

L S Saraswathi: Practices in Identifying (Reckoning), Measuring and Planning for Utilization of Time in Rural Tamil Nadu

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PRACTICES IN IDENTIFYING (RECKONING), MEASURING ,AND
PLANNING FOR UTILIZATION OF TIME IN RURAL TAMIL NADU, (INDIA):
IMPLICATIONS FOR ADULT EDUCATION

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Introduction

Time is part and parcel of all actions and events in life. Time is identified or reckoned and measured for the efficient utilization of the same in actions performed and the events organized. Identifying, measuring and planning for utilization of time are all learned. These are basic skills necessary for increasing the efficiency in performing actions and organizing/conducting events.

A study of modes of identifying, measuring and planning for utilizing time by the people in rural Tamil Nadu was undertaken as a part of a study of the existing practices of the rural - people regarding counting and measurements In day to day life.

A total of 304 adults belonging to seven villages (Mangadu, Chozhapuram, Theroor, Pavitram, M. Parur, Nelliyalam and Kollimalai) In four regions based on four major dialects of Tamil language (northern, southern, central and western) were interviewed. Random sampling procedure was followed in selecting the villages and in selecting the households after a preliminary decision on the criteria of population size of the village and the SC/ST population proportion of the districts In each of the four regions. The population range of the villages included was 5000 to 12,000 and the SC/ST population proportion was from 21 to 36 per cent. in six villages and one was a tribal village.

Majority of the adults who participated in the study were agricultural labourers, were in the age group of 15- 35 years of age, were married, were in the unitary families of the size ranging from 2 - 5 members, were residents of the village since birth/marriage, had limited communication with the outside world as judged from their travel outside the village and receipt of letters from outside. Care was taken to include both men and women, SC/STs and other castes, illiterates, semi-literates and literates with a majority having less than VIII standard education. Majority were Hindus, though there were some christians and some muslims.

Data regarding the general mode of identification or reckoning time at a specific point in a day, measuring time taken (duration of time) for some of the common actions/events in the context of their life situations and also the use of calendars and almanacs for planning and utilizing time were collected from July 1983 to January 1984.

Identification or Reckoning of Time

Free responses given to open ended question how they identified time at a specific point in a day showed a variety. These responses are categorized and presented in Table I. As there were multiple responses by some of the respondents, the total adds up to 421 in the place of 304.

Majority of the responses (43.5 per cent.) were in terms of identifying time looking at the sun (its position, the shadow), the moon (its position), and the stars (position of easily identifiable stars); 26.0 per cent. of responses indicated the practice of reckoning time through the daily routines such as temple bell, tea estate belt, siren, train sound, bus time, school time, mail time, midday meal time etc., 9.00 per cent. of responses indicated the biological clock time, meaning the time identified by the noticeable rhythm in nature such as cock crowing, birds chirping while moving out of their nests and returning to their nests, the cattle returning home after grazing; 17.6 per cent. responses Indicated the use of clock time and 3.8 per cent. did not know the mode of identifying time. About five women said that they asked their husbands to read the clock for them.

Table I

Sex-wise and Caste-wise distribution of responses according to the mode of identification or reckoning Time

Mode of Identification	Men (189)	Women (115)	Total (304)	SC/STs (154)	Other castes (150)
Sun, Moon. Stars	115 (46.2)	68 (39.6)	183 (43.5)	89 (39.3)	94 (48.4)
Biological Clocks	20 (8.0)	18 (10.5)	38 (9.0)	28 (12.3)	10 (5.2)
Daily routines created by human beings	53 (21.3)	57 (33.1)	110 (26.1)	55 (24.2)	55 (28.3)
Clock Time	59 (23.7)	15 (8.7)	74 (17.6)	43 (16.9)	31 (16.0)
Don't Know	2 (0.8)	14 (6.1)	16 (3.8)	12 (5.3)	4 (2.1)
Total	249 (100.0)	172 (100.0)	421 (100.0)	227 (100.0)	194 (100.0)

Note : Figures in the brackets indicate percentages.

Looking at the data sex-wise, more men used clock for identifying time than women (23.7 per cent, and 6.7 per cent.). The same was true of use of Sun. Moon and Stars (46.2 per cent, and 39.6 per cent). The use of daily routines and the biological clocks of cocks crowing and birds chirping were used more by women than by men (21.3 per cent, men and 33.1 per cent, women in the case of the former and 8.0 per cent, men and 10.5 per cent. women in the case of the latter).

Caste-wise, the data did not show much variation. Compared to other castes the SC/STs used biological clocks to a greater extent. The other castes used the Sun, the

Moon and the Stars and also the daily routines for identifying time more often than the SC/STs.

Details of Steps in Identifying Time using Sun's position or shadow

The details of steps in identifying time at a particular point in a day were explained by two respondents in two different villages. They were highly interesting and scientific. It was considered important to present them here.

An old illiterate man described the procedure to reckon precisely the time to the minute at any point of the day through measuring the length of the shadow of one's own self. The tool used for measuring is one's own foot length. The tip of the head of the shadow of oneself could be adjusted to coincide with the edge of the road and a mark could be made on the ground where the feet are. This is for any remeasuring one may want to do. Measuring with the foot should be done fairly accurately by placing one foot in front of the other foot without overlapping to cover the distance between the starting point and the edge of the road. The length of the shadow will thus be obtained in terms of number of foot lengths.

Irrespective of the height of the person, the length of the shadow with one's own foot measure at a point in a day will remain the same. For example, if the length of the shadow is 11 foot lengths for one who is six feet tall, it will be 11 for one who is four feet when measured with his own foot, provided that the point of the day is the same.

From morning sunrise to the noon when the Sun comes up, the rate of reduction in the length of the shadow follows a pattern. In the same way in the after noon, the rate of increase in the length of the shadow also follows a pattern. As these rates have a definite pattern, the time at any point of the day could be reckoned fairly accurately if one is aware of this pattern.

On the basis of the description given by the villager and also the guidance given by the villager in measuring the shadow at a point of the day and matching the shadow length with the time, the investigator kept a record of the length of the shadow with her own foot measure every hours in a day (July). The following pattern was found:

Morning	Length of shadow in foot lengths	Evening
6 AM	32	6 PM
7 AM	21	5 PM
8 AM	11	4 PM
9 AM	6-1/2	3 PM
10 AM	4	2 PM
11 AM	2	1 PM
12 Noon	-	12 Noon

Reckoning time through simple device from a straw for measuring shadow was explained by another villager. In this device, a piece of straw is used both as the object whose shadow is to be observed and measured and as actual tool for measuring time.

A piece of straw of any length (for convenience in handling length of the straw is prescribed to be four times the length of the four fingers when they are held together, meaning four times the width of the four fingers held together) is taken and this is divided into 16 equal parts by folding it half, then one quarter and then one eighth of its length. Care should be taken to see that the hay doesn't get cut and that the bends are visible when the straw is stretched.

This hay with 16 visible unit lengths is to be bent like the letter L (with a horizontal and a vertical portion) and held on the ground with the vertical portion towards the Sun. The shadow of the upright portion now falls on the horizontal portion kept on the ground. The vertical or upright portion is adjusted in such a way that the length of its shadow is equivalent to the length of the horizontal portion. When adjusted this way the number of parts of the upright portion indicate the number of nazhigais (the traditional unit of time, one nazhigai is equivalent to 24 minutes) that have passed after the sun-rise if it is forenoon or the number of nazhigais that have passed from the noon if it is afternoon. The whole procedure is conveyed by the villager through a four line Tamil poem, the translation of which follows

Take a piece of hay

Divide It Into 16 parts

Stretch part of it horizontally

(the extent decided by the length of the shadow of the vertical part)

Count the number of vertical parts for the number of nazhigais
(after sun-rise or noon as the case may be).

One of these two villagers, when asked what would do if there were no Sun as it is in a rainy day, described an indoor device using water (a kind of water clock).

According to him, a big vessel is kept straight and flat supporting it with three stones, ii necessary. The vessel is to be filled with water up to three fourths of its height. A small light weight cup (probably made of aluminium) with a very fine hole at the bottom is to be floated in the water contained In the vessel. Slowly the water level in the cup rises. When the water gets filled in the cup, the cup sinks and touches the bottom of the vessel with a sound. When the cup goes down once, it is one jamam (3 hours or 7-1/2 nazhigais).

Measuring duration of Time

A set of ten items each one differing in the duration of time required for its completion were given to the respondents one by one Their free responses were recorded and analysed. The results are presented in Table 2.

The first three items of actions generally performed by everyone almost all the time everyday requires very little time. It may require a split second to few seconds in terms of standard units of time measure.

The responses of the interviewees showed a general understanding that the time required for the first item 'To look up to the person in front' is less than the second

item and the time required for the third item 'To drink a glass of water placed next to you' is more than the other two. This was evident from the increase in the percentage of responses in terms of the unit given in second(s) or minute(s). Time taken for such actions seemed to be measured but approximately. The differentiation between the unit of seconds and minutes appeared to be mixed.

The practice of measuring the duration of time required for an action by a simple comparison with any other rhythmic action such as batting eyelid or making sound with the thumb and the middle finger pressing against each other like in a beat was seen in one tenth of the responses.

Responses in vague measures such as instantaneously, immediately, fast etc., were also given for these items by some of the respondents.

Looking at the data sex-wise, men seemed to use the standard units of seconds for these items more often than women. Matching the actions mentioned with rhythmic actions or using terms representing vague measures were more often given by women than by men.

The next two items of actions (4 and 5) generally performed or seen to take place in the village could be expected to take time in terms of units in hour(s). -Majority of the responses were in terms of the unit of hour(s) though there was a small percentage who measured these in units of minutes. The items under review are 'To cook a simple meal for four persons' and 'To go to the next village and get back'. These two items generally warrant functioning as quickly as possible. Hence it is quite possible that the responses in units of minutes were more in the figurative sense than in the actual sense.

There was very little variation in responses between the sex-groups and between the caste groups with reference to these items.

For the items of event/action (16 and 7), namely, 'For the procession of the Lord during the festival' (in the four streets around the temple) and 'To plough an acre of land' again the duration of time required for going through the event or performance of action could have been in units of hour(s) for item no. 6 and of hour(s) cum days for item 7, depending upon the mechanization or technology available for ploughing. Quite a high percentage said that they did not know the time taken for the event and action mentioned in these items. Participating in the event or performing the action may have been considered more relevant than measuring the time. -

For item 8, 'To sow and harvest ragi (duration from sowing to harvesting)' majority of the respondents specified the duration in terms of number of days or months (the number of days was the months converted to days as 90 or 120 days). Considerable number of respondents said that they did not know the duration. Here again it is quite possible that the whole village being involved in agriculture, the operations are carried out seasonally and hence measuring time may not be necessary. Carrying out the operations are more important than keeping a count on time. They could carry on the operations by just looking at the field and the crops.

Looking at the data sex-wise, for the three items given above, the men responded in terms of the units more often than the women. When compared to men more women did not know the duration.

Looking at the data, caste-wise, the responses of the other castes were similar to that of men and of scheduled castes that of women.

For items 9 and 10, 'For a five year old girl to come of age' and 'To fulfil all your wishes', the responses could be in year(s) or a life time (whole life). A large number did not know what to say. Those who responded for Item 9 mentioned specific number of years. For this item more women and SC/STs than men and other castes responded.

For item 10, the responses were in terms of 'God knows', 'Grace of God', 'Why should there be any God then?', 'it is not in our hands', 'Efforts, luck and our own actions in the past', 'We can't be peaceful', 'Depends upon luck', 'Availability of wealth', 'Several millenniums', 'Lot of time', 'When the time comes', 'I die', 'Whole life', and 'Years'. These responses are categorised as others in the Table. In the 14 different kinds of responses, six had something to do with time duration. There was hardly any variation between sex groups and caste groups.

In general, the responses for these items showed that thinking about or actually measuring the duration of time taken by actions or events seemed to decrease with the Increase in the duration of time required. Events rather than the time seemed to be important.

The descriptions given by the respondents regarding their occupation of agriculture showed that they could match each particular operation and the particular month of the day in which the particular operation needs to be done. They could describe the duration of time required for the sprouts to come out for the crops grown, the approximate timings for weeding. It is also true that the whole village more or less, works at the same time on each of these operations. Once the sowing is done, it is not the time that needs to be counted. But, it is the plants that will tell them what to do when, such as the time to weed, time to apply fertilisers, insecticides and time to harvest.

Measuring duration of Life (Calculation of Age)

The responses regarding the mode of calculation of age showed that more than half the respondents reported having an horoscope made at the time of birth or having the date of birth (52.6 per cent.). About 21 per cent. estimated the age looking at the facial features or rather the facial muscles. Nearly 18 per cent. knew their own age approximately only. Few went by what the parents said. About 6 per cent. could not say anything about the age.

Looking at the data sex-wise, higher percentage of men (61.4 per cent.) than women (38.3 per cent. reported the birth date or horoscope for calculation of age. Whereas more women (47.0 per cent.) than men (33.9 per cent.) were reported to be using approximate estimations of age. More women than men did not give any responses (12.2 per cent. and 1.2 per cent, respectively). Horoscopes are generally set or read by specialists in the village. People went to them when the child is born.

Looking at the caste-wise, a slight variation was seen between the two castes. Higher percentage of other castes than scheduled castes reported horoscopes and noting of birth date (56 per cent, and 49.4 per cent.); and also approximate estimations of age (42 per cent. of other castes and 35.7 per cent. or SC/STs).

Planning and Utilization of Time

Planning time can be considered the first step in efficient utilization of time in actions performed and events organized and participated. Planning time could be within a day or could be short or long duration in days - weeks, fortnights/months/years. This kind

of planning events in advance may require. use of formalized time duration tables such as calendars and almanacs. Efforts were made in the present study to find out the extent of and purposes in using calendars and almanac. The results are presented here.

Majority of the respondents were reported to have a day calendar in their homes (76 per cent.). When asked what they looked for in these calendars the responses varied. They were : to know the day, date, the festival days, auspicious/inauspicious time/day, new moon day, full moon day, the day of krithigai star, the annual events such as the gruel feeding day in the month of Adi (July - August). the beginning of rainy season.

Almanac was said to be used only by 25.7 per cent. of the respondents. It was used for setting horoscopes, finding out auspicious/inauspicious time/day, festival days, wedding days, the planetary movements and their effects, the quantum of rains in reason for the current year (generally predicted in the almanac). Reading an almanac is generally a specialised function of a few.

Large number of women did not use the tables of time (81.7 per cent. of women and 69.8 per cent. of men in the case of almanac and 33 per cent. of women and 18.5 per cent. of men in the case of calendars). Caste wise, the other castes used these devices more often than the SC/STs (80.5 per cent. of SC/STs and 68 per cent. of the other castes did not use almanac and 30 per cent. of SC/STs and 18 per cent. of other castes did not use calendars).

Mostly the use of calendars and almanacs by the respondents seemed to be to follow certain religious prescriptions, namely, choosing or avoiding certain time or day for certain types of actions; for knowing the dates of festivals, for fixing up prescribed celebrations at various stages in life, such as wedding, for following periodic religious practices of special worship, fasting etc., (every month) such as the new moon, full moon, the day of the krithigai star. Except the prescribed celebrations at various stages, the rest of the things reported were all common for all and communicated through word of mouth to all the people in the village. Planning for performance of prescribed actions seemed to be in practice.

Implications of the findings for the Adult Education Programme

Time though invisible is quite pervasive in all activities in life. Actions and events in life have an underlying time base. Reckoning, measuring and planning time for better utilization are all processes in taking time out of the actions/events and putting it back in them in such a way that it helps in improving the efficiency of performance or conduct of actions and events. These processes can be learned.

The process of learning to identify/reckon and measure time is essentially a process of moving from:

Stage 1 (Action/Event time) of merely performing actions or participating in events in a routine manner, for example, it is time to get up, it is time to feed the child, it is time to get to the field, it is time to sow, it is time to weed and so on;

to Stage 2 (Action/Event against a rhythmic reference in the environment) when the underlying time is given some attention through use of a reference base In the environment which is rhythmic in nature, for example, the action of giving an object to the person in front of you could be done as fast as you bat your eyelid or you make one beat with your thumb and forefinger the action of cleaning up the grain in the sack by the time the sun comes up right above the head and so on;

to Stage 3 (Time-time) when the rhythm is divided into convenient segments/units or the measure of time in dependently of action or event, for example, measuring the increasing and decreasing lengths of the shadow, using other devices with created rhythms such as water clocks or the whole array of clocks and watches, by which the time at any point could be identified/reckoned, the time taken for any action could be measured accurately.

In the continuum of action/event time to time-time stages, if event alone or time alone is given importance, then the life may become quite mechanical. Action/event should be given attention with an eye on time within which it could be performed well.

The practices regarding reckoning and measuring time in rural Tamil Nadu shows that majority of the people were moving back and fourth of stages 1 and 2 and some were at stage 3.

The educational programmes for adults in rural Tamil Nadu should help learners to understand the process described through helping them systematize the existing practices and then introducing them to clock or watch reading. This, in practical terms, would mean the following steps:

- Sharing the experiences of the learners In identifying and measuring time in life situations;
- Systematising the experiences shared taking a look at the practices to recognise diverse, situation specific and routine nature of identifying or measuring time;
- Engaging in activities to recognise the underlying pattern or the system of relationships from the event time to biological time to measuring time approximately through position of the Sun, Moon and the stars, to measuring accurately the lengths of the shadow, the other devices such as water clock to reading clocks and watches and the place of all these in life situations;
- Discussing and recognising that, the basis of the diverse measurements found in real life situations is just the mode of functioning of individuals and groups at different levels of measuring according to the demands of the situation;

Looking at the day to day life situations, problems involving measuring in the light of the understanding or insights gained about the underlying pattern of relationships in the existing diverse measuring practices to recognise the need for common units of measure, in short, for expanding one's world of activities and gain strength in facing the problems in day to day life. In other words, it is to become more efficient through planning and utilization of time at one's disposal for varied activities and events.

Sex-wise and Caste-wise distribution of respondents in measuring the duration of time taken for as specific actions/events

Action/Events	Duration	Men	Women	Total	SC/STs	Other Castes
1. To look up to the person in front	Second(s)	142 (75.0)	46 (40.0)	188 (61.9)	77 (50.0)	111 (74.0)
	Minute(s)	35 (19.2)	34 (29.6)	70 (23.0)	46 (29.9)	24 (16.0)
	Others	7 (3.7)	29 (25.2)	36 (11.8)	23 (14.9)	13(8.7)
	Don't Know	4 (2.10)	6 (5.2)	10 (3.3)	8 (5.2)	2 (1.3)
Total		189 (100.0)	115 (100.0)	304 (100.0)	154 (100.0)	150 (100.0)
2. To give this object in your hand	Second(s)	140 (74.1)	36 (31.3)	176 (57.9)	63 (40.9)	113 (75.3)
	Minute(s)	40 (21.1)	46 (40.0)	86 (28.3)	59 (38.3)	27 (18.0)
	Others	5 (2.7)	25 (21.7)	30 (9.8)	21 (13.6)	9 (6.)
	Don't Know	4 (2.1)	8 (7.0)	12 (4.0)	11 (7.2)	1 (0.7)
Total		189 (100.0)	115 (100.0)	304 (100.0)	154 (100.0)	150 (100.0)
3. To drink a glass of water placed next to you	Second(s)	74 (39.2)	29 (25.2)	103 (33.9)	41 (26.7)	62 (41.4)
	Minute(s)	101 (53.4)	52 (45.2)	153 (50.3)	83 (53.9)	70 (46.7)
	Others	6 (3.2)	21 (18.3)	27 (8.9)	17 (11.0)	10 (6.6)
	Don't Know	8 (4.2)	13 (11.3)	21 (6.9)	13 (8.4)	8 (5.3)
Total		189 (100.0)	115 (100.0)	304 (100.0)	154 (100.0)	150 (100.0)

Action/Events	Duration	Men	Women	Total	SC/STs	Other Castes
4. To cook a simple meal for four persons	Minute(s)	9 (4.8)	2 (1.7)	11 (3.6)	5 (3.2)	6 (4.0)
	Hour(s)	175 (92.6)	106 (92.2)	281 (92.4)	138 (89.6)	143 (95.3)
	Don't Know	5 (2.6)	7 (6.1)	12 (3.9)	11 (7.1)	1 (0.7)
	Total	189 (100.0)	115 (100.0)	304 (100.0)	154 (100.0)	150 (100.0)
5. To go to next village and get back	Minute(s)	4 (2.1)	3 (2.6)	7 (2.3)	4 (2.6)	3 (2.0)
	Hour(s)	158 (83.6)	81 (70.4)	239 (78.6)	117 (75.8)	122 (81.3)
	Day(s)	3 (1.6)	4 (3.5)	7 (2.3)	5 (3.3)	2 (1.3)
	Total	189 (100.0)	115 (100.0)	304 (100.0)	154 (100.0)	150 (100.0)
6. For the procession of the Lord during the festival (in the four streets around the temple)	Hour(s)	91 (48.1)	50 (43.5)	141 (46.4)	60 (39.0)	81 (54.0)
	Day(s)	16 (8.5)	11 (9.6)	27 (8.9)	12 (7.8)	15 (10.0)
	Don't Know	82 (43.4)	53 (46.9)	136 (44.7)	82 (53.2)	54 (36.0)
	Total	189 (100.0)	115 (100.0)	304 (100.0)	154 (100.0)	150 (100.0)

Action/Events	Duration	Men	Women	Total	SC/STs	Other Castes
7. To plough and acre of land	Hour(s)	83 (43.9)	37 (32.3)	120 (39.5)	57 (37.0)	63 (42.0)
	Day(s)	56 (29.6)	34 (29.5)	90 (29.6)	39 (25.3)	51 (34.0)
	Don't Know	50 (26.5)	44 (38.3)	94 (30.9)	58 (37.7)	36 (24.0)
	Total	189 (100.0)	115 (100.0)	304 (100.0)	154 (100.0)	150 (100.0)
8. To sow and harvest ragi (from sowing to harvesting)	Hour(s)	14 (7.4)	10 (8.7)	24 (7.8)	12 (7.8)	12 (8.0)
	Day(s)	40 (21.1)	17 (14.5)	57 (18.8)	17 (11.0)	40 (26.7)
	Month(s)	61 (32.3)	39 (33.9)	100 (32.9)	53 (34.4)	47 (31.3)
	Don't Know	74 (39.2)	49 (42.6)	123 (40.5)	72 (46.8)	51 (34.0)
Total	189 (100.0)	115 (100.0)	304 (100.0)	154 (100.0)	150 (100.0)	
9. For the five years old girl to come of age	Year(s)	54 (28.6)	40 (34.8)	94 (30.9)	56 (36.4)	38 (25.3)
	Don't Know	135 (71.4)	75 (85.2)	210 (69.1)	98 (63.6)	112 (74.7)
	Total	189 (100.0)	115 (100.0)	304 (100.0)	154 (100.0)	150 (100.0)
10. To fulfil all your wishes	Others	25 (13.2)	22 (19.1)	47 (15.5)	21 (13.6)	26 (17.3)
	Don't Know	164 (86.8)	93 (80.9)	257 (84.5)	133 (86.4)	124 (82.7)
	Total	189 (100.0)	115 (100.0)	304 (100.0)	154 (100.0)	150 (100.0)

Figures in brackets indicate percentage of respondents