
1999

Practical Field Considerations for Time Allocation Study

Eileen Mueller

University of Georgia, Department of Anthropology

Follow this and additional works at: <https://scholarcommons.usf.edu/jea>

Recommended Citation

Mueller, Eileen. "Practical Field Considerations for Time Allocation Study." *Journal of Ecological Anthropology* 3, no. 1 (1999): 75-82.

Available at: <https://scholarcommons.usf.edu/jea/vol3/iss1/5>

This Field Notes is brought to you for free and open access by the Anthropology at Scholar Commons. It has been accepted for inclusion in Journal of Ecological Anthropology by an authorized editor of Scholar Commons. For more information, please contact scholarcommons@usf.edu.

FIELD NOTES

Practical Field Considerations for Time Allocation Study

EILEEN MUELLER

DEPARTMENT OF ANTHROPOLOGY

UNIVERSITY OF GEORGIA

Abstract

This paper briefly describes four methods of time allocation study and examines the use of one of them, the 'random spot-check,' in the field. Time allocation methods provide quantitative data that is particularly useful for environmental or ecological research in anthropology. Practical problems of implementation, however, often override their theoretical usefulness. The 'random spot-check' technique can be hindered by unforeseen time constraints and social considerations. The insightful data generated through this field method, however, may make it worthwhile for the researcher to attempt to overcome its practical limitations and include it in his or her research project.

Introduction

Practical problems of implementation often override the theoretical usefulness of field methods. For this reason, publications that describe the field situation and aspects that impede or are useful to the implementation of particular field methods can be helpful (Devereux and Hoddinott (1993). In hopes of helping other researchers to choose the most appropriate methods for their field situation, this article briefly describes one particular quantitative method, the time allocation study.

A time allocation study is an "accurate, detailed, and replicable technique for observing and recording human behavior in context" (Gross 1984:519). It is a research method that is used to determine the percentage of time people engage in different activities throughout the day, month, and year (Altmann 1974; Gross 1984; Johnson 1975). Time allocation studies have been incorporated into research ranging from primate behavior to labor contributions of children to the household (Cain 1980; Hart 1980; Johnson 1975; Munroe et al. 1983; Nag et al. 1980; Suda 1994; White 1980) and are particularly useful for environmental or ecological research in anthropology (Suda 1994)¹.

Human activities may vary within a community throughout the year and over the years as available subsistence opportunities change due to seasonal patterns in the environment, modification of resource availability by natural and anthropogenic forces, and direct introduction of alternative forms of economic activities by outside agencies. Of interest to ecological anthropology is how people alter their livelihoods strategies in order to incorporate these changes.

One of the most famous studies utilizing a time allocation method was done by Allen Johnson among a Machiguena community in the upper Amazon of Southeastern Peru (1975). He quantified the amount of time people spent gathering food, hunting, preparing food, eating, child rearing, visiting, going to school, performing wage labor and even being idle. This data can be used to answer questions pertaining to local adaptation to environmental variation or uncertainty, as well as incorporation of non-traditional activities into household livelihoods strategies.

Through time allocation studies, previously ignored activities—especially time consuming do-

¹ For further reading on time allocation studies see Gross 1984; Minge-Kalman 1980; and Mulder and Caro 1985.

mestic chores—are shown to be very important (Gross 1984). Domestic chores are often labeled “enabling activities,” meaning that the performance of these chores is essential in order to enable someone else in the household to do other, possibly cash-remunerated, activities (Cain 1980: 221). Due to the researcher’s ability to uncover hidden activities, as well as patterns of activity, while using the time allocation study, the results can prove to be very enlightening.

Methods

Self-report Diaries

There are a number of ways in which to conduct time allocation studies. One method is to ask subjects to record in a journal the activities they take part in and the time spent on each one throughout the day (Berk 1979; Pearce 1988; Richards 1939). To an anthropologist with a tight time schedule, this method can be useful; however, it has some severe limitations. First, this method is limited to those subjects who are literate, an obvious obstacle for research being conducted among populations with high illiteracy rates (Gross 1984). Second, it may not be very accurate for the same reason that a researcher cannot simply ask someone how much time they spend on preparing food or caring for children and expect an accurate answer; they simply do not know (Bernard et al. 1984; Gross 1984; Richards 1939). Even when the subject is consciously thinking about it, perceptions of time vary and lead to responses that are difficult to quantify with confidence.

‘Fixed-spot’ Method

A second method entails setting up a strategic observation post somewhere in the village and recording the people that arrive and leave that point (Lee 1968; Suda 1994). This could be, for example, the village plaza or a spot on the beach that all fishermen will pass to get to their boats. Certain types of studies (for example tourism studies) in which the researcher is interested in arrivals and departures from certain loci of activities may lend themselves to this method. It is useful because such a great percentage of the community can be observed in this fashion.

One disadvantage of the ‘fixed-spot’ method is that information about activities undertaken away from the spot cannot be recorded. A second disadvantage is the amount of time involved; for the duration of the survey the researcher sits in a fixed spot each day. Other aspects of the study have to be set aside until the survey is completed.

‘Shadow’ Method

A third method involves following the subject throughout the day as a ‘shadow’ and recording data at certain time intervals, perhaps every five or ten minutes (Hartmann 1988). This can generate an enormous amount of data and the researcher knows (or at least is more likely to know) his or her own biases of recording information and can account for that in the data analysis. The researcher also has the feeling of not missing subtle activities; ones that may perhaps be overlooked while using other time allocation techniques. There are two major problems with this method, however. One is that it is extremely time consuming. Other parts of the research will have to be set aside for the duration or research assistants will have to be employed, thereby losing one of the positive attributes of this technique—the ability of the researcher to compensate for his or her own biases. Another is an age old problem: how do we know the presence of the observer is not skewing the results? It is easy to imagine that following a subject all day might not lead to an entirely typical routine.

‘Random Spot-check’ Method

The fourth method is what Allen Johnson calls the ‘random spot-check’ (1975). In this method the researcher divides the day into time slots, randomly picks an equal number of time slots and subjects for the day, finds the subject at the chosen time, and records what he or she is doing at the moment of observation (Erasmus 1955; Munroe et al. 1983). This method appears to be much less time consuming, although Johnson found that walking 45 minutes to get from house to house took up a large amount of his research time. Bias that may be created by the observer’s presence should be minimized; some researchers

accomplish this by recording whether the subject saw them first or they saw the subject first at the moment of the visit (Mulder and Caro 1985). This allows the researcher to be sure the subject's activity had not changed due to knowledge of the researcher's presence.

Research Problem: Uncovering Livelihoods Strategies Among Yucatec-Mexican Households

Choosing which time allocation study technique to use depends on each researcher's field situation and research question, though any one of these techniques can provide interesting and useful data. For my research, I used a time allocation study to discover socioeconomic differences between households that were involved in ecotourism and those that were not in a small Yucatec-Mexican fishing village. Local government and non-government agencies have been actively promoting ecotourism in the area. Knowledge of who the project affects, and how it affects household economics and livelihoods strategies, is extremely important for project planners. They can use this information to help evaluate the success of a project and plan more effectively for the future.

Time management among household members reflects the manner in which the family prioritizes their activities and is a reflection of their livelihoods strategy (Grown and Sebstad 1989). According to Grown and Sebstad, the livelihoods system approach "refers to the mix of individual and household survival strategies, developed over a given period of time that seeks to mobilize available resources and opportunities" (1989: 941). These strategies, which are manipulated in response to economic and environmental changes, offer a key to understanding domestic economic organization (Beneria 1992; Birdsall 1983; Grown and Sebstad 1989; Massiah 1989; White 1980). By conducting a time allocation study where I could quantify the time spent by each household member on various work, non-work, and enabling activities, I obtained a more complete understanding of the household economies and discovered, qualified, and quantified socioeconomic differences between fishermen and *lanchero* families (those involved in

tourism). It was an effective method to discover which households were involved in a greater variety of subsistence activities and whether differences in the household members' activities complemented or compensated for the presence or absence of tourism in their lives.

Field Setting

I conducted my research for four months in the fall of 1995 in Celestun, a small fishing community on the west coast of the Yucatan Peninsula, Mexico (Figure 1). The town itself has a population of about 5,000 and occupies an area of roughly 2 square kilometers on a spit of land located between the Ria Celestun estuary and the Gulf of Mexico. I conducted my research alone and lived, for a variety of reasons, about 2 kilometers from the center of town. My form of transportation was a bicycle.

I chose to use the 'random spot-check' technique because I was pressed for time and was conducting my research without the help of assistants (Johnson 1975). I also felt this technique would

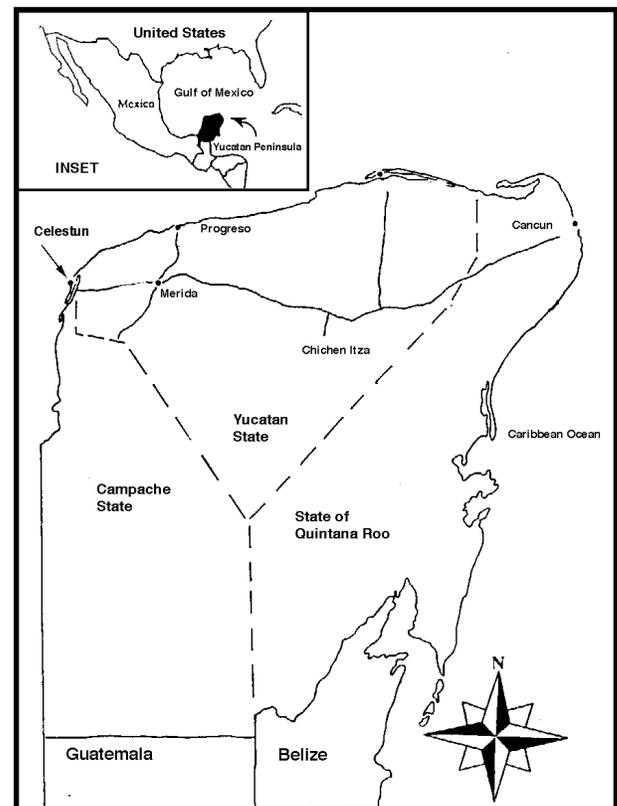


FIGURE 1: LOCATION OF CELESTUN ON THE YUCATAN PENINSULA, MEXICO

be more accurate due to its spontaneous nature.

Using the 'Random Spot-check' Method in the Field

I divided the day into half hour time slots between 6 a.m. and 7 p.m. Each day, for forty days, I randomly picked ten time slots (visiting times) and five *lanchero* households and five fishermen households. For each of the thirty households involved in the study, I had a card with a list of all of the household members' names, gender, and age. I also brought with me ready-made sheets listing all the activities in which they could possibly be taking part (made from previous interviews) so I would only have to write the person's identification number in the slot.

A visit consisted of arriving at the home of the *lanchero* or fisherman and immediately taking into account any family members engaging in activities outside of the house. Next, I would knock on the door and ask whomever answered what each member of the household was doing at that moment. If I could verify that a member was indeed doing that activity, I marked it down. For example, if the woman of the household told me her husband was at the river fishing and I had just come from the river and seen him fishing there, then the activity was considered verified. If I had not just seen him there, it was hearsay. At that moment he may actually have been at a *cantina* or helping a friend fix a motor somewhere else. However, hearsay is often correct and I would record that information, simply with a notation that it had not been verified.

Ideally, the researcher should try to find the absent members of the household to verify their activity if they are in town. In my study, time constraints made verification nearly impossible. In fact, this seemingly time-effective time allocation study method became overwhelmingly time-consuming due to unforeseen problems.

Problems in the Field

During my research period, Celestun was hit directly by two hurricanes in the span of eight days. The town was evacuated numerous times by the

Mexican military, and fishing and tourism activities all but came to a halt. When I finally started the time allocation study, only 42 days remained in my project schedule. Because of these time constraints, I decided to make ten visits a day for forty days straight and complete interviews between visits. The time allocation study took over my field work schedule. Not only was I obviously ill-prepared for losing so much of my study time, there were also time consuming social considerations that had not occurred to me until too late.

I conducted my research over a short period of time—only four months. Therefore, part of the problem was that I never got beyond being a novelty in the community. I explained the details of the time allocation study to each household and they understood the idea of quick spot checks on household activities. However, when it came time for the actual quick visits, they could not bring themselves to just let me come, ask the questions, and go. Knowing the importance of socializing in the community, this had crossed my mind briefly before I began the study, though I had no idea how absolutely overwhelming it would be. Ten times a day I was offered food and asked to view a neighbor's new baby, or a kitten, or new fishing net, watch a soap opera, meet a cousin from the city, help make tortillas . . . A visit that lasted less than 15 minutes was unusual. This, added to the fact that the visits were often spaced only a half hour to an hour apart, meant that I usually did not have time to verify the activities of those members who were not at home. It also meant that any time I had between house visits was not sufficient to make returning to where I lived 2 kilometers away worthwhile. I desperately needed this valuable time to write up notes, but unless I found a place to hide myself from the townspeople socializing in the plaza, it was impossible. For these reasons, the 'random spot-check' time allocation study ended up taking almost every daylight hour for the last 40 days of my project even though it is the least time-consuming time allocation method.

A time allocation study is probably most helpful and enlightening when conducted over a period of a year. This is, ideally, enough time for the community to become accustomed to the researcher, so not every spot check turns into a long social visit. A longer research period also allows for changes in

scheduling due to unforeseen problems, and with fewer time limitations, there would be no need to conduct ten spot checks a day. The researcher has more time to verify activities conducted away from the household thereby increasing the number of useful observations. Having a research assistant would, of course, also alleviate the time constraint.

A short study also runs the risk of recording time allocation patterns that are in response to specific short-term events or seasons and are not reflective of more general time allocation practices of the community. This may make it difficult to extrapolate or generalize for other times of the year, as well as make inter-season comparisons impossible. The period in which I did my time allocation study provides an example of this.

While I conducted the time allocation study in November and December, the townspeople were trying to recover from the destruction caused by the hurricanes. Many people were sick, both from being cooped up in shelters in Merida and from the standing water that still covered Celestun when they returned. Because of this, and due to the fact that there were no octopus to catch (the primary target species at that time of year), people were spending much more time than usual sleeping. Many families were completely flooded out of their own houses and temporarily moved in with relatives. Those who could still live in their homes spent a good portion of their time trying to repair the damage and raise the floor level to prevent further flooding.

For this to be the only picture of time allocation could be a problem, depending on the research question. Obviously, time management during recovery efforts from natural disasters is not necessarily reflective of other times of the year. However, Celestun is located in a vulnerable physical environment where weather conditions such as these are not uncommon, so these periods should not be dismissed as unusual, either.

A time allocation study that is conducted over an entire year could overcome some of these difficulties, as could the 'time-saving spot-check' developed by Moji and Kayama (cited in Suda 1994). For many researchers it is not possible to stay in a research site for a full year. The 'time-saving spot-check' involves accumulating a large number of observations over

a very short time period (for instance, 2000 observations in a week or less) at different times of the year. This allows a researcher not able to remain in the community year-round to make inter-season comparisons (Suda 1994).

Useful Results

The activity observed in each visit was entered into the SAS data analysis program along with the gender, age, household type (*lanchero* or fishing), education level, and migrant/non-migrant status of the subject. The results are understood as percentage of observations allotted to each activity, not absolute time. I generated tables that compared the percentage of visits in which particular groups such as men/women, adult/children, fishing households/*lanchero* households, different education levels, and migrant status were observed taking part in certain activities. After data analysis, I could see what group characteristics seemed to coincide with certain activities, as well as the amount of relative time each group spent on different activities.

The analysis of the time allocation data provided information that I probably could not have obtained in any other way. It became clear that there were major differences in the extent to which the households diversified their subsistence activities, as well as the amount of time allocated to productive and indirectly productive activities. What I perhaps had intuited from other parts of my research was clearly supported through the results of the time allocation study. Every member of the *lanchero* household allocated a larger portion of his or her time to work activities, both productive and reproductive (enabling), and the labor efforts of entire households were much more diversified than those of fishing households².

There were also important household differences that turned up in the analysis of my time allocation study that I had not uncovered through extensive interviews, household surveys, or a wealth ranking. An example of this was the difference in time spent in school between the children of each type of household. The boys of the *lanchero* families spent twice as much time in

² I included the activities of fishing in the sea and river, tourism, construction, gathering wood, working salt, processing seafood, selling food, and women's paid work in the 'paid work' category. I defined enabling activities as all of the activities necessary for the upkeep of the family and household save cash remunerated ones. I included in the 'enabling activities' category direct childcare, housekeeping, and marketing activities.

school as their counterparts in fishing families. One explanation for the large gap in school attendance was that boys of fishing households were more likely to leave school at a young age to fish. Whereas a fisherman who brought his son with him fishing would probably earn more money due to an increase in catch, a *lanchero* who took his son on the boat with him would not earn any more money and, in fact, would probably lose money because the seat his son occupied could be used by a tourist. Hence, leaving school early to work with tourists was less likely. However, when the amount of time allocated to fishing by school age children was compared, the fisherman's boy's time barely surpassed that of the *lanchero's* boy's; it was not enough to account for the difference in time spent in school. The activities in which boys in fishing households spent more time than the boys in *lanchero* households (accounting for the time they did not spend in school) were spread among the categories of *pasear* (visiting, playing soccer, 'hanging out'), marketing, and sleeping. None of these were cash remunerated activities and only one, marketing, was an enabling activity. Therefore, what I had thought was a likely explanation for an important social difference in the households was shown to be inaccurate through analysis of the time allocation study. This led me to investigate other possible reasons for the variance in schooling, such as income differences (the fishermen households not having the money for uniforms and school supplies) or ideological differences (the *lancheros* having a greater appreciation of formal education due to more contact with urban life in the cities of Merida and Cancun).

Conclusion

The time allocation study was by far the most difficult part of my research and, at times while in the midst of it all, I swore to never conduct another one again. When I reached the analysis part of my research and had a chance to step back from the field situation, however, I realized that its reputa-

tion as an insightful tool is indeed grounded and that it was an invaluable part of the project.

This essay demonstrates that even the least time-consuming method of time allocation studies, in reality, requires a lot of time, and that it may be inappropriate under severe time constraints. Scheduling problems can also be exacerbated by 'quick spot-checks' that easily become social visits. Additionally, results of short-term time allocation studies may reflect a situation that does not lend itself to generalizations about time allocation strategies throughout the year.

These practical considerations are important, but I believe the usefulness of time allocation studies far outweighs the time it requires for a researcher to include it in his or her research design. The data generated by this field method is helpful in elucidating human/environment interactions. It clarifies how different economic, social, gender, occupational, and age groups utilize resources and opportunities by observing and comparing the relative time spent in different activities. What the researcher initially sees as the sum of an area's available resources and the opportunities for their use may not be an accurate account of what is available to all sectors of the community. This research method brings to light certain patterns of time allocation, which can then be used to guide further inquiry. Additionally, it may be discovered that such patterns are present due to historical, political, or cultural barriers to certain activities for particular people. This information, in turn, can be an important component of informed and effective development plans for resource consumptive activities.

References Cited

- ALTMANN, J.
1974 Observational study of behavior: Sampling methods. *Behavior* 49: 227-267.
- BENERIA, L.
1992 Accounting for women's work: The progress of two decades. *World Development* 17(7):1547-1560.
- BERK, R. A., AND S. F. BERK.
1979 *Labor and leisure at home: Content and organization of the household day*. Beverly Hills, CA: Sage.
- BERNARD, H. R., P. KILLWORTH, D. KRONENFELD, AND L. SAILER.
1984 The problem of informant accuracy: The validity of retrospective data. *Annual Review of Anthropology* 13:495-517.
- BIRDSALL, N., AND W. P. MCGREEVEY.
1983 "Women, poverty, and development," in *Women and poverty in the third world*. Edited by M. Buvinic, M. A. Lycette, and W. P. McGreevey, pp. 3-15. Baltimore: Johns Hopkins University Press.
- CAIN, M.
1980 "Economic activities of children in a village in Bangladesh," in *Rural household studies in Asia*. Edited by H. Binswanger, R. Evanson, C. Florencio, and B. White. Kent Ridge: Singapore University Press.
- DEVEREUX, S., AND J. HODDINOTT. EDITORS.
1993 *Fieldwork in developing countries*. Boulder, CO: Lynne Rienner Publishers.
- ERASMUS, C. J.
1955 Work patterns in a Maya village. *American Anthropologist* 57(2):322-33.
- GROSS, D.
1984 Time allocation: A tool for the study of cultural behavior. *Annual Review of Anthropology* 13:519-558.
- GROWN, C., AND J. SEBSTAD.
1989 Introduction: Toward a wider perspective on women's employment. *World Development* 17(7):937-952.
- HART, G.
1980 "Patterns of household labor allocation in a Javanese village," in *Rural household studies in Asia*. Edited by H. Binswanger, R. Evanson, C. Florencio, and B. White, pp. 188-216. Kent Ridge: Singapore University Press.
- HARTMANN, R.
1988 Combining field methods in tourism research. *Annals of Tourism Research* 15:88-105.
- JOHNSON, A.
1975 Time allocation in a Machiguenga community. *Ethnology* 14(3):301-310.
- LEE, R. B.
1968 "What hunters do for a living, or how to make out on scarce resources," in *Man the Hunter*. Edited by R. B. Lee and I. Devore, pp. 30-48. Chicago: Aldine.
- MASSIAH, J.
1989 Women's lives and livelihoods: A view from the commonwealth Caribbean. *World Development* 17(7):965-977.
- MINGE-KALMAN, W.
1980 Does labor time decrease with industrialization: A survey of time allocation studies. *Current Anthropology* 21:279-287.
- MULDER, M. B., AND T. M. CARO.
1985 The use of quantitative observational techniques in anthropology. *Current Anthropology* 26(3):323-335.
- MUNROE, R. H., R.L. MUNROE, R. BOLTEN, C. BOLTEN, AND C. MICHELSON
1983 Time allocation in four societies. *Ethnology* 22(4):355-370.
- NAG, M., B. WHITE, AND R. C. PEET

- 1980 "An anthropological approach to the study of the economic value of children in Java and Nepal," in *Rural household studies in Asia*. Edited by H. Binswanger, R. Evanson, C. Florencio, and B. White, pp. 248-285. Kent Ridge: Singapore University Press.
- PEARCE, D. G.
1988 Tourist time-budgets. *Annals of Tourism Research* 15:106-121.
- RICHARDS, A. I.
1939 *Land, labor and diet in northern Rhodesia: An economic study of the Bemba tribe*. London: Oxford University Press.
- SUDA, K.
1994 Methods and problems in time allocation studies. *Anthropological Science: Journal of the Anthropological Society* 102 (1):13-22.
- WHITE, B.
1980 "Rural household studies in anthropological perspective," in *Rural household studies in Asia*. Edited by H. Binswanger, R. Evanson, C. Florencio, and B. White, pp. 3-23. Kent Ridge: Singapore University Press.