An Attributional Analysis of the Rejection of Information Technology

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The major relationships depicted by attributional models of the process by which individuals accept or reject new information technologies were tested with path analyses in a field setting. The results confirmed that attributions regarding ability were directly related to efficacy expectations, whereas, attributions regarding task difficulty and effort were related to outcome expectations. The results further confirmed that both efficacy and outcome expectations were directly related to outcomes including both job performance and end-user satisfaction. In addition, the research showed how attributions affected outcome measures indirectly through expectations.

The factors associated with the successful introduction of New Information Technologies (NITs) are well known and include user involvement (Baroudi, Olson, & Ives, 1986; Boland 1978; Debrabander & Edstrom, 1977; Mankin, Bikson, & Gutek, 1985; Tait & Vessey, 1988), top management support (Leonard-Barton, 1988; Zmud, 1984), training (Glass & Knight, 1988), and realistic user expectations (Ginzberg, 1981; Martinko, Henry, & Zmud, 1996; Salloway, Counte, & Kjerulff, 1987). Specifically, NIT refers to any product, introduced for the first time to the end-user, whose underlying technological base is comprised of computer or communications hardware and software (Cooper & Zmud, 1990).

Because these factors have been identified, it would seem that there would be little resistance to the implementation of NITs. Unfortunately, this is not the case and difficulties associated with introducing and training end-users on NITs in the work place have been thoroughly chronicled (Argyris, 1971; Blackler & Brown, 1985; Cancro & Slotnick, 1970; Compeau, Olfman, Sein, & Webster, 1995; Dowling, 1980; Meier, 1985; Rosen, Sears, & Weil, 1987). However, as of yet, there does not appear to be any well-accepted or documented integrative explanation of the variables and the dynamics by which end-users decide to accept or reject NITs.

The purpose of this paper is to address the needs identified above by both proposing and testing an attributional model of the dynamic process that determines end-user acceptance or rejection of NITs.

Toward a Comprehensive Model

Recently, several authors have proposed attributional explanations of the behavioral dynamics encountered by end-users when accepting or rejecting NITs (Henry, Martinko, & Pierce, 1993; Martinko, Henry, & Zmud, 1996). All of these explanations draw heavily on Weiner’s (1979) work on achievement motivation as well as the work of Martinko and Gardner (1982) and Abramson, Seligman, and Teasdale (1978) describing the role of attributions in Learned Helplessness (LH). While there are some minor variations in the models and the explanations which have been proposed, the dynamics depicted in Figure 1 are representative
of the relationships which have been described.

Essentially, the model depicts acceptance and rejection behavior as a function of user expectations. The predictive validity of expectations has been tested in previous studies (Henry & Stone, 1995a). These expectations are formed from users’ attributions regarding the likely causes of their successes and failures in interacting with the NIT. The attributions are also influenced by the characteristics of the NIT as well as any similar experiences that the user may have had with other NIT implementations. In addition, individual dispositional differences such as attributional style are also proposed to influence user attributions.

Based on the LH model (Abramson, Seligman, & Teasdale, 1978; Martinko & Gardner, 1982), the following chains of relationships are predicted for acceptance versus rejection of NITs. Those who accept NITs are more likely to have had positive experiences with prior information technologies and to have optimistic explanatory styles (Seligman, 1990). Similarly, in forming their expectations of the outcomes of their interactions with the NITs, people who are likely to accept the NIT are also more likely to believe (attribute) that their prior successes with information technologies were caused by internal and stable characteristics such as ability and expect that their outcomes with the NIT will be positive. On the other hand, those who are most likely to reject a NIT are much more likely to have had negative outcomes in interacting with prior information technologies, have pessimistic explanatory styles, attribute their likelihood of failures with the NIT to an internal and stable dimension such as lack of ability, and expect that their outcomes will be negative.

Several partial tests of the above model have been reported. In a study of students enrolled in their first computer science course, Henry, Martinko, and Pierce (1993) found that students with optimistic attributional styles regarding writing computer programs achieved higher grades than those with pessimistic attributional styles. In addition, they found that final grades were related to causal attributions of ability. In a similar study of students enrolled in an introductory programming course, Henry, Stone, and Pierce (1993) found that students with positive expectations, operationalized as computer self-efficacy, were more likely to continue in the computer science or management information systems major and experienced less frustration while working on programming projects. Henry & Stone (1995a, 1995b) found that expectations greatly influenced end-users’ self-ratings of their job satisfaction and job performance.

Although the above studies provide some support for the attributional model of reactions to NITs, the support is clearly limited. The first two studies employed student samples and were concerned with attributions and reactions in an educational rather than a work setting where use is non-volitional. More importantly, the strength of the results in both studies was limited because of problems with sample sizes. The relatively small number of subjects in the Henry et al. (1993) study, sixty-nine, reduced the probability of detecting significant relations. Thus, a more rigorous test of the attributional model in a field setting is needed.

**Hypotheses**

Rather than attempting an omnibus validation of the many relations depicted in the attributional model of reactions to NITs, the current study concentrates on two key relationships depicted by the model: 1) the relationship between attributions and expectancies and 2) the relationships between expectancies and outcome measures. More specifically, attributional models of the acceptance and rejection of NITs (Martinko, Henry, & Zmud, 1996), as well as other more general models of attributional processes (Abramson, Seligman, & Teasdale, 1978; Weiner, 1979:1985), depict a sequential chain of causal relationships indicating that attributions cause expectancies and that expectancies cause the behaviors associated with acceptance or rejection. Thus, attributions do not directly influence acceptance or rejection. Their effects are mediated by expectancies and they are viewed as the primary cause of the expectancies.

An additional factor complicating the relationships between attributions, expectancies, and acceptance behavior is that expectancies are multidimensional. As Bandura (1977) and more recently Gist and Mitchell (1992) have pointed out, there are two types of expectancies: efficacy expectations and outcome expectations. Efficacy expectations are concerned with the individual’s expectations that they are capable and competent of performing a specific task (Bandura, 1977; Gist & Mitchell, 1992; Hirschheim & Newman, 1988; Weiner, 1985). Outcome expectations are defined as a “... person’s estimate that a given behavior will lead to certain outcomes” (Bandura, 1977). Thus, outcome expectations are concerned with whether or not individuals believe that they will be rewarded if they achieve a desired level of performance.

Although research has been limited regarding the relation-