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# Mobile Computing in the Organization: The Influence of Temporal Orientation Styles

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## ABSTRACT

From the perspective of cultural difference, we are able to produce new, deep, continuing, and rapid insights into people's lives and needs. As firms internationalize, there is a growing need to understand how cultural factors might affect adoption and utilization of IT in organizations with diverse workforces. Previous studies have examined how beliefs and behaviors related to time can influence how both individual employees and work groups perceive their work, their organization, and each other, and how those perceptions play a role in the productivity of the organization. This study examines the temporal orientation of knowledge workers as an antecedent to their attitudes toward adoption of mobile computing technologies.

## Keywords

Temporal orientation, Culture, Mobile Computing, TAM

## INTRODUCTION

Mobile computing allows employees to have access to data, access to the Internet, and access to computing power on a far more frequent basis than ever both within and outside the organizational premises. From the corporate standpoint, the implementation of mobile computing infrastructure does not automatically improve an employee's productivity, since the effect of mobile computing has to be realized through individual adoption and appropriate use of this technology by employees.

Time is viewed as a vital strategic element by executives, and the effects of national background or ethnicity in relation to time have been examined by social psychologists. Recognizing and dealing with advanced technology adoption in the workplace and dealing with the usage problems triggered by these differences will be crucial to managers seeking productivity in an increasingly diverse workplace. Drawing from Innovation and Diffusion Theory (IDT), the Theory of Planned Behavior (TPB), the Theory of Reasoned Action (TRA) and portions of the Technology Acceptance Model (TAM), this paper aims to investigate the role of temporal orientation of employees in adoption and usage of mobile computing technology. Global information technology researchers will benefit from incorporating the diversity of time dimensions into their strategic thinking, and managers need to be accustomed to considering both technology variables (e.g., relative advantage) and employee variables (e.g., temporal orientation) in evaluating the usage of mobile computing technology in the firm.

## THEORETICAL BACKGROUND

### The Temporal Dimension of Culture

Stalk and Hout (1990) perceive time as the main competitive asset for many companies today. Anthropologist Edward Hall has said that time is an example of primary level culture, "...in which the rules are known to all, obeyed by all, but seldom if ever stated." Because beliefs and attitudes related to time can often be "hidden," they are not always easily recognized and managed. The provision of productivity-enhancing technology to enhance the time value of work, and motivational efforts designed to urge employees to work faster and make more of their work time may not be sufficient to improve employees' performance if cultural forces guide individuals to resist change.

The effects of national background or ethnicity in relation to time have been examined by social psychologists (Hall, 1984; Levine, 1998). While Levine’s studies focused on space and punctuality, Edward Hall made a distinction between two styles of temporal orientations. According to Hall, people who exhibit monochronic styles are those who focus on one thing at a time, separating their activities in both time and space. Monochronic individuals place importance on schedules, tasks, and procedures. Polychronic individuals place importance on people and relationships and on the completion of transactions over rigid adherence to predetermined schedules. People who exhibit polychronic styles focus on several things at a time; monochronic individuals do one thing at a time. There are workplace technology adoption and usage problems related to these differential time perceptions, and understanding the nature of the time perception problems will be crucial to managers seeking to increase productivity in an increasingly diverse workplace.

The basic consideration is that the polychronic temporal orientation leads workers to try to achieve more work in parallel with the passage of time, and this work style is highly likely to be enhanced by the use of mobile computing. Mobile computing permits busy workers to check on resources and project details when physically removed from the location of the activity, and specifically when away from one activity while working on another. Mobile computing represents a technological support to the polychronic lifestyle, essentially, and we would expect polychronic workers equipped with mobile computing resources to be highly productive in organizing the requirements of several competing tasks on the job.

By contrast, the monochronic worker not only does not typically work in a manner that lends itself to timesharing of simultaneous work activities, but is quite likely not to respond well to technology that makes such capabilities possible. We offer this consideration based on the expectation that workers equipped by their managers with mobile computing technology will eventually be expected to demonstrate productivity advances through the use of the technology, and that these productivity advances are likely to require some sort of time sharing of temporal activities. This technologically-mediated ability to multi-task is likely not to appeal to individuals who have a strong preference for linear and structured work processes.

Aside from the temporal orientation of knowledge workers, several other forces can be expected to operate in concert with individual differences in order to variously influence technology adoption and acceptance in the firm. Other predictors of mobile computing will include well understood precepts of diffusion theory and social norms in the firm; these forces can be expected to converge together in determining user attitudes toward mobile computing in the workplace.

**Innovation Diffusion Theory**

An innovation is “an idea, practice, or object that is perceived as new by an individual or another unit of adoption” (Rogers, 1995). Mobile computing is new way of having tasks done compared to the traditional way, and is, hence, an innovation of work processes. Diffusion was defined as “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 1995). Innovation diffusion theory (Rogers, 1983; 1995) has contributed a set of innovation attributes that help explain the rate of adoption among innovators: relative advantage, compatibility, complexity, observability, and trialability (See Table 1). The five attributes are reported to explain between 49% and 87% of the variance in adoption rates in various (Rogers, 1995).

<b>Attributes</b>	<b>Definition</b>
Relative advantage	The degree to which the innovation is superior than the practice it supersedes
Compatibility	The degree to which the innovation is consistent with the existing facilities and practice
Complexity	The degree to which the innovation is easy to learn and use
Trialability	The degree to which one can experiment with the innovation before making the adoption/rejection decision
Observability	The degree to which the results of the adoption of the innovation is observable to others

**Table 1. Attributes of Innovations (Rogers, 1983)**

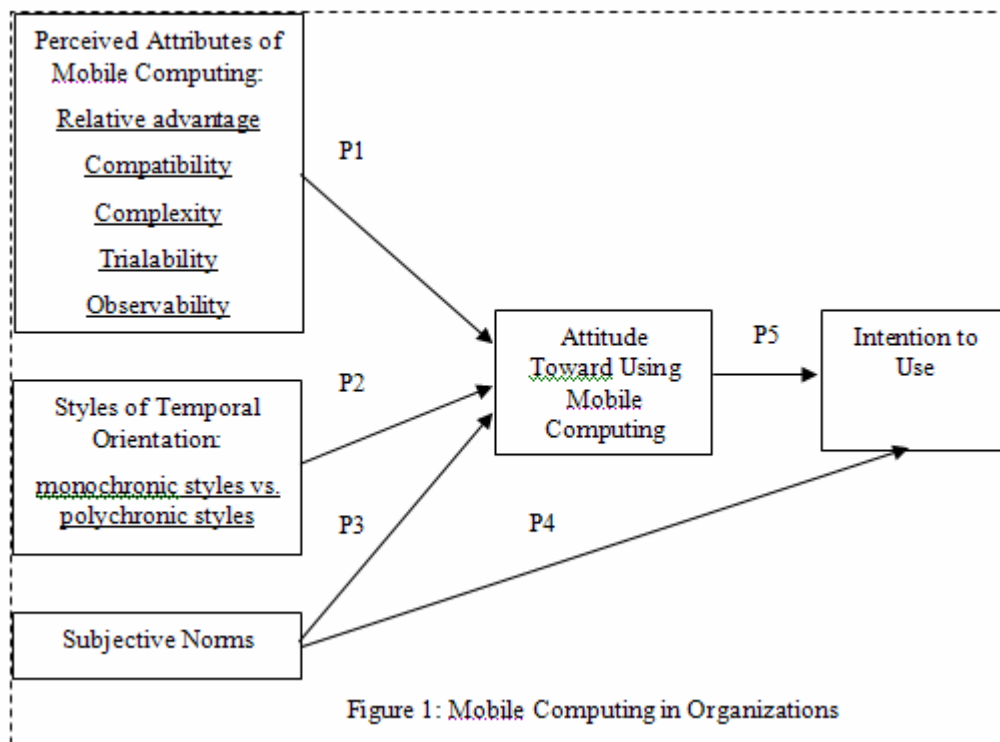
Certainly, the degree to which mobile computing is seen by potential users as providing some workplace advantage, and the degree to which it is seen as fitting with other workplace practices and tools, will influence likely adoption and use of the innovation. Moreover, the degree to which mobile computing innovations are perceived as complex and difficult to master

will likely impede effective diffusion and use. These characteristics of adoption are related to individual level variables and perceptions, but there are also group forces at play in the workforce which can influence adoption and use of computing technology. These include normative expectations for behavior, as well as normative benefits accruing from adoption, such as the status and prestige that comes from observable use of new and important technologies by individuals in workgroups, or the approval that comes from having one’s superior notice the productive use of a technology selected to aid workers.

**Theory of Planned Behavior, Theory of Reasoned Action and Technology Acceptance**

Ajzen and Fishbein (1975) formulated the TRA when attempting to estimate the discrepancy between attitudes and subsequent behavior. The theory hypothesizes that a person’s behavioral intention (BI) to perform (or not perform) a behavior is the immediate determinant of that person’s actual behavior. BI is the function of both personal and social influence. The social influence is reflected in the normative forces related to the perceptions and expectations of influential others in a perceiver’s social environment. People tend to do things that are highly regarded by those whose opinions they care about, in other words. Subjective Norms (SN) refer to “a person’s perception of social pressure put on him to perform or not perform the behavior in question” (Ajzen and Fishbein, 1980). Originally the theory of reasoned action did not consider social factors external to the decision maker, and theorists later included the consideration of perceived behavioral control to characterize the degree to which a decision maker felt empowered to act unilaterally, or, by contrast felt enjoined to consider the reactions of others in his decision-making deliberations. Deliberate and planned behavior, under the theory of planned behavior, was always considered to be a function of a perceiver’s deliberate intentions. Deliberate intent was considered to be partly a function of attitude, but also of normative pressures and perceptions of personal control, as balanced by the perceiver in reaching some deliberate intention to act. The best predictor of behavior is intention to engage in a behavior, since intention is the cognitive representation of a person’s readiness to perform a given behavior, but the TPB also considers that intentions can either be blunted or enhanced by perceptions of efficacy and social desirability for given behaviors.

**MODEL AND PROPOSITIONS**



Derived from TRA, Davis’ (1989) TAM describes the relationship between perceptions of technology usefulness and ease of technology use, as they influence the behavioral intention to make use of a technological innovation. As a well-established, robust and reliable set of measures, TAM variables are often excellent indicators of important technology-related decisions. In this case, we utilize the robust behavioral intention outcome variable (BI) of the TAM as our dependent variable in the proposed model.

In classic multi-attribute choice model style (e.g., Ajzen and Fishbein, 1975), where several different bases for choice are expected to converge differentially on the formation of attitudes, we suggest that temporal outlook combines in individual

decision making along with innovation characteristics and normative pressures to generate subsequent attitudes about the efficacy of mobile computing. Hence, this study predicts that three sets of variables will combine in explaining user attitudes toward mobile computing and, as theoretically consistent with TRA/TAM, subsequently intention to use. These three sets of variables are perceived attributes of mobile computing technology, style of temporal orientation and subjective norms. According to the model represented by the figure 1 above, the following five propositions will be derived:

Proposition 1: Perceived attributes of mobile computing (relative advantage, compatibility, complexity, trialability and observability) will be positively related to attitude toward using the mobile computing technology.

Proposition 2: Styles of temporal orientation of knowledge workers will significantly influence attitude toward using the mobile computing technology.

Proposition 2a: Knowledge workers with monochronic style of temporal orientation tend to have negative attitude toward using mobile computing technology.

Proposition 2b: Knowledge workers with polychronic style of temporal orientation tend to have positive attitude toward using mobile computing technology.

Proposition 3: Subjective norm will significantly influence attitude toward using mobile computing technology.

Proposition 4: Subjective norm will significantly influence intention to use mobile computing technology.

Proposition 5: Attitude toward using mobile computing technology will significantly influence intention to use.

## METHODOLOGY

A convenience sample of 100 respondents from a research hospital in the Midwest US Census Region has been arranged for testing the influences on mobile computing examined here. The subjects are all professionals who are engaged in biomedical research, and operate in a technologically-enhanced workplace. As the next step in this research - in - progress project on temporal orientation, a survey questionnaire is being developed consisting of measurement items drawn from prominent previous research studies in the IDT, TRA, TPB and from studies in the temporal orientation literature. Structural equation modeling will be used to fit the data from the survey to the proposed model for subsequent hypothesis testing, and preliminary results will presently be ready for reporting.

## DISCUSSION

Global information technology researchers will benefit from incorporating the diversity of time dimensions into their evolving considerations of the factors that influence technology diffusion and acceptance in the firm. The relevance and adequacy of a multifaceted view of time will be enhanced as IT research and business practice continue to spill across national boundaries, where broad differences in temporal orientation may well exist due to cultural effects. Researchers can begin to investigate temporal assumptions about different work group demographic profiles and culture of origin effects across nationalities, in order to understand the role that differing views of the use of time in the workplace play in influencing the views of technology acceptance for the support of work processes.

This study also takes the position that consideration of temporal perceptions can be useful to managers. Managers can match time views of different global office locations and subsequent work group characteristics with company strategies for technology diffusion and work support. Managers can also consider both technology variables (e.g., IDT factors such as trialability, etc.) and employee variables (e.g., temporal orientation) in evaluating the usage of mobile computing technology in the organization. Because mobile computing has such great potential for enhancing temporally-oriented work styles in individuals, this promises to be a fruitful area for future research concerned with the facts that enhance technology diffusion and acceptance in the firm.

## REFERENCES

1. Azjen, I. and Fishbein, M. (1975). Beliefs, attitude, intention and behavior: An introduction to theory and research, Addison-Wesley, MA.
2. Azjen, I. and Fishbein, M. (1980). Understanding attitudes and predicting behavior, Prentice Hall, Engelwood Cliffs, NJ.
3. Davis, F. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology, *MIS Quarterly*, 13, 3, 319-339
4. Hall, E. T. (1984). The dance of life: The other dimension of time, Random House, Inc. New York.
5. Levine, R. (1998). Relearning to tell time, *American Demographics*, 20, 1, 20-23
6. Rogers, E. M. (1983). Diffusion of innovation, The Free Press, New York.
7. Rogers, E. M. (1995). Diffusion of innovation, The Free Press, New York.
8. Stalk, G. J. and Hout, T. M. (1990). Competing against time, *Research Technology Management*, 33, 2, 19-24