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Anol Bhattacharjee  
*University of South Florida*

Clive Sanford  
*Aalborg University*

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# When Attitudes Don't Predict Behavior: A Study of Attitude Strength

**Anol Bhattacharjee**  
University of South Florida  
abhattach@coba.usf.edu

**Clive Sanford**  
Aalborg University  
sanford.cc@gmail.com

## ABSTRACT

This study introduces the concept of “attitude strength” to explain why some IT users’ attitudes are not strongly related to their usage behaviors. We review the attitude strength literature, employ the elaboration likelihood model to theorize personal relevance and related expertise as two salient dimensions of attitude strength in the IT usage context, and postulate a research model to capture the moderating effects of these constructs on the attitude-behavior relationship. The hypothesized effects are empirically tested using a longitudinal survey of document management system usage among staff employees at a Ukrainian municipal government. Results of the study will be presented at the conference.

## Keywords

Information Technology Adoption, Usage, Attitudes, Elaboration Likelihood Model, Survey Research.

## INTRODUCTION

Attitude-based models, such as the technology acceptance model (TAM) and the theory of planned behavior, have been at the heart of information technology (IT) acceptance and usage research for two decades. These models posit user attitudes, which include both affect and beliefs such as perceived usefulness<sup>1</sup>, as the primary predictors of one’s intention to use IT and eventual usage behaviors. However, mounting empirical evidence suggests that attitudes may not consistently influence behaviors as widely expected. For instance, Venkatesh et al. (2003) reported a correlation of 0.38-0.44 between performance expectancy (a belief measure of attitude) and intention and only 0.20-0.25 between an affective measure of attitude and intention, suggesting even poorer correlations with actual behaviors. Investigating this “attitude-behavior gap” can not only help us predict usage behaviors better, but also help delineate the boundary conditions that limit the explanatory power of current attitude-based models of usage.

Social psychologists have attempted to explain the attitude-behavior gap using the “attitude strength” concept. Presumably, people with “strong” attitudes demonstrate a stronger association between their attitudes and behavior, while those with “weak” attitudes tend to lack such association (Krosnick and Petty, 1995). Some of the significant events in history, such as the French Revolution, the American civil rights movement, and the bombing of abortion clinics by pro-life activists, were caused by people with strong attitudes, while low voter turnout in U.S. elections can be blamed on weak attitudes. People with strong attitudes tend to actively participate in rallies, demonstrations, and meetings to support their cause, while those with weak attitudes generally stay on the sidelines even if they are equally supportive of the cause. Drawing on this research, we suggest that users with strong attitudes toward IT usage are more likely to accept a new IT enthusiastically, experiment with its use, and invest time and effort to learn and use it properly, while those with weak attitudes may initially accept the system but lack the desire to use it over the long term or may simply give up if usage appears to be too demanding, resulting in minimal or deficient use. Understanding attitude strength in the IT usage context, its constituent dimensions, and its subsequent effects are the core objectives of this study.

Despite a wealth of attitude-based studies in prior IT usage research, there is little if any discussion of attitude strength. Just as people demonstrate different strengths toward their voting, pro-choice, or anti-war attitudes, rarely will they have equivalent strengths in their attitudes towards IT usage. Ignoring attitude strength may therefore confound the association between attitude and user behavior. We propose a theoretical model that captures variances in attitude strength across a user population and its effect on IT usage behavior. In doing so, we provide a better prediction of IT usage than that from

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<sup>1</sup> Though most previous IT usage research has viewed attitude as affect only and treated beliefs as separate constructs, we view attitudes in a generic sense as comprising of both beliefs and affect, as is the common practice in the referent social psychology literature (e.g., Eagly and Chaiken, 1993).

contemporary attitude theories. From a practical standpoint, measuring attitude strength is important for diagnosing the idiosyncratic outcomes of organizational intervention plans (e.g., training programs) intended to promote IT usage and for tailoring such plans to the unique characteristics of the target users.

In light of the above motivations, the two research questions examined in this paper are: (1) what are the constituent dimensions of attitude strength in the IT usage context, and (2) how does attitude strength influence users' IT usage behavior. To answer these questions, we draw upon the elaboration likelihood model (ELM) (Petty and Cacioppo, 1986) to posit a research model hypothesizing key dimensions of attitude strength and linking them to attitude outcomes. We test this model using a longitudinal field survey of document management system usage among employees at a Ukrainian municipal government, results of which will be presented at the AMCIS conference.

## THEORY AND RESEARCH MODEL

What is attitude strength and how is it different from attitudes? Attitudes (beliefs and affect) are relatively enduring evaluations of attitude objects or behaviors (e.g., IT usage) held by individuals (Eagly and Chaiken, 1993). They are typically conceptualized and measured along a bipolar continuum ranging from "negative/unfavorable" to "positive/favorable" (or "strongly disagree" to "strongly agree" on Likert-scaled belief items). In contrast, the concept of attitude strength holds that two individuals holding similar attitudes (e.g., both with +3 on a -3 to +3 scale) may have equivalent attitude valence (positive) and extremity (+3), but may differ in their attitude strengths. For instance, the person with a strong +3 attitude may behave more enthusiastically and proactively than the person with a weak +3 attitude.

Despite its intuitive appeal, "attitude strength has generally not been defined with any precision and it does not appear to have any agreed-upon meaning for attitude researchers" (Raden, 1985, p. 312). Krosnick and Petty (1995) noted that attitude strength "has been more of a vague metaphor than a formally defined social scientific construct" (p. 2). Viewing strength as a power to resist change and produce observable effects, they described four distinguishing characteristics of attitude strength: (1) persistence: the attitude's durability or stability over time, (2) resistance: its ability to withstand counter-persuasion efforts, (3) cognitive impact: its ability to influence future information processing and cognitive judgments, and (4) behavioral impact: its ability to guide future behaviors. Reviewing the literature on this topic, Krosnick et al. (1993) suggested that attitude strength is not a singular construct, but a short-hand representation of a diverse set of dimensions that define an attitude's long-term stability and consequential nature, including intensity, certainty, importance, knowledge, accessibility, and many others. Following three empirical studies, this study found no consistent correlational structure between these dimensions, suggesting that they cannot be integrated into a unidimensional latent construct. They further noted that our understanding of these dimensions is based on studies of attitudes toward controversial social and governmental policies, such as abortion, capital punishment, and defense spending, and may require recalibration for other attitude objects or behaviors, such as IT usage.

Instead of focusing on attitude strength's dimensions, some attitude theorists have examined the cognitive process leading to the formation of strong versus weak attitudes. The most notable of these is the *elaboration* process theorized by the ELM. Elaboration is an effortful process in which one considers all available information about an attitude object and thoughtfully scrutinizes its relative merits and demerits, before forming an informed judgment or attitude about that object (Petty and Cacioppo, 1986). For instance, some IT users may read a detailed review of the pros and the cons of a particular IT, and based on the quality and validity of arguments presented, form an attitude about using that IT. However, elaboration requires that individuals possess the motivation and ability to scrutinize the available information. If such motivation or ability is lacking, one can still form an attitude regarding the target object via a relatively less effortful process of association or inference based on heuristic cues, such as the information source, the quantity of information, or the number of arguments presented. For instance, other users may form attitudes toward system use, not based on its merits, but because it was recommended by an IT expert or by influential people in their social circle. These two alternative modes of attitude formation (i.e., high and low elaboration processes), respectively called the central and peripheral route of persuasion in ELM, are the key to forming strong versus weak attitudes.

In a test of the elaboration hypothesis, Haugtvedt and Petty (1992) provided subjects with an advertisement describing an answering machine that resulted in equally favorable attitudes toward the product for people varying in their need for cognition (NC) (an individual difference variable reflecting how much one enjoys effortful thinking). Two days later, the attitudes of the high NC subjects remained practically unchanged, while that of the low NC subjects had decayed (i.e., they lost their initial favorability toward the product). Since NC is a proxy for the elaboration process, it follows that high elaboration subjects are likely to have stronger or more persistent attitudes than low elaboration subjects.

One's motivation and ability to elaborate are respectively captured in ELM using the *personal relevance* and *expertise* constructs (Petty and Cacioppo, 1986). If potential users perceive a new IT as being relevant to their personal or work lives,

they are more motivated to carefully scrutinize all available information related to that IT. Likewise, if they possess the necessary expertise to appropriately evaluate that IT, they are more likely to elaborate. However, since users are unlikely to possess expertise in a new IT prior to its initial usage, their *related expertise* in similar IT may act as a proxy for their IT expertise. For instance, experts in one database software are more able to elaborate the pros and cons of other (new) database software. Personal relevance and related expertise, the two drivers of the elaboration process, are hence expected to moderate the associations between attitudes and IT usage behaviors. Note that the personal relevance construct is similar to personal interest, importance, attitude centrality, and NC dimensions of attitude strength, while related expertise embodies experience and knowledge dimensions (Krosnick et al., 1993).

From TAM, we know that the two key attitudinal components that influence IT usage intention and subsequent behavior are *perceived usefulness* and *affect* (often labeled as “attitude”) (Davis et al., 1989). Perceived usefulness represents users’ utilitarian beliefs about using a new IT (e.g., whether it will benefit their task performance) and affect captures their emotive predispositions toward IT usage. Other cognitive beliefs, such as perceived ease of use, are excluded from this study, because of their less certain usage effects. Perceived usefulness and attitudes tend to be positively correlated with each other and with IT usage intentions, given human tendencies to maintain consistency among related beliefs, affect, and intentions. Since intention is a proxy for IT usage behavior, and a weak one at that (Straub et al. 1995), we drop intention and link perceived usefulness and affect directly to IT usage, as is common in the attitude literature (e.g., Eagly and Chaiken, 1993). Though this modification deviates slightly from TAM, we do not view this as a problem, because the goal of IT usage research is ultimately to predict actual usage and not intention. Further, the objective of this study is to explain the attitude-behavior gap, and prior empirical evidence suggests that intention is correlated more with attitude than with behavior and is hence redundant with attitude.

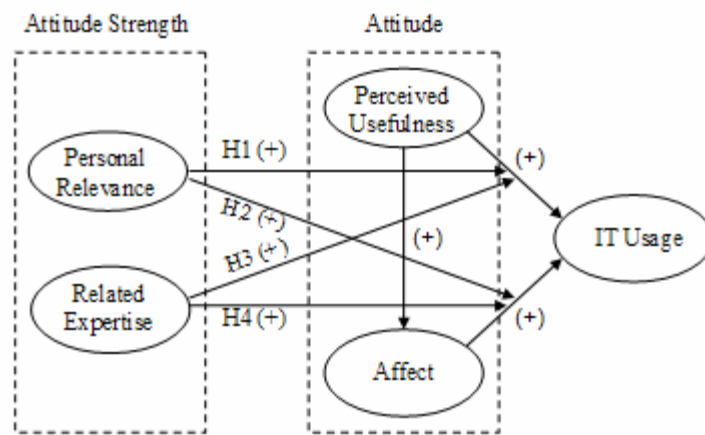


Figure 1. Research Model

Based on the above rationale, we integrate TAM and ELM to hypothesize that potential users’ personal relevance and related expertise positively moderate the associations between perceived usefulness and IT usage and between affect and IT usage. These hypotheses, not spelled out to conserve space, are labeled H1 through H4 in Figure 1. Figure 1 also includes positive associations between perceived usefulness, affect, and IT usage, which are not stated as formal hypotheses because they are widely known from prior TAM research.

**RESEARCH PLAN**

**Empirical Setting**

To test our hypothesized research model, we conducted a longitudinal field survey of document management system (DMS) usage among administrators and staff personnel at L’viv City Hall in Ukraine. This system was a Lotus Notes application designed with the goal of improving the city’s ability to record, track, and process construction permits, business licenses, zoning clarifications, and similar requests filed by local citizens and businesses.

System implementation was completed at the time of this study, but very few employees knew about the system or used it in their work. There was no mandate, no incentives, no training, and no culture of technology usage at City Hall. Many users did not have computer backgrounds and were intimidated by the system. Further, since electronic documents were not

officially recognized by Ukrainian courts or other governmental agencies, many employees preferred to work with paper documents instead.

To improve citizen service through DMS usage, the City Mayor commissioned one of this study's authors to train its employees in system usage. Eighty seven employees, from a total of 130 such personnel, participated in this training. Participants received three 8-hour days of lectures and hands-on training. The first two days were designed to bring participants up to speed on using the Windows operating system, word processing, electronic mail, and web browsing. The third day focused on Lotus Notes, its messaging, calendaring, and collaboration features, document generation, cataloging, and tracking features, and using electronic control cards to move documents between City Hall divisions. At the end of this training, subjects were administered a paper-based survey, that elicited their perceptions of personal relevance, related expertise, perceived usefulness, and affect toward the DMS. Subjects' self-reported system usage was captured three months later, via a second questionnaire. The two questionnaires were linked using a 4-digit number self-selected by the subjects (typically the last four digits of their home or cell phone number).

### Variable Operationalization

Perceived usefulness was measured using Davis et al.'s (1989) four-item Likert scale, that examined subjects' productivity, performance, effectiveness, and overall usefulness expectations from DMS usage,. Affect was measured using Taylor and Todd's (1995) four-item semantic differential scale anchored between adjective pairs "bad...good", "foolish...wise", "unpleasant...pleasant", and "like...dislike." Related expertise was assessed using three items adapted from Sussman and Siegal (2003) that asked subjects' prior knowledge of electronic mail, word processing, and computers on seven-point scales between "novice" and "expert." These ratings were cross-validated with a single-item fill-in measure of number of years of prior computer experience. Job relevance was measured using Venkatesh and Davis' (2000) two-item Likert-scale that requested subjects' perceptions of the importance and relevance of DMS use in their job. Lastly, IT usage was measured using three items based on Thompson et al. (1991) that asked subjects the number of times they used the system last week, the number of specific DMS applications they used last week, and the percentage of received customer requests that they processed using DMS last week.

### Data Collection and Analysis

The final sample consisted of 81 usable responses, from 28 administrators and 53 staff personnel, for an overall response rate of 62.3%. Non-response bias was not an issue, since a majority of the targeted population responded to our survey request, probably due to the support of the City Mayor. Common-method bias was also not a problem since the dependent and independent variables were measured using two separate surveys at two different points in time. Social desirability bias was also a non-issue, since both surveys were anonymous, and neither the researcher nor the city administration had any way of linking responses to specific subjects.

Data analysis is ongoing at the time of writing this paper, and the final results will be presented at the AMCIS conference. We will compare our model's explanatory power with and without the hypothesized moderating effects, and examine the strength of each hypothesized path and the variance explained for each dependent variable.

### CONCLUSIONS

This study was likely the first to introduce the concept of attitude strength to the IT usage literature and examine its potential impacts on usage behavior. Further, this may also be the first to articulate the attitude-behavior gap in IT usage research and investigate potential reasons for this gap. The goal of IT managers in organizations should be to build strong attitudes toward IT use, and this cannot be accomplished until managers understand what strong attitudes are and how they are formed. Further, this study's findings may help improve our prediction of IT usage behavior and clarify the boundary conditions of current attitude-based theories in studying IT usage, and thereby contribute to future research efforts in this area.

### REFERENCES

1. Davis, F. D., Bagozzi, R. P. and Warshaw, P. R. (1989), "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," *Management Science*, 35, 8, 982-1003.
2. Eagly, A. H. and Chaiken, S. (1993), *The Psychology of Attitudes*, Harcourt Brace Jovanovich, Fort Worth, TX.
3. Haughtvedt, C. P., and Petty, R. E. (1992), "Personality and Persuasion: Need for Cognition Moderates the Persistence and Resistance of Attitude Changes," *Journal of Personality and Social Psychology*, 63, 308-319.

4. Krosnick, J. A., Boninger, D. S., Chuang, Y. C., Berent, M. K., and Carnot, C. G., "Attitude Strength: One Construct of Many Related Constructs?" *Journal of Personality and Social Psychology*, 65, 6, 1132-1151.
5. Krosnick, J. A. and Petty, R. E. (1995), "Attitude Strength: An Overview," in Richard E. Petty and Jon A. Krosnick (Eds.), *Attitude Strength: Antecedents and Consequences*, Lawrence Erlbaum Associates, Mahwah, NJ, 1-24.
6. Petty, R. E. and Cacioppo, J. T. (1986), *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*, Springer-Verlag, New York.
7. Taylor, S. and Todd, P. A. (1995), "Understanding Information Technology Usage: A Test of Competing Models," *Information Systems Research*, 6, 2, 144-176.
8. Thompson, R. L., Higgins, C.A., Howell, J. M.. (1991), "Personal Computing: Toward a Conceptual Model of Utilization," *MIS Quarterly* 15, 2, 125-143.
9. Straub, D., Limayem, M., and Karahanna-Evaristo, E. (1995), "Measuring System Usage: Implications for IS Theory Testing," *Management Science*, 41, 8, 1328-1342.
10. Sussman, S. W. and Siegel, W. S. (2003), "Informational Influence in Organizations: An Integrated Approach to Knowledge Adoption," *Information Systems Research*, 14, 1, 47-65.
11. Venkatesh, V. and Davis, F. D. (2000), "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies," *Management Science*, 46, 2, 186-205.
12. Venkatesh, V., Morris, M. G., Davis, G. B. and Davis, F. D. (2003), "User Acceptance of Information Technology: Toward A Unifying View," *MIS Quarterly*, 27, 3, 425-478.