



**HOUSEHOLDS AND TECHNOLOGIES:
A SOCIO-HISTORICAL ANALYSIS OF TWO CULTURES**

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ABSTRACT

The paper provides a socio-historical analysis of household consumption of technologies in two cultures--the U.S. and India. The forces that facilitate or inhibit the adoption of and use of technologies are based on the cultural systems unique to the societies. The paper provides a comparative analysis of macro and micro issues in conceptual terms with some examples. Various implications will be drawn for future research.

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Introduction

The role of technology as an instrument of social change has been widely studied by social scientists, philosophers, and scientists. Much research in this area has been carried out as a means to understanding both the macro and micro implications of technological developments (Mumford 1967, Mesthene 1970, Moore 1972). A major outcome of the technological age, which may be said to have begun with the introduction of the telephone, has been the changing nature of the household. Through developments in technology affecting communications, transportation, home management and entertainment, we have seen the emergence of the modern household (Ogburn and Nimkoff 1955, Ginzberg 1965). Through all this history and development, a great deal of attention has been paid to the possible impact of the technology on the family life and family dynamics. In this paper, we contrast the American and the Indian experiences in relation to household technologies. Because the paper is an exploratory attempt to learn about the developments in two cultures, more questions will be raised than answered. In a world that is growing more and more interdependent, we believe that research of this type can only benefit those who are committed to the discovery of common themes between different cultures.

We will examine several issues relevant to the role of technology in the life of the household. We will begin by examining some macro questions relating to the introduction of Western technology into non-Western cultures. This will be followed by an exploration of some comparative research issues on the U.S. and India. We will then attempt to analyze the questions of modernism and westernization as they apply to India. This will be followed by a conceptual presentation of household dynamics and the role of technology.

In the final section we will provide a framework that would establish directions for further research in this area.

U.S. and India: A Comparison

This paper is an attempt to compare two cultures which are so fundamentally different that it is difficult to establish common bases of comparison. The U.S. is entirely a product of modern industrial capitalism, and its relevant history is a little over two hundred years old. In the U.S., the household structure, whose origins are European, has quickly given way to its own unique characteristics by virtue of the social, economic and political circumstances peculiar to the migrant communities. Unlike Europe, there have never been any feudal or tribal systems, and the religious observances which have traditionally been the core of family norms have themselves undergone changes through institutional fragmentation. An additional development of the American social setting is the onset of urbanization. Hoselitz (1962) has noted that even during the early 19th Century, urban centers were being formed in the U.S. with urban expansion being made possible through the availability of unlimited space.

India, on the other hand, has been entirely non-urban up until the early 20th Century, except for the sea ports where the British had settled. In India, for example, the urban population was less than 10% in 1901 and had risen to only 17% in 1951, whereas in the U.S., it was 10.8% in 1860, 35% in 1901, and 70% in 1950. In the last twenty years, however, there have been some changes in India. Urban industry, which was almost non-existent thirty years ago, has developed rather quickly, and so has the urban labor force, with a significant proportion of the people in non-manual and skilled services. However, the urban labor market is fractionalized along historically established caste lines, and is composed of mutually non-competing groups, thus impeding

optimum allocation of resources and preventing upward social mobility. These, to some extent, are the cause for a lower level of earnings and productivity in Indian urban occupations. Also, the migration of rural population to urban centers does not have the same motivating force as in the U.S. In the U.S., it was essentially the modernization of agriculture which has led to a geographical and functional redistribution of the labor force. But in India, it is the sheer pressure of population and the low man-land ratio. Because of the unique type of migrating patterns in India, the urban cultural values did not completely take over as in the U.S. Consequently, in the urban centers we have two distinct cultures -- the small, westernized, secularized urban population and the large, traditional population. Because of the rigid caste systems, the urban population contains several mutually exclusive groups. The result is that Indian cities show sizable quarters which have preserved their rural character.

Given such differences between the two systems, ought we to undertake a comparative study? We can only recall the argument of Rezsóhazy (1972) who faced a similar problem in conducting time-budget studies in Peru as part of the very famous twelve-nation study edited by Szalai (1972). Rezsóhazy is convinced that, given the close, dependent relationships in the modern world, it is only a question of time before traditional societies move into the mode of transitional societies and then on to the next mode, industrial societies. The pace of this movement is quicker now than ever before. He also states that modern industrial societies also bear a lot of traditional characteristics and consequently there is no reason for not taking a global approach to comparative social research.

A second set of reasons for comparative studies is contained in an edited book by Vallier (1973). In an exhaustive range of comparative studies

beginning with Marx, Weber and de Tocqueville on the one hand and Becker, Park, Sorokin and Levi-Strauss more recently, sociologists, historians and anthropologists have periodically compared communities, classes, types of family, subcultures, historical periods, generations, and social types, and provided unusual insights into the origin of ideas and structures of behavior. Our paper simply follows this tradition.

Some Macro Issues Relating to Technology

The introduction of modern technology into the third world, or the so called 'developing countries' has been the subject of heated debate among a variety of scholars, planners and politicians over the last three decades. A majority of the third world leaders have welcomed the opportunity that technology creates in bringing about social change, in creating efficiencies in public and private lives, in raising the standard of living, in reducing poverty and in generally improving the quality of life. There is also the justification based on the expectation that technological development is the basis of enhanced economic power and industrial supremacy in the international arena. In recent years, this has been amply demonstrated by countries like Japan, Korea, Hong Kong, Singapore, etc.

Not everybody, of course, has taken such a rosy view of technology. Even in the West there have been critics of unbridled technological growth (Ellul 1964). As for technology and the third world, Bourdieu (1979) has dramatically captured the impact of modern capitalism, with all its technorationalistic structure, on a peasant society, Algeria. Alvares (1980) has forcefully argued and elaborately documented that different cultures (e.g. China, India) have historically created their own techniques for organizing social life and dealing with problems encountered by them in light of the

goals accepted by them, and determined these by reference to their "distinctive paradigms and meaning systems." According to Alvares, the indiscriminate introduction of Western technology at all levels of traditional societies, sometimes done with the best of intentions, has created internal divisions between haves and have-nots, only superficially touched the genuine needs of the people and needlessly interfered with the existing ecology of production, consumption and social behavior.

The purpose of this paper is not to engage in an ideological debate, but any discussion of technology is not complete without highlighting the issues that surround its alleged power to impact both positively and negatively. To illustrate this point we present in Table 1 a sample of technologies with primary and secondary impacts. At the time of introduction of a particular technology (or immediately after its introduction) no one can gauge its secondary impacts. Such impacts have a lot to do with how the society is organized and how well the technology is embedded in that particular social order. Thus different technologies may have different impacts. As shown in Table 1, the impacts of birth control devices on Indian families and American families are somewhat different. While in the two cultures the primary impact is no different. But, the secondary impacts are. For example, in the U.S. it has led to increased participation of women in the labor force by releasing them from family responsibilities. In India, this causal link is not so direct. Because of the nature of the social structure and the high degree of stratification of the Indian society, the secondary impact was somewhat different. Table 1 provides similar scenarios for consumer electronics and telephone. The greatest differential impact has occurred in the use of automobiles. In India, at the consumer level, the secondary impact is rather negligible. But in the U.S. it has meant individual freedom and the movement of families to

Table 1. A Sample of Technologies with Primary and Secondary Impacts

Technology	Primary Impact	Secondary Impact: India	Secondary Impact: U.S.
Family Planning (Birth Control Devices)	Reduction of Family Size	Reduce Poverty, Hunger	Liberation of Women from Family Chores, Entry into Workforce
Consumer Electronics	Access to Electronic Information, Entertainment	Development of Materialistic Culture	Changing Tastes in Music, Development of Mass Culture Society
Telephone	Improved Communications	No Impact on Middle to Lower Strata, Divide Society into Haves and Have-Nots	Establish Family Ties through Distant Communications, Changes in Consumer Shopping Paterns, Social Interactions
Automobiles	Improved Transportation	Modest Impact in Urban Areas	Individual Freedom, Family Migration to Suburbia
Production Technologies	Increased Industrial Output	Structural Changes in Employment from Agricultural to Industrial Sectors	Structural Changes as in India

suburbia and migration across states. If we examine production technologies, the impacts, both primary and secondary, are the same in both cultures.

In summary, it is important to analyze the technological impact in terms of both primary and secondary impacts. In some cases the secondary impacts can be anticipated (e.g., pollution, congestion, etc.), but in many instances this is not possible.

Some General Notions of Modernization

Several authors have written on modernization, both as a process and an end state (Inkeles 1969, Goode 1963, Bendix 1967, Gusfield 1967, Schnaiberg 1970). Schnaiberg has studied the change process that occurs through modernization, especially in the context of the family. Based on some previous studies, he notes that there is a hypothesized shift from an extended family system to a nuclear family system, consonant with individual mobility (social and geographic). He also hypothesized a causal relationship between modernization and nuclear family of a particular type, namely, an egalitarian one based on a companionate type of marriage. He further postulated changes in the structure of production and consumption functions at home, declining importance of primary groups, greater dependence on impersonal resources (e.g. media) for information, and decline in religious involvement. Schnaiberg conducted a study of 803 Ankara households and evaluated them on six dimensions: mass media use, extended family ties, religiosity, nuclear family role structure, environmental orientation and production/consumption orientation. Since the study was conducted in a "developing" country, the findings are relevant to us. He found that all these dimensions were correlated with the measure, "modernism." At the theoretical level, it means that even in non-Western societies, the

technologies will bring about changes that grossly parallel the developments in Western-industrialized societies. one should not forget that there have been some exceptions to this rule. For example, recent developments in Iran and other Islamic cultures where religious fundamentalism has risen as a major force against westernization, indicate a conscious and deliberate movement toward traditional forms of life.

Modernization and Social Change: India

Social change may be defined as "the process by which alteration occurs in the structure and function of a social system" (Rogers 1969). According to Moore (1967), social change has a behavior focus while cultural change has a more symbolic or meaningful focus. At a macro level, social change refers to fundamental changes in institutions, values and belief systems. In the context of India, several social change concepts have been put forward. Srinivas (1966) has discussed social change in terms of westernization, industrialization, urbanization and secularization. Westernization results in the introduction of new institutions (e.g., newspaper, elections) and modifications to old institutions. It introduces such things as western technology, clothing and eating practices, scientific and rationalistic viewpoints. Modernization is related to westernization. It implies increasing urbanization, social mobility, new media experiences. Countries may prefer modernization and not westernization, since the latter may have a connotation of giving up what is considered good in the indigenous culture. The general notion is that westernization is "ethnocentric." As Lerner (1958) observed, "wanted are modern institutions but not modern ideologies, modern power, but not modern purposes, modern wealth but not modern wisdom, modern commodities but not modern cant." How does secularization fit into this? According to

Srinivas, secularization is usually a by-product of modernization. It implies that what was previously regarded as religious now ceases to be such, and the traditional beliefs are replaced by beliefs based on the so-called scientific knowledge. Srinivas was one of the first social scientists to examine Indian society in terms of four major forces: sanskritization (of the elites), westernization, modernization and secularization.

Ganguli (1977) also takes a macro approach to modernization. He argues that modernization is a tangible, historical process that attempts to override tradition, which usually represents the most conservative, static elements in a society. As a consequence there is an inherent conflict between the old and the new because of the pull toward modernization. The term modernization usually tends to be associated with industrialization, urbanization, and increased literacy. The dilemma for most Indians has been how to modernize their lives without losing their traditional values.- One could argue that modernization consists of gradually modifying existing traditions and creating room for new and better traditions. Modernizing, in this sense, does not have to be a break with the past but a continuation of a historical process. Tradition gives a solid value scheme, and modernization builds on this image.

Rajagopalan (1978) has examined the relationship between urbanization, technological development and industrialization. Although they are related, they are not concomittant. His main thesis is that urbanization may lead to social change without necessarily involving industrialization and technological development. Urbanization merely refers to the changing character of the cities through the addition of heterogeneous groups of people and migration of people from different geographic areas and subcultures. Social change then occurs through the introduction of different values and behavior

patterns. Let us now examine some empirical studies based on India.

one of the first empirical studies to examine the impact of industrialization and technological environment in urban India is by Ross (1961). She conducted a comprehensive study of the Indian urban families and, in particular, the changes that were taking place among the middle-- and upperclass Hindu families. Among her many findings, those that are relevant to us are that young, modern women, more than men, want to have separate homes and nuclear families and desire a change in the division of labor in the family, responsibility toward parents, siblings and in the laws relating to women's roles, duties and obligations.

Miller and Inkeles (1974) analyzed the relationship of societal modernization and birth rates in terms of modernizing experiences and overall psychological modernity. They conducted their study in Bangladesh (former East Pakistan), India, Israel and Nigeria. Their main conclusion was that "experiences with modern institutions are not associated with acceptance of birth control unless they are associated with generally modern attitudes, particularly belief in the value of science, technology and medicine."

Vajpeyi's research (1982) explored the attitudes, perceptions, opinions. and beliefs of the Indian elites toward technology and modernization. His findings clearly show that Indian elites support the idea of social change through technological development as long as the traditional value system is not negatively impacted.

To summarize, modernization implies social change through an historical process and refers to modification of old circumstances with new activities. In many non-Western societies, modernization has become a value-laden term, because its main challenge lies in the discovery of a relevant ideology. The urge of modernity is comingled with the urge for identity. In India

the dominant cultural values are hierarchy, holism, continuity and transcendentalism. There is a fundamental religio-cultural outlook where religion and personal life are neither separate nor antagonistic. In the U.S., the dominant values are based on a materialistic culture, egalitarianism, individualism, techno-rationalistic outlook. obviously, such differences account for differential attitudes toward technology, progress and advancement.

The Concept of Household

Generally speaking, the terms "household" and "family" have been used interchangeably. It has been suggested, however, that household is a domestic group and an ecological unit, whereas family refers to a kinship organization (Yanagisako 1979). Although this distinction is less crucial for this study, we will use the term "household," signifying that it is both a social organization and a kinship system. In this paper we are comparing American and Indian households. To talk of the Indian household as if it were homogeneous among different strata of the society or among different geographic regions or linguistic groups would be inaccurate. As Gupta (1971, Chapter 1) observed, "India is the only country where we find most all kinds of family systems and considering the vast, highly differentiated social system with substantial variations, minute generalizations are very difficult." However, as Ross (1962) has noted, for the better part, the joint family unit in India is very commonly observed and ubiquitous. Although the family members may be physically separated, their mutual rights and obligations, the distribution of property rights, the patriarchal authority and structure, virtually assure the joint family system.

In recent years, however, some changes have occurred. The family in India is undergoing a change process, one of which is nucleation. This

process is being accompanied by the following trends: "the primary members of the family first seek economic independence, possibly a separate residence, and substantial freedom from the patriarchal authority of the family, aggrandizing of personal goals, including gradual abandonment of traditional roles by women, due to greater emphasis on education and employment."

The joint family system is, however, the product of an agricultural rather than an industrial culture. Although India has been industrialized since the beginning of the century, the family organization was not affected in any great measure. In more recent times, the household structure has been changing rapidly and the reasons are as follows.

Several social and legal reforms are striking at the caste system, and since family influence and caste influences are related, the breaking away of caste hierarchy is leading to modification in household functions. Increasing levels of education have also led to physical and social mobility, thus removing key family members from the household for long periods of time.

Ross (1961), in her study of urban women, found that they preferred separate homes and nuclear families and a change in the division of labor and responsibilities to siblings. Kapur (1971), in a review of several studies of urban women, has observed that the previous 10 to 15 years have witnessed some fundamental changes in the attitudes of women toward marriage, family and social relationships.

The household in the U.S. is essentially nuclear in nature. In recent years, several structural changes have occurred in the American household. The rate of change from 1970 to 1981 is quite staggering (Murphy 1983). Married-couple families decreased from 70.5% in 1979 to 59.8% in 1981. Male-headed families increased from 1.9% to 2.3% and female-headed families from 8.7% to 11% while non-families headed by males increased from 6.4% to

11.3% and female-headed non-families went up from 12.4% to 15.5%. In addition to this the fertility rate has also dropped. In addition to such changes, there is a tremendous increase in the percentage of women in the full-time labor force. All these have contributed to real and symbolic shifts in production and consumption patterns at home. The situation is made more complex by changing value systems in terms of abortion, liberalization of roles and attitudes toward work at home and in the office.

One can see the contrasting picture between India and the U.S. in regard to the household structure.

Households, Technology and Materialism

The field of households and technology has been given minor attention in the mainstream American sociological literature. That materialism and capitalism have led to major technologically based social changes has been well-documented by Mukherji (1983). Belk (1985) defines materialism as "the tendency to view worldly possessions as important sources of satisfaction in life." One of the functions of technology in the materialistic culture is to facilitate the acquisition of material goods. The reason materialism has acquired a negative connotation is because of the terminal dimension of materialism which refers to acquisition of goods as an end in itself (Belk 1985). Although the term materialism carries with it a negative connotation, technology does not reflect this image to the same extent because of its instrumental connotation. After all, mankind is expected to benefit from technology. Household technologies have not been subject to much research although they have contributed greatly to the production and consumption processes at home. Whatever research existed in the past has appeared in the home economics literature where the focus was on the performance of household

tasks and tangentially on time management (Heiner and Vedder 1930, Schroder 1970, Fewster 1973). Only recently have we seen greater attention to this topic area because of the increasing structural changes in the American household (Vanek 1978, Berch 1980, Cowan 1976 and Strober 1977). In an earlier paper one of the authors (Venkatesh 1985) put forward the view that any research on household-technology interaction should distinguish between three processes: adoption, use and impact of technologies. We also postulated the view that households are social/ecological/activity systems and household technologies should be studied in terms of how they are embedded in this particular social context where a number of activities are performed. Each activity in the household (e.g., cooking, cleaning, etc.) represents an opportunity for the introduction of relevant technology. The adoption of technologies is a function of three factors: the household characteristics, the characteristics of the technology and the anticipated disruption that the technology creates in the social ecology of the household. Since our earlier paper discussed the typical American household, we shall now evaluate the household/technology interaction in terms of an Indian household. This will be done through an illustration adapted from Srinivas (1966), who provided us with an interesting insight into the impact of technology on a traditional Hindu household.

For the purpose of the illustration, we have selected two activities: cooking and eating. We now analyze how the interaction between these two activities on the one hand and the use of technology on the other have shaped the household behavior and attitudes.

In the traditional Hindu household in India, cooking is a female centered activity and the kitchen is a private preserve of women. Cooking itself is very ritualistic in terms of the foods prepared and the utensils used. In a

typical Indian family, after cooking is done, men would eat first, followed by children and women, in that order. Clearly, this shows a temporal and social hierarchy in the eating patterns. Members of the traditional household usually sit on the floor and eat off disposable plates made out of leaves or plates made out of indigenous metal (brass, bronze or silver). There are ritual acts before and after eating food. The entire set of activities relating to cooking and eating have ritualistic, if not religious, overtones. For example, the floor on which people sat to eat is ritualistically purified by sprinkling water before the serving of food and cleaning it with water after the activity.

Let us now examine what effect technology has on these two activities. The use of a dining table and chairs, stainless utensils and china symbolize a trend toward a westernization-modernization-secularization sequence in the following way. Firstly, the dining table and chairs which are symbols of westernization and modernization are in direct conflict with the traditionalism of the household. Secondly, the tables and chairs cannot be purified as before in observance of a traditional ritual process. One obvious problem is that water would damage the furniture. The effect of all this, of course, is that dining activity is now robbed of its ritualistic component, and a continuous non-observance of rituals leads to secularization. Cumulatively speaking, the more the technology is introduced into the home, the greater the possibility of secularization. This is not to suggest, however, that technology destroys ritual acts entirely and always. One must realize that the net effect of technology on traditional practices is a complex by-product of a variety of forces. What we are suggesting is that there is enough evidence to indicate that modern methods of performing household activities have the potential to create an environment that can eventually lead to greater degree of secularization. As a corollary, Srinivas (1966) has also demonstrated that materialistic goods in the Indian household have also become symbols of status and prestige. In

this sense, technology not only contributes to instrumental needs and secularization, but introduces class distinctions based on symbols of wealth.

In Table 2, we have demonstrated the contrast between traditional households prior to the introduction of technology and after the introduction of technology. As shown in the table, both the type and context of symbolism change after the introduction of technology. We hypothesize that if the households already enjoy a high status position, technology will be adopted to reinforce this superior position.

In Table 3, we compare the U.S. and India in terms of factors which facilitate and inhibit the adoption of technologies.

A Research Agenda for the Study of Household/Technology Interaction

In our discussion so far we dwelt considerably on the traditional aspects of the Indian household and the socio-cultural dynamics that influence the adoption of household technologies. In this section we propose a research agenda based on research done in the U.S. which can be translated into the Indian setting.

The following research questions that are synthesized from the American experience.

- It is claimed that household technologies lead to increased ease of performing tasks at home. But does increased ease lead to overall increase in the satisfaction of performing the tasks (Fortune 1972)?

- Is satisfaction related to the number of technological devices owned (e.g., appliances)?

What about the lack of social interaction and

Table 2. Type and Context of Symbolism
in the Adoption of Technologies

Household Activity	Type of Symbolism	Context of Symbolism	Structural Factors
(Pre-Technology Stage) Cooking	Ritualistic	Purification	Division of Labor at home, Maintenance of Caste Position
Eating	Ritualistic	Purification	Kinship Hierarchy
(Post-Technology Stage) Cooking	Modernism	Status	Caste Hierarchy
Eating	Modernism	Status	Caste Hierarchy

Table 3. Factors that Influence Technology Adoption -

Facilitating Factors	Inhibiting Factors
U.S. Technological Consciousness, Terminal and Instrumental Materialism	Complexity, Maintenance, Style Changes
India Status Attainment, Modernization, Urbanization	Availability of Manual Labor, Fear of Break with Past, Role Conflicts, Westernization, Material/Alien Culture, Traditional Values

monotony (Oakley 1974). Are alienation anomie relevant issues in India?

- Do household technologies leave women economically marginal (Mostow 1974)?
- The monotony of the home setting, the repetition of menial tasks, and the isolation and lack of stimulation from other adults have been identified as sources of chronic fatigue among full-time housewives (Friedan 1965, Fogleman 1975). Is this an appropriate issue in India?
- Does technology reduce housework?, or redistribute household labor? Does it reduce physical effort (Berk 1980)?
- How much is it true that the greatest influences on time spent on housework have come from non-technological changes such as changes in the size of the household and the paid employment of women?

Finally, we recommend the following topics for further investigation in a comparative

study:

- Information on technologies available to the home in different cultures
- The nature and degree of household specialization of labor
- The cost of acquiring and maintaining household technologies
- Ease of operations
- Time management and technology use: its significance in U.S./Indian cultures

- Choice processes involving acquisition of technologies
- Variations among ethnic groups, social groups
- Changing use of technologies over time
- Impact of changes in technology use on household work structure

CONCLUSIONS

The paper is an exploratory attempt to study the interaction between household and technology in two different cultures. As India moves from its present state of development to the next level and undergoes economic and social change, we are likely to witness some fundamental forces of transition. We have selected households as the arena where such changes are worthy of study because the household is the most enduring institution even in a rapidly changing world.

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