have increased since 1962.

Total	TTLs
720,000	541,000
(624,000)	(342,000)

This group comprises about 33% of the total African adult population and 44% of the TTL population. It is suggested that this group can benefit from literacy revision in the vernacular and can easily assimilate and benefit from functional written material. It may well be that this group which is now the largest in the TTLs should receive priority in literacy programmes.

Adults who left school above Standard 3.

The number of adults in this group appears to have increased substantially since 1962.

Total	TTLs
510,000	256,000
(189,000)	(78,000)

This group comprises about 22% of the total African adult population and 21% of the TTL population.

It is suggested that the educational needs of this rapidly increasing group are related to functional literacy in English.

Childs (1971) notes that since 1970 all Grade I classes in all schools in the government and aided system were working on the 1967 syllabus in which English is introduced as the medium of instruction . This new approach to primary education will increase the demand for functional literacy programmes in English in the future

LITERACY RETENTION : 'SLOW' CLASSES, SEKI TTL.

Approximately twelve months after the intensive literacy courses held in Seki during June/July, 1970 (described by Smith, 1970), literacy retention tests were administered to thirty of the thirty-three students in 'slow' classes. Of the three students who were not tested two had moved away from the area, and the other did not complete the literacy course due to sickness. (Teaching in the 'slow' classes was concentrated on the primer during the six-weeks' intensive course).

Literacy continuation classes were held regularly once a week during the twelve-months' period. Each session consisted of a period of three to four hours: of simple arithmetic - addition and subtraction, and lessons in the primer - word building, reading and writing - depending on the ability of the student.

Drop-outs.

Of the thirty students who were tested, only sixteen attended literacy continuation classes, and only seven of these attended regularly over the twelve-months' period.

At Madamombe the enrolment was so poor (only two students made any effort to attend) that the classes were discontinued after a few weeks.

Several possible reasons have been put forward for the poor response to continuation classes at Madamombe: the Women's Club is strong and independent and may not have supported the classes, some students live several miles from the centre, the original course at Madamombe may not have met student expectations, the teacher in charge of the initial continuation classes may not have 'encouraged' students sufficiently, and in some respects, there is a lack of cohesive community organisation at this centre with one of the male teachers at Madamombe School, tending to take too much personal initiative and responsibility in many projects.

Reasons given for non-attendance at the other two centres, Besa and Ushewokunze include: poor eyesight, ill health/sickness/ sick relatives, too much work at home/lack of time, and journeys away from home - especially to attend funerals. Four new students joined the 'slow' classes at Besa and Ushewokunze.

Literacy Retention.

Four of the six post-course tests were used to test literacy retention:

Dictation: writing fifteen unseen words.

were not tested two had moved away from the area, and the other did not complete the literacy course due to sickness. (Teaching in the 'slow' classes was concentrated on the primer during the six-weeks' intensive course).

Literacy continuation classes were held regularly once a week during the twelve-months' period. Each session consisted of a period of three to four hours: of simple arithmetic - addition and subtraction, and lessons in the primer - word building, reading and writing - depending on the ability of the student.

Drop-outs.

Of the thirty students who were tested, only sixteen attended literacy continuation classes, and only seven of these attended regularly over the twelve-months' period.

At Madamombe the enrolment was so poor (only two students made any effort to attend) that the classes were discontinued after a few weeks.

Several possible reasons have been put forward for the poor response to continuation classes at Madamombe: the Women's Club is strong and independent and may not have supported the classes, some students live several miles from the centre, the original course at Madamombe may not have met student expectations the teacher in charge of the initial continuation classes may not have 'encouraged' students sufficiently, and in some respects, there is a lack of cohesive community organisation at this centre with one of the male teachers at Madamombe School, tending to take too much personal initiative and responsibility in many projects.

Reasons given for non-attendance at the other two centres, Besa and Ushewokunze include: poor eyesight, ill health/sickness/sick relatives, too much work at home/lack of time, and journeys away from home - especially to attend funerals. Four new students joined the 'slow' classes at Besa and Ushewokunze.

Literacy Retention.

Four of the six post-course tests were used to test literacy retention:

Dictation: writing fifteen unseen words.

Computation: five of each: simple addition and simple subtraction.

Reading: three sentences from a level 2 supplementary reader (the primer is level 1).

Comprehension: answering two questions on the reading passage.

(The test-interview included questions on the application of literacy and other questions, thus the 'letter-writing' and 'counting' post-course tests were not given in order to save time).

The tests were scored using as similar a scheme to the post-course tests as possible so as to assess literacy retention/regression and gains and losses in specific literacy skills.

It should be noted that the tests were administered under quite widely divergent conditions - when and where respondents could be contacted. In some cases the tests were administered to a group gathered at a centre, in other instances the information could only be collected by individual testing at the person's home.

The scores on the tests were combined and graded into three crude literacy levels:-

1. Nil literacy ability (for all practical purposes absolutely illiterate).
2. Some literacy ability.
3. Satisfactory (can read and write approximately at the level achieved on completion of the primer).

Compared with post-course attainment only two students made clear progress during the twelve months' period - from level 1 to level 2. One of these students attended continuation classes regularly and the other irregularly. (A close perusal of the latter's test papers suggests that her apparent improvement may in fact be due to poor post-course test performance due to factors other than literacy ability).

Of the sixteen individuals who were considered to be at level 1 at the end of the course in 1970, eleven did not attend continuation classes, two attended irregularly and three regularly. All were graded at level 1 after the continuation tests - nil literacy ability.

Five students achieved level 3 on the post-course tests - satisfactory completion of the primer - and did not attend continuation classes. Results of retention tests show that only one was still at this level, three had regressed to level 2 - some literacy ability, and one had regressed to level 1 - nil literacy ability.

These overall literacy levels for each student agree extremely closely with independent assessments given by the teacher in charge of the continuation classes.

Gains and losses in the specific literacy skills tested are rather variable when considered in relation to those who attended literacy classes regularly, irregular attenders and

literacy retention/regression and gains and losses in specific literacy skills.

It should be noted that the tests were administered under quite widely divergent conditions - when and where respondents could be contacted. In some cases the tests were administered to a group gathered at a centre, in other instances the information could only be collected by individual testing at the person's home.

The scores on the tests were combined and graded into three crude literacy levels:-

1. Nil literacy ability (for all practical purposes absolutely illiterate).
2. Some literacy ability.
3. Satisfactory (can read and write approximately at the level achieved on completion of the primer).

Compared with post-course attainment only two students made clear progress during the twelve months' period - from level 1 to level 2. One of these students attended continuation classes regularly and the other irregularly. (A close perusal of the latter's test papers suggests that her apparent improvement may in fact be due to poor post-course test performance due to factors other than literacy ability).

Of the sixteen individuals who were considered to be at level 1 at the end of the course in 1970, eleven did not attend continuation classes, two attended irregularly and three regularly. All were graded at level 1 after the continuation tests - nil literacy ability.

Five students achieved level 3 on the post-course tests - satisfactory completion of the primer - and did not attend continuation classes. Results of retention tests show that only one was still at this level, three had regressed to level 2 - some literacy ability, and one had regressed to level 1 - nil literacy ability.

These overall literacy levels for each student agree extremely closely with independent assessments given by the teacher in charge of the continuation classes.

Gains and losses in the specific literacy skills tested are rather variable when considered in relation to those who attended literacy classes regularly, irregular attenders and non-attenders. This may be due to variable test conditions, to lack of standardised tests, and perhaps to other factors such as poor vision and irregular student attendance. It is thus impossible to draw definite conclusions concerning gains and losses of specific literacy abilities. However, there does seem to be a consistent loss in arithmetic ability - even amongst students who attended classes regularly. This may be due to lack of day-to-dat use of this skill. Amongst regular attenders there is some indication that writing had improved.

Application of Literacy.

Benefits due to literacy reported by students were rather limited. Of those who are still illiterate, two said that they could now read street names, one said she could now read bus destinations and three said they could write their names.

Some of those at literacy levels 2 and 3 made individual mention of farming, measurement in cooking, able to read letters privately, and increased responsibility in church organisation leading to more friends.

The main problems mentioned in continuing to read and write over the twelve months' period were: too much work/not enough time, poor eyesight/small print and sickness/ill-health/old age. (These problems were mentioned with approximately equal frequency).

Of twelve students with literacy levels 2 and 3 seven claimed that they had written between 1 and 5 letters. Five of these seven individuals had also read a book (one had read two books) and could describe the contents.

Discussion.

The results achieved with these students over a period of twelve months in terms of drop-outs and literacy regression/retention/improvement can only be described as disappointing. This may be due to three main factors.

The first possibility is that the teaching could be improved. However, it is doubtful if more suitable teachers for this type of work will be found in other areas. The literacy teacher is a trained school teacher (Primary Teacher's Lower Certificate) who lives in the area and has the confidence of the students. Additional literacy training for work with 'slow' students may possibly help.

Secondly, the programme of literacy continuation classes might be improved. It has been suggested that one class a week is inadequate. However, where the population is scattered in village 'lines' over a wide area (compared with compact village centres) there are real difficulties in gathering people together regularly for activities even once a week. Homework assignments (see section on 'advanced' classes) may be worth trying with this group, but will need very careful preparation. In areas where male absenteeism is not so high, it may well be that there is more free time to attend classes and to undertake 'homework' assignments. (In Seki the women are responsible for most of the agricultural work, including herding cattle).

could now read the destinations and three said they could write their names.

Some of those at literacy levels 2 and 3 made individual mention of farming, measurement in cooking, able to read letters privately, and increased responsibility in church organisation leading to more friends.

The main problems mentioned in continuing to read and write over the twelve months' period were: too much work/not enough time, poor eyesight/small print and sickness/ill-health/old age. (These problems were mentioned with approximately equal frequency).

Of twelve students with literacy levels 2 and 3 seven claimed that they had written between 1 and 5 letters. Five of these seven individuals had also read a book (one had read two books) and could describe the contents.

Discussion.

The results achieved with these students over a period of twelve months in terms of drop-outs and literacy regression/retention/improvement can only be described as disappointing. This may be due to three main factors.

The first possibility is that the teaching could be improved. However, it is doubtful if more suitable teachers for this type of work will be found in other areas. The literacy teacher is a trained school teacher (Primary Teacher's Lower Certificate) who lives in the area and has the confidence of the students. Additional literacy training for work with 'slow' students may possibly help.

Secondly, the programme of literacy continuation classes might be improved. It has been suggested that one class a week is inadequate. However, where the population is scattered in village 'lines' over a wide area (compared with compact village centres) there are real difficulties in gathering people together regularly for activities even once a week. Homework assignments (see section on 'advanced' classes) may be worth trying with this group, but will need very careful preparation. In areas where male absenteeism is not so high, it may well be that there is more free time to attend classes and to undertake 'homework' assignments. (In Seki the women are responsible for most of the agricultural work, including herding cattle).

The third factor is that these students broadly belong to the group described in census reports as adults who have never been to school (a declining proportion of the tribal population). They are older than students in 'advanced' classes and have received less schooling (SMITH 1970). As a group they make slow, if any literacy progress (possible reasons are poor general intellectual ability and/or physical disabilities). To bring them to any useful level of literacy (say, satisfactory completion of the primer) may not be possible and in any case will be a long haul. The effort may not be justified in terms of costs and limited resources.

Possibly the most effective methods of communication (for development purposes) with this group is by membership of savings clubs/credit unions (the financial basis for development) demonstration, and radio.

These poor results with the 'slow' classes have led to a decision to concentrate in the Seki project on 'advanced' classes - students who have been broadly described as semi- or neo-literates.

LITERACY RETENTION: ADVANCED CLASSES, SEKI TTL.

Literacy retention tests were administered to twenty-nine of the thirty-two students in 'advanced' classes. Of the three students who were not tested two have moved away from the area and the other is living semi-permanently in Salisbury.

Continuation classes were held once a week for three to four hours over the twelve months' period. Subject matter consisted of arithmetic - as far as decimals, supplementary reading material at post-primer level, and revision of farm and household records; although most of the students claimed that they were too tired to actually keep records after a hard day's work.

Drop-outs.

Of the twenty-nine students who were tested only eight attended continuation classes regularly. Five attended irregularly, mainly at the commencement of the continuation classes.

Classes at Madamombe were discontinued after a few weeks due to poor enrolment. (It is interesting to note that there was a spontaneous demand for both 'slow' and 'advanced' classes at another centre - Ndamuka, about four miles from Madamombe).

Reasons given for dropping out, poor attendance and problems in continuing to read and write are similar to those given by 'slow' students.

Literacy retention.

Four tests were used to assess literacy retention:-

1. Farm and Household Records: Seventy entries and three calculations.
2. Reading: Two sentences from a level 3 (plus) supplementary reader.

These poor results with the 'slow' classes have led to a decision to concentrate in the Seki project on 'advanced' classes - students who have been broadly described as semi- or neo-literates.

LITERACY RETENTION: ADVANCED CLASSES, SEKI TTL.

Literacy retention tests were administered to twenty-nine of the thirty-two students in 'advanced' classes. Of the three students who were not tested two have moved away from the area and the other is living semi-permanently in Salisbury.

Continuation classes were held once a week for three to four hours over the twelve months' period. Subject matter consisted of arithmetic - as far as decimals, supplementary reading material at post-primer level, and revision of farm and household records; although most of the students claimed that they were too tired to actually keep records after a hard day's work.

Drop-outs.

Of the twenty-nine students who were tested only eight attended continuation classes regularly. Five attended irregularly, mainly at the commencement of the continuation classes.

Classes at Madamombe were discontinued after a few weeks due to poor enrolment. (It is interesting to note that there was a spontaneous demand for both 'slow' and 'advanced' classes at another centre - Ndamuka, about four miles from Madamombe).

Reasons given for dropping out, poor attendance and problems in continuing to read and write are similar to those given by 'slow' students.

Literacy retention.

Four tests were used to assess literacy retention:-

1. Farm and Household Records: Seventy entries and three calculations.
2. Reading: Two sentences from a level 3 (plus) supplementary reader.
3. Comprehension: Answering two questions on the reading passage.
4. Records - assessment: The students' farm and household records (which were issued in June, 1970) were examined and scored for correctness of entries, completeness and calculations.

Only the Farm and Household Records Test results are directly comparable with the post-course tests. The reading passage in the post-course tests was the same as used for 'slow' students and was found to be at too low a level to assess 'advanced' students. The reading passage for the retention tests was, therefore, selected from a Shona reader and is considered to be beyond reading level 3 which was described in the Churches Literacy Project as the

highest level reading ability for most African adults - consisting of a reading vocabulary of 2,000 words.

The Farm and Household Records Test was scored on the basis of number of entries and calculations correct. Reading and Comprehension were graded into three crude levels: 'nil ability' 'some ability' and 'satisfactory'.

These tests were also administered in widely varying conditions - depending on the availability of students.

Overall retention test results indicate the following:

Reading. Twenty-two students can read satisfactorily beyond reading level 3, and seven have some ability at this level, which is considerably beyond the reading level achieved on satisfactory completion of the primer.

Comprehension. Approximately half of the twenty-nine students have comprehension difficulties at this level.

Records Test. There was some decline in the number of correct entries and a greater loss in the number of correct calculations in this test.

Assessment of Records. Eight students scored 33% or more for correct entries, completeness, and calculations in keeping farm and household records during the twelve months' period. Seven students had also made som effort to keep a comprehensive range of records, and most students had made entries in the weekly household record.

Regular students compared with non-attenders.

The mean years of previous schooling of the regular attenders in 'advanced' literacy continuation classes is 3.0 years compared with non-attenders: 3.9 years. Thus those who attended classes regularly had almost one year less of primary schooling than the drop-outs.

There are indications that the drop-outs score better on all four measures of literacy retention.

Application of Literacy.

The Farm and Household Records Test was scored on the basis of number of entries and calculations correct. Reading and Comprehension were graded into three crude levels: 'nil ability' 'some ability' and 'satisfactory'.

These tests were also administered in widely varying conditions - depending on the availability of students.

Overall retention test results indicate the following:

Reading. Twenty-two students can read satisfactorily beyond reading level 3, and seven have some ability at this level, which is considerably beyond the reading level achieved on satisfactory completion of the primer.

Comprehension. Approximately half of the twenty-nine students have comprehension difficulties at this level.

Records Test. There was some decline in the number of correct entries and a greater loss in the number of correct calculations in this test.

Assessment of Records. Eight students scored 33% or more for correct entries, completeness, and calculations in keeping farm and household records during the twelve months' period. Seven students had also made some effort to keep a comprehensive range of records, and most students had made entries in the weekly household record.

Regular students compared with non-attenders.

The mean years of previous schooling of the regular attenders in 'advanced' literacy continuation classes is 3.0 years compared with non-attenders: 3.9 years. Thus those who attended classes regularly had almost one year less of primary schooling than the drop-outs.

There are indications that the drop-outs score better on all four measures of literacy retention.

Application of Literacy.

Reported benefits from literacy are interesting. Fourteen respondents mentioned improved farming - particularly with operations at planting time, two mentioned the importance of planning ahead. Improvements in cooking were mentioned by ten respondents. Two students specifically noted boiling water for drinking. Six mentions were made of benefits from reading - ability to read faster, and ability to read the bible. Seven students mentioned improvement in budgeting and use of money.

The twenty-nine students reported that they had read forty-four books (range 0-5) and could describe the contents of these. They also reported they had written forty-eight letters (range 0-6).

Discussion.

An interesting aspect arising from this study of literacy retention by 'advanced' students which merits further study is that the 'drop-outs' who did not attend continuation classes appear to retain and apply literacy skills at least as well as regular members of continuation classes.

The limitations in drawing definite conclusions and in making generalisations from this type of micro-study have already been noted (Smith, 1970a). However, it is interesting to conjecture what effect (if any) an extra year of lower primary schooling has on literacy retention later in life, and whether the primary school system progressively screens out the less able pupils.

It is also interesting to note that most students had made some effort to keep household records. Less than 25% of the students had attempted to keep comprehensive farm and household records. Rather than issuing complete sets of records, it might be best to introduce them in stages - starting with household records and farm cash records. (The literacy continuation teacher has noted the need for two classes a week if comprehensive records are to be maintained by students).

The reported benefits from literacy indicate it is at this level that students really begin to relate literacy materials in a functional manner to their life situations. It is particularly interesting to see mention of planning, farming time-table, budgeting and more understanding about money.

Poor student enrolment and drop-outs from both 'slow' and 'advanced' classes led to the decision to modify the literacy continuation/follow-up programmes.

Modified Follow-up Programme.

The existing 'slow' classes at Besa and Ushewokunze are being maintained in order to keep faith with 'slow' students who still attend regularly. However, new 'advanced' classes have been established at Besa, Ushewokunze and Ndamuka. The minimum entry level for students is completion of Sub-Standard B, i.e., three years of primary school.

These classes are planned to run during the months of July, August and September, i.e., the slack, non-agricultural season. The general pattern is as follows:-

skills at least as well as regular members of continuation classes.

The limitations in drawing definite conclusions and in making generalisations from this type of micro-study have already been noted (Smith, 1970a). However, it is interesting to conjecture what effect (if any) an extra year of lower primary schooling has on literacy retention later in life, and whether the primary school system progressively screens out the less able pupils.

It is also interesting to note that most students had made some effort to keep household records. Less than 25% of the students had attempted to keep comprehensive farm and household records. Rather than issuing complete sets of records, it might be best to introduce them in stages - starting with household records and farm cash records. (The literacy continuation teacher has noted the need for two classes a week if comprehensive records are to be maintained by students).

The reported benefits from literacy indicate it is at this level that students really begin to relate literacy materials in a functional manner to their life situations. It is particularly interesting to see mention of planning, farming time-table, budgeting and more understanding about money.

Poor student enrolment and drop-outs from both 'slow' and 'advanced' classes led to the decision to modify the literacy continuation/follow-up programmes.

Modified Follow-up Programme.

The existing 'slow' classes at Besa and Ushewokunze are being maintained in order to keep faith with 'slow' students who still attend regularly. However, new 'advanced' classes have been established at Besa, Ushewokunze and Ndamuka. The minimum entry level for students is completion of Sub-Standard B, i.e., three years of primary school.

These classes are planned to run during the months of July, August and September, i.e., the slack, non-agricultural season. The general pattern is as follows:-

1. Demonstration - usually on some aspect of home economics e.g., baking, clothing, laundry, baby care, etc., or occasionally an agricultural topic. Demonstrations are open to anyone who wishes to attend, literate or illiterate.

2. Literacy lesson - this is of three to four hours' duration and is based on the demonstration - discussion and questions, writing/reading, recipes, instructions, etc. The lesson may involve practical follow-up activities such as sewing and is held several days after the demonstration. Applied arithmetic is also taught at each session.

3. Homework assignment - this is an exercise which the student completes at home (with or without help). It involves practical application of what has been taught in the demonstration and lesson, e.g., land measurement, listing problems, writing out questions, etc. Homework is marked, returned and discussed in subsequent lessons. Problems and questions, requests for further advice, etc., are passed on to the appropriate specialist who prepared the demonstration.

Assignments to some extent make up for the fact that there is only one lesson a week, and are useful feedback to the specialist concerned.

The response to this new approach has been extremely good. Regular students (Sub.B to Standard 6) at the three centres are as follows: Besa - over 40, Ushewokunze - 50, Ndamuka - 30, and up to 400 people attend demonstrations at the three centres.

Demonstrations have been arranged with the co-operation of government departments and commercial undertakings who have also generously given assistance with printed material for use in literacy lessons.

This new approach was mounted with little prior preparation and the main problem now is to administer the programmes and integrate the three aspects more closely.

LITERACY AND AGRICULTURAL DEVELOPMENT.

Improved Agricultural Practices: Decision-making.

It was apparent from the Chiduku literacy study (Smith,1970a) that participation in decision-making is an important variable in the adoption of improved agricultural practices.

There is a variety of information relating to decision-making in the Shona family, but few empirical studies.

Hughes (1965) has described the composition of homestead groups (the nearest equivalent to the Western family) and

3. Homework assignment - this is an exercise which the student completes at home (with or without help). It involves practical application of what has been taught in the demonstration and lesson, e.g., land measurement, listing problems, writing out questions, etc. Homework is marked, returned and discussed in subsequent lessons. Problems and questions, requests for further advice, etc., are passed on to the appropriate specialist who prepared the demonstration.

Assignments to some extent make up for the fact that there is only one lesson a week, and are useful feedback to the specialist concerned.

The response to this new approach has been extremely good. Regular students (Sub.B to Standard 6) at the three centres are as follows: Besa - over 40, Ushewokunze - 50, Ndamuka - 30, and up to 400 people attend demonstrations at the three centres.

Demonstrations have been arranged with the co-operation of government departments and commercial undertakings who have also generously given assistance with printed material for use in literacy lessons.

This new approach was mounted with little prior preparation and the main problem now is to administer the programmes and integrate the three aspects more closely.

LITERACY AND AGRICULTURAL DEVELOPMENT.

Improved Agricultural Practices: Decision-making.

It was apparent from the Chiduku literacy study (Smith,1970a) that participation in decision-making is an important variable in the adoption of improved agricultural practices.

There is a variety of information relating to decision-making in the Shona family, but few empirical studies.

Hughes (1965) has described the composition of homestead groups (the nearest equivalent to the Western family) and absentee rates for one Tribal Trust Land.

Under traditional African law a woman remains a minor under a guardian. Child (1965) points out that on marriage she left the guardianship of her father and came under the subordination of her husband. The African woman thus remains a juvenile in the eyes of her husband.

The supremacy of the male in Shona society is also described by Gelfand (1965), together with the division of tasks between males and females.

Adult African males in particular make it a practice to migrate periodically to the towns to earn cash. Their length of absence varies from a few months to several years (Mangwende Commission, 1961). Estimates vary, but Hunt (1966) suggests that at any one time between 20% and 50% of the able-bodied males will

be away from their homes in the tribal areas working in towns or on European farms in paid employment.

Johnson (1964) postulates that the presence or absence of the male head of the family, as the decision-maker or innovator, is most crucial for organising better farming methods. For one tribal area he showed that 38% of the family heads, did not leave the tribal area at all, 14% were away throughout the year and 48% were absent for varying periods.

The degree of joint decision-making in the peasant family can therefore be expected to influence the adoption of improved practices.

In order to study the importance of decision-making as an extraneous variable in the relationship between literacy and improved agricultural practices, participants in the Seki project were questioned on the process.

They were asked 'how' decisions were made, and 'who' was involved, concerning the following nine operations: manuring land, application of lime, ploughing, planting, control of maize stalk-borer (pest control), fertiliser top-dressing, weeding, organic matter - making manure, and compost and grain storage.

Each of these practices was a component part of a 'package' programme to grow half an acre of maize (Smith, 1971). Each operation was demonstrated, and a few weeks later participants were questioned on decision-making once they had actually carried out the particular practices.

Of the fifty-six respondents who answered questions on all, or nearly all of the nine operations, sixteen were widows, seventeen had husbands living at home and twenty-three had absentee husbands. Seven respondents reported mainly male or 'joint' (husband and wife) decision-making. These were all cases where the husband was living permanently at home. In addition, one widow was described as very old and most decisions were taken for her by her daughter who lived nearby. One other twenty-year old woman reported that virtually all decisions were made by her (absent) husband and her mother-in-law and father-in-law with whom she lived.

The other forty-nine respondents (all females) reported that they <u>mainly</u> took their own decisions on the practices involved in the nine operations. A minority of this group also reported some consultation with close relatives regarding some of the practices.

In general, most of these women took their own decisions on the various <u>operations</u> and reported what they had done when the husband returned home. This procedure was changed only if money or labour were required from the husband, this delayed

absence of the male head of the family, as the decision-maker or innovator, is most crucial for organising better farming methods. For one tribal area he showed that 38% of the family heads, did not leave the tribal area at all, 14% were away throughout the year and 48% were absent for varying periods.

The degree of joint decision-making in the peasant family can therefore be expected to influence the adoption of improved practices.

In order to study the importance of decision-making as an extraneous variable in the relationship between literacy and improved agricultural practices, participants in the Seki project were questioned on the process.

They were asked 'how' decisions were made, and 'who' was involved, concerning the following nine operations: manuring land, application of lime, ploughing, planting, control of maize stalk-borer (pest control), fertiliser top-dressing, weeding, organic matter - making manure, and compost and grain storage.

Each of these practices was a component part of a 'package' programme to grow half an acre of maize (Smith, 1971). Each operation was demonstrated, and a few weeks later participants were questioned on decision-making once they had actually carried out the particular practices.

Of the fifty-six respondents who answered questions on all, or nearly all of the nine operations, sixteen were widows, seventeen had husbands living at home and twenty-three had absentee husbands. Seven respondents reported mainly male or 'joint' (husband and wife) decision-making. These were all cases where the husband was living permanently at home. In addition, one widow was described as very old and most decisions were taken for her by her daughter who lived nearby. One other twenty-year old woman reported that virtually all decisions were made by her (absent) husband and her mother-in-law and father-in-law with whom she lived.

The other forty-nine respondents (all females) reported that they <u>mainly</u> took their own decisions on the practices involved in the nine operations. A minority of this group also reported some consultation with close relatives regarding some of the practices.

In general, most of these women took their own decisions on the various <u>operations</u> and reported what they had done when the husband returned home. This procedure was changed only if money or labour were required from the husband, this delayed decision-making and action until the husband had been fully consulted and agreed to the particular practice.

The decision-making process commonly reported involved the assessment of the feasibility of any particular practice - the main factors taken into consideration were: availability of money, availability of labour (cash can be substituted for labour to some extent) and time available, e.g., for weeding. The individual 'weighs up' what is involved and her <u>ability</u> to carry it out either alone or with the help of others. She may also seek more indirect ways and means particularly if she has limited resources, e.g., a widow may cut grass for roofing or may brew beer for sale in order to get cash for a particular practice. The <u>extent</u>

to which an individual adopts a particular practice also depends on her assessment of feasibility, e.g., the amount of land ploughed or the amount of fertiliser top-dressing used.

The factor affecting decision-making mentioned most frequently was availability of money. This was particularly so regarding those practices which involve purchased agricultural inputs: ploughing, liming, planting, top-dressing and pest control. How to get cash is generally the first difficulty considered in the adoption of a practice. Normally, agricultural supplies are only purchased as cash becomes available. It is in seeking money that very often husbands and other relatives such as sons become involved in decision-making. It has already been mentioned that in some cases this delays or blocks decision-making and the adoption of practices.

The important role of the savings club in providing a convenient means of finance for agricultural practices was mentioned several times by all respondents, and has to some extent made them less dependent on their relatives in decision-making.

The demonstrations organised for savings club members played an important role in decision-making for all the practices. Many participants reported that the most important influence in deciding what to do was what they had seen demonstrated. Over the period of the study (about eight months) there was a trend amongst some of the absentee husbands to let the women take all decisions entirely on their own if the innovation or practice stemmed from the project. This is an indication of the amount of confidence engendered by the savings clubs and the related programme.

A less important factor which affected decision-making was age. Paradoxically, the elderly are considered to be sufficiently mature and experienced to make decisions entirely on their own, and yet they are reported as being most influenced by customary practices. This influence can affect decision-making with a younger woman who is living with her husband's parents. Perhaps related to this is the comment by some respondents that they based decisions on previous experience and results.

A rather intangible factor which is difficult to measure, but which was nevertheless mentioned several times by respondents is group pressure to conform. There is no doubt that this is an important factor in decision-making. The individual is

The factor affecting decision-making mentioned most frequently was availability of money. This was particularly so regarding those practices which involve purchased agricultural inputs: ploughing, liming, planting, top-dressing and pest control. How to get cash is generally the first difficulty considered in the adoption of a practice. Normally, agricultural supplies are only purchased as cash becomes available. It is in seeking money that very often husbands and other relatives such as sons become involved in decision-making. It has already been mentioned that in some cases this delays or blocks decision-making and the adoption of practices.

The important role of the savings club in providing a convenient means of finance for agricultural practices was mentioned several times by all respondents, and has to some extent made them less dependent on their relatives in decision-making.

The demonstrations organised for savings club members played an important role in decision-making for all the practices. Many participants reported that the most important influence in deciding what to do was what they had seen demonstrated. Over the period of the study (about eight months) there was a trend amongst some of the absentee husbands to let the women take all decisions entirely on their own if the innovation or practice stemmed from the project. This is an indication of the amount of confidence engendered by the savings clubs and the related programme.

A less important factor which affected decision-making was age. Paradoxically, the elderly are considered to be sufficiently mature and experienced to make decisions entirely on their own, and yet they are reported as being most influenced by customary practices. This influence can affect decision-making with a younger woman who is living with her husband's parents. Perhaps related to this is the comment by some respondents that they based decisions on previous experience and results.

A rather intangible factor which is difficult to measure, but which was nevertheless mentioned several times by respondents is group pressure to conform. There is no doubt that this is an important factor in decision-making. The individual is influenced by neighbours, friends and possibly the majority in a community to take decisions and action on the improved practices which were demonstrated, e.g., early ploughing and planting. The impression is that practices tend to be adopted by a group or community if the means are available.

With regard to specific practices it is worth noting that weeding is traditionally a woman's task, and that she alone decides how weeding will be carried out. Some tasks are also undertaken as group work, e.g., land preparation, planting and weeding, and this involves group decision-making.

These are the main factors reported in decision-making and there is no apparent relationship in this study with literacy or previous school education of the respondents.

It is interesting that the process appears to be rational and that the factors influencing decision-making (in this

particular project) are practical ones. There appears to be no special peasant method of making decisions. These findings should be cautiously interpreted and generalised to other areas, situations and populations. However, it must be noted that although Seki TTL is adjacent to Salisbury it is a rural area and the broad impression is one of typical Shona social structure, belief systems and values.

If these findings are confirmed in other replication studies, their usefulness as a basis for planning training and development programmes is obvious, and they lend support to the 'package programme' concept in rural development.

Finally, it is worth re-emphasising the importance and potential of the savings club as a facilitating device (by providing cash and practical advice) for decision-making and thus the adoption of improved practices.

Improved Agricultural Practices: The Rural Poverty Syndrome.

Wharton (1969) points out that a fundamental issue in research into subsistence agriculture and economic development is the question of whether economic or non-economic forces are dominant.

In the Seki study data was collected from the fifty-six respondents on the setting (constraints) within which their actions in the project took place. Following each of the nine operations each respondent was questioned concerning labour availability and other problems limiting the adoption of recommended practices.

The major limiting factors reported are summarised below:-

36 reported labour problems in varying degrees.
34 had no oxen (or trained oxen) of their own for ploughing.
42 did not own a functional scotch cart for transport.
29 did not own a plough in reasonable repair.
42 did not own either a harrow or cultivator for weed control.

Respondents' answers were checked physically whenever possible.

Shortage of money. This is a critical factor which restricts the purchase of agricultural inputs and equipment. Many respondents reported that they limited the adoption of the new practices which were introduced to the half-acre maize project

to be no special peasant method of making decisions. These findings should be cautiously interpreted and generalised to other areas, situations and populations. However, it must be noted that although Seki TTL is adjacent to Salisbury it is a rural area and the broad impression is one of typical Shona social structure, belief systems and values.

If these findings are confirmed in other replication studies, their usefulness as a basis for planning training and development programmes is obvious, and they lend support to the 'package programme' concept in rural development.

Finally, it is worth re-emphasising the importance and potential of the savings club as a facilitating device (by providing cash and practical advice) for decision-making and thus the adoption of improved practices.

Improved Agricultural Practices: The Rural Poverty Syndrome.

Wharton (1969) points out that a fundamental issue in research into subsistence agriculture and economic development is the question of whether economic or non-economic forces are dominant.

In the Seki study data was collected from the fifty-six respondents on the setting (constraints) within which their actions in the project took place. Following each of the nine operations each respondent was questioned concerning labour availability and other problems limiting the adoption of recommended practices.

The major limiting factors reported are summarised below—

36 reported labour problems in varying degrees.
34 had no oxen (or trained oxen) of their own for ploughing.
42 did not own a functional scotch cart for transport.
29 did not own a plough in reasonable repair.
42 did not own either a harrow or cultivator for weed control.

Respondents' answers were checked physically whenever possible.

Shortage of money. This is a critical factor which restricts the purchase of agricultural inputs and equipment. Many respondents reported that they limited the adoption of the new practices which were introduced to the half-acre maize project field because they had no money for purchases outside the limits of their savings in the savings club. It is interesting to note that in some instances the project has led to a deliberate 'tapping' of urban sources of cash. Several women, for example, have persuaded relatives to send regular sums of money to invest in the savings club so that they can participate to a greater extent in the 1971/1972 agricultural project.

Labour is a limiting factor when it is not readily available. Widows and families with no adult male can overcome the labour shortage to some extent by hiring labour or group work. However, it is interesting that participants appear to be acutely aware that this type of labour delays the critical farming operations where timing is important. For example, hired labourers (who are normally paid about thirty cents a day) and relatives who may assist are not

usually available until they have completed their own work. Many families work together as a group, or a widow may brew beer to pay for labour - both methods of obtaining labour can lead to prolonged delays in carrying out farming operations.

The wisdom of initially limiting the scale of the project to half an acre is apparent from the many reports that the total amount of arable land actually cultivated is dependent on the availability of labour, and much of the arable land is left fallow for this reason. Many respondents with adequate labour reported that labour shortage might become a problem if the scale of the project should be increased.

Labour problems depend to some extent on the actual agricultural operation involved. Men are necessary for the harder tasks such as ploughing, digging contour ridges, cutting poles, thatching and digging and transporting manure. Tasks such as pest control (maize stalk-borer) and fertiliser top-dressing are relatively easier.

Cattle. Twelve respondents reported that they did not own any cattle at all. This poses them with the serious problem of supplying organic matter to the soil. Some of the more hardworking of this group reported collecting cattle manure from the bush - but these are rather inadequate amounts. The remaining respondents owned 222 cattle, the mean size of herd being five beasts with a range of 1-15. Thus many of the respondents had no oxen for draft power even though they owned cattle. Amongst those who owned oxen, many reported that the oxen were not trained or sufficiently docile to be handled by women or children.

The late planting bottleneck to improved agricultural productivity has already been discussed (Smith, 1970b and 1971) particularly the importance of early land preparation - especially ploughing. Even if oxen are borrowed, shared or hired, the owner is usually the only person who can handle them properly. This was reported as a common reason for late ploughing and thus delays in subsequent farming operations.

Farming equipment. Most of the respondents did not possess the three basic items of agricultural equipment: scotchcart, plough or harrow/cultivator. There are no really effective substitutes (e.g., carrying manure in buckets) and borrowing is uncertain and again causes delays in farming operations.

Other problems limiting the adoption of improved practices which were mentioned by several participants were ill-health and old age.

Several particularly acute situations were described where the respondent was a widow (or a married woman with an absentee

The wisdom of initially limiting the scale of the project to half an acre is apparent from the many reports that the total amount of arable land actually cultivated is dependent on the availability of labour, and much of the arable land is left fallow for this reason. Many respondents with adequate labour reported that labour shortage might become a problem if the scale of the project should be increased.

Labour problems depend to some extent on the actual agricultural operation involved. Men are necessary for the harder tasks such as ploughing, digging contour ridges, cutting poles, thatching and digging and transporting manure. Tasks such as pest control (maize stalk-borer) and fertiliser top-dressing are relatively easier.

Cattle. Twelve respondents reported that they did not own any cattle at all. This poses them with the serious problem of supplying organic matter to the soil. Some of the more hardworking of this group reported collecting cattle manure from the bush - but these are rather inadequate amounts. The remaining respondents owned 222 cattle, the mean size of herd being five beasts with a range of 1-15. Thus many of the respondents had no oxen for draft power even though they owned cattle. Amongst those who owned oxen, many reported that the oxen were not trained or sufficiently docile to be handled by women or children.

The late planting bottleneck to improved agricultural productivity has already been discussed (Smith, 1970b and 1971) particularly the importance of early land preparation - especially ploughing. Even if oxen are borrowed, shared or hired, the owner is usually the only person who can handle them properly. This was reported as a common reason for late ploughing and thus delays in subsequent farming operations.

Farming equipment. Most of the respondents did not possess the three basic items of agricultural equipment: scotchcart, plough or harrow/cultivator. There are no really effective substitutes (e.g., carrying manure in buckets) and borrowing is uncertain and again causes delays in farming operations.

Other problems limiting the adoption of improved practices which were mentioned by several participants were ill-health and old age.

Several particularly acute situations were described where the respondent was a widow (or a married woman with an absentee husband who gave her little support) who had children, and either nil or little money from urban sources, severelabour problems, no cattle or oxen and no basic farming equipment.

Improved Agricultural Practices: Literacy and Demonstrations.

Of the fifty-six respondents, twenty-nine attended a six weeks' intensive literacy course in May/June, 1970. Of these twelve were in 'slow'classes and seventeen in 'advanced' classes.

Castillo (1969) has drawn attention to the elementary problem of collecting reliable data in a peasant setting. This

was also the case in the Seki study.

The respondents who were all members of savings clubs taking part in the agricultural package programme, were drawn from those who attended the first demonstration on ploughing. Only members of savings clubs and full participants in the agricultural project were required for data collection. A total of seventy-five respondents was selected and agreed to be interviewed. It was later found that for various reasons: some of these were not full participants in the project, others were away from home sick or visiting at various periods, and several moved away from the area permanently.

There were nine basic operations (improved practices or combinations of improved practices) in the project. Respondents were asked whether they had attended the relevant demonstration, and how they had carried out the particular operation. It was not possible to check whether a person had actually attended a particular demonstration, but many of the practices were physically checked - e.g., plant spacing etc., and others were cross-checked with individual fertiliser orders etc. However, in some cases it was not possible to verify information, e.g., amount of manure applied - this may have been ploughed into the soil, whether fertiliser had been used to top-dress the project half-acre or whether it had been spread over a larger area.

Some of the reported results are worth noting:

Seven respondents reported that improved planting practices had been followed on their other fields, i.e., early planting, recommended spacing and use of fertiliser. (This is most certainly an underestimate because data was collected before all planting was completed).

Nineteen participants reported they had carried out stalk-borer control on other maize crops and seventeen reported using nitrogen top-dressing on other crops. Eleven reported improved weeding practices in other crops. These three practices are relatively undemanding in labour and money.

Following the actual growing of the crop it is significant that forty-three respondents collected the stover to feed cattle or for kraal bedding or compost making. Thirty-eight made a start on building compost heaps, eighteen treated their seed against weevil damage and twenty-one took some steps to improve grain storage facilities. (These are all certainly under-estimates because this work was not complete when the data was collected).

The respondents who were all members of savings clubs taking part in the agricultural package programme, were drawn from those who attended the first demonstration on ploughing. Only members of savings clubs and full participants in the agricultural project were required for data collection. A total of seventy-five respondents was selected and agreed to be interviewed. It was later found that for various reasons:some of these were not full participants in the project, others were away from home sick or visiting at various periods, and several moved away from the area permanently.

There were nine basic operations (improved practices or combinations of improved practices) in the project. Respondents were asked whether they had attended the relevant demonstration, and how they had carried out the particular operation. It was not possible to check whether a person had actually attended a particular demonstration, but many of the practices were physically checked - e.g., plant spacing etc., and others were cross-checked with individual fertiliser orders etc. However, in some cases it was not possible to verify information, e.g., amount of manure applied - this may have been ploughed into the soil, whether fertiliser had been used to top-dress the project half-acre or whether it had been spread over a larger area.

Some of the reported results are worth noting:

Seven respondents reported that improved planting practices had been followed on their other fields, i.e., early planting, recommended spacing and use of fertiliser. (This is most certainly an underestimate because data was collected before all planting was completed).

Nineteen participants reported they had carried out stalk-borer control on other maize crops and seventeen reported using nitrogen top-dressing on other crops. Eleven reported improved weeding practices in other crops. These three practices are relatively undemanding in labour and money.

Following the actual growing of the crop it is significant that forty-three respondents collected the stover to feed cattle or for kraal bedding or compost making. Thirty-eight made a start on building compost heaps, eighteen treated their seed against weevil damage and twenty-one took some steps to improve grain storage facilities. (These are all certainly under-estimates because this work was not complete when the data was collected).

During the interview to ascertain how well practices had been carried out, respondents were also tested informally on their knowledge of the main points in the particular operation. There was a total of twenty-seven questions on the nine operations.

A preliminary analysis of this data shows that there is no apparent relationship or pattern between literacy training or previous level of education and degree of adoption of improved agricultural practices and subsequent crop yields - not with this group of people in this particular project at this level of analysis.

There are indications that knowledge of and skill in applying improved practices is related to attendance at demonstrations, although some who did not attend a particular

demonstration appear to understand and perform as well as those who attended. This may be due to the influence of the savings clubs field-worker or to 'spillover' of information and skills from others who make up family work groups.

In addition to the extraneous variables of decision-making and the availability of means discussed above, the variability of rainfall, soil and weeds and pests must also be taken into account. It was not possible to control these factors which obscure any literacy effect on agricultural productivity. In view of these variables it is perhaps unrealistic to expect any direct literacy effect.

However, this analysis of the acute interlocked problems of rural poverty has shown that a 'package programme' approach based on savings clubs is perhaps the only feasible means of improvement for the majority of the ordinary cultivators who live in the Tribal Trust Lands. In these circumstances it is perhaps also unrealistic to try to measure literacy effect apart from such a facilitating 'package programme'.

It may also be the case that there is little apparent literacy effect when one uses the criteria of relatively simple improved practices which can be demonstrated in a very practical manner. However, as a development project becomes more complex and involves the management of a large number of factors - integration of crops and livestock, cash cropping and such factors as forward planning and budgeting - literacy may well be an important correlate of agricultural development.

What is immediately apparent is the importance of literate individuals in order to make possible the establishment of 'enabling' organisations such as savings clubs.

The investigation of the role of literates in these and other local organisations may be a more realistic method of evaluating literacy effect in the improvement of subsistence agriculture.

REFERENCES.

BOWERS, J. (1969). 'Functional Literacy : Definition and Evaluation' in WOOD, F. (Ed.). The Evaluation of Functional Literacy Projects. Unesco Workshop Report. London 3-22 August,1969. University of London, Institute of Education.

CASTILLO, G. (1969). 'A critical view of a subculture of peasantry' in WHARTON, C.R. (1969) (Ed.). Subsistence Agriculture and Economic Development, Aldine, Chicago.

CHILD, H. (1965). The History and Extent of Recognition of Tribal Law in Rhodesia. Ministry of Internal Affairs, Government Printer, Salisbury.

CHILDS, J.M. (1971). 'Reorientation of Grades 1 and 2'. New Approaches to Primary Education for African Children in Rhodesian Schools. A Report of the T4/T3 Seminar held at Gwelo Teachers' College, May 11th to May 14th. Ministry of African Education, Salisbury.

C.S.O. (1971a). 1969 Population Census (Interim Report). Volume II: The African Population. Central Statistical Office, Salisbury. G.P. and S. 44279-500.

C.S.O. (1971b). Monthly Digest of Statistics, 1971. Table 10. 'School Enrolments'. Central Statistical Office, Salisbury.

GELFAND, M. (1965). Medicine and Custom in Africa. E. and S. Livingstone, Edinburgh and London.

HUGHES, A.J.B. (1965). Report on an Experimental Sample Socio-Economic Survey. (Conducted in Gutu Tribal Trust Land, July, 1963). Department of Conservation and Extension, Salisbury, 1965.

HUNT. (1966). 'The Economic Position of the Tribal Trust Land in Relation to Agriculture'. Tribal Trust Land Conference (NRB) University College, Salisbury.

JOHNSON, R.W.M. (1964). The Labour Economy of the Reserve. University College of Rhodesia and Nyasaland, Department of Economics Occasional Paper No.4.

MANGWENDE COMMISSION (1961). Report of the Mangwende Reserve Commission of Inquiry, 1961. Chairman: J.S. Brown, Government

University of London, Institute of Education.

CASTILLO, G. (1969). 'A critical view of a subculture of peasantry' in WHARTON, C.R. (1969) (Ed.). Subsistence Agriculture and Economic Development, Aldine, Chicago.

CHILD, H. (1965). The History and Extent of Recognition of Tribal Law in Rhodesia. Ministry of Internal Affairs, Government Printer, Salisbury.

CHILDS, J.M. (1971). 'Reorientation of Grades 1 and 2'. New Approaches to Primary Education for African Children in Rhodesian Schools. A Report of the T4/T3 Seminar held at Gwelo Teachers' College, May 11th to May 14th. Ministry of African Education, Salisbury.

C.S.O. (1971a). 1969 Population Census (Interim Report). Volume II: The African Population. Central Statistical Office, Salisbury. G.P. and S. 44279-500.

C.S.O. (1971b). Monthly Digest of Statistics, 1971. Table 10. 'School Enrolments'. Central Statistical Office, Salisbury.

GELFAND, M. (1965). Medicine and Custom in Africa. E. and S. Livingstone, Edinburgh and London.

HUGHES, A.J.B. (1965). Report on an Experimental Sample Socio-Economic Survey. (Conducted in Gutu Tribal Trust Land, July, 1963). Department of Conservation and Extension, Salisbury, 1965.

HUNT. (1966). 'The Economic Position of the Tribal Trust Land in Relation to Agriculture'. Tribal Trust Land Conference (NRB) University College, Salisbury.

JOHNSON, R.W.M. (1964). The Labour Economy of the Reserve. University College of Rhodesia and Nyasaland, Department of Economics Occasional Paper No.4.

MANGWENDE COMMISSION (1961). Report of the Mangwende Reserve Commission of Inquiry, 1961. Chairman: J.S. Brown, Government Printer, Salisbury.

SMITH, G.A. (1969). A Preliminary Report of the Chiduku Literacy Project. ASPBAE Journal. Vol. IV. No.1-2 Aug-Nov. 1969.

SMITH, G.A. (1970a). Evaluation of the Chiduku Literacy Project: an Abridged Report. Institute of Adult Education, University of Rhodesia.

SMITH, G.A. (1970b). A Preliminary Report on Literacy Training Savings Clubs and Development in Seki Tribal Trust Land. Institute of Adult Education, University of Rhodesia.

SMITH, G.A. (1971). An Integrated Approach to Agricultural Extension. Paper presented at SARCCUS Agricultural Extension Workshop, Swaziland, 5th to 16th July. Institute of Adult Education, University of Rhodesia.

THORPE, C. (1964). Ed. Survey Report on Adult Literacy and Christian Literature in Southern Rhodesia. Southern Rhodesian Christian Conference.

WHARTON, C.R. (1969). (Ed.). 'The issues and a research agenda'. Subsistence Agriculture and Economic Development. Aldine, Chicago.