

UNDERSTANDING MANAGERS' INTENT TO USE IT CERTIFICATION AS A SELECTION TOOL IN THE HIRING PROCESS

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ABSTRACT

A growing number of IT professionals believe that being certified will give them advantages when looking for jobs and many managers use IT certification as a selection tool when hiring. However, some managers have questioned the value of certifications or of some certifications in particular. The purpose of this research is to determine the factors that predict managers' intentions to use IT certification as a selection tool when hiring to fill IT positions. The theory of planned behavior is used as the theoretical underpinning to test the hypotheses. This is research in progress and hence the purpose of the paper is to share the ideas regarding it and get preliminary feedback. Findings will be important to multiple stakeholder groups, including IT workers, hiring managers, designers and sponsors of IT certification, and third-party training and testing centers.

Keywords: IT certification, Theory of planned behavior, Employee selection, Behavioral intention.

1. INTRODUCTION

The value of certification has long been recognized by many professions. Examples include the bar exam for practicing law, Certified Public Accountant (CPA), and Certified Nursing Assistant (CNA). Other certifications exist in the automotive field, hotel management, journalism, sales, and public finance. Over 2,500 certifications are offered across all industries including IT (Information Technology) (Foster, 1997).

Though no organization tracks the total number of obtainable IT certifications, it is estimated that as many as 450 IT certifications are either in place or under development (Atienza, 2001). Industry analysts, including the Gartner Group, IDC, and Forrester Research, estimated the size of the certification training market in North America at \$500 to \$600 million for 2000, climbing as much as 20% per year for the foreseeable future. As many as 6.5 million people in the United States hold some type of computer certification; that number may exceed 20 million by 2010 (Tittel, 2001). Worldwide spending in IT certification was estimated to reach \$4 billion in 2003 (Chan, 2001).

IT certifications differ in many ways including *what* is tested, *how* knowledge and skills are tested, measures taken to ensure the *integrity of the testing process*, and *how certifications are marketed or regarded in general*.

Hiring managers often use certification as a selection tool. A grounded theory study (Hunsinger and Smith, 2004) has identified managers' reasons for using IT certification in hiring as well as many beliefs regarding outcomes. Certifications make it easier for some managers to determine who is qualified. Insisting on certification may also be required in order to maintain vendor warranties and SLAs (service level agreements) or, in the case of some service or consulting firms, to comply with requirements of their own customers. Managers may also be trying to reduce training costs or make them more predictable. Managers may use certification as a screening tool or as a means to differentiate between otherwise equally qualified candidates. As a result of using certification as a selection tool, managers intend to make more efficient use of

their time and money, do a better job of matching skills with needs, and reduce their risk of making a poor hiring decision.

Most previous studies of IT certification have been sponsored by vendors and certification providers. For example, a study sponsored by CompTIA (Childs, 2002) reported that over half of the chief information officers who were surveyed would hire a person with certification even if he had no work experience. Some would not hire anyone without a certification. Another industry study (ITAA, 2001) found that IT companies viewed certification at least as important as a bachelor's degree and that non-IT companies placed certifications slightly below a bachelor's degree in importance.

The value that managers place on certification is also indicated by studies that have found that certified employees make more money and bonuses than non-certified workers (Sosbe, 2001; McCarthy, 2002; Schaffhauser, 2002) or that certification helps IT employees earn promotions (Dohner, 2001). Other studies report that individuals received raises after obtaining certification (Gabelhouse, 2001; Gartner, 2001).

Some pay differences may be due to experience instead of certification (Griffith, 1999), but the preference of some managers for certified employees to fill certain IT positions is clear. However, some managers maintain that certification proves nothing other than the ability to pass a test (Gilhooly, 2001) and that are lessened in value when candidates can find actual certification test questions for some of the exams on "brain dump" websites (Martinez, 2001; Raths, 2001).

2. RESEARCH QUESTION

A growing number of IT professionals believe that being certified will give them advantages when looking for jobs and many managers use IT certification as a selection tool when hiring. However, some managers have questioned the value of certifications or of some certifications in particular. The only academic study on the effectiveness of certified employees found no significant difference with end-user evaluations of the effectiveness of uncertified employees. The overwhelming majority of studies of IT certification have been sponsored by product vendors and testing agencies that "obviously have a vested interest in promoting the value of certification" (Martinez, 2001).

A grounded theory study of the use of IT certification in hiring has been developed (Hunsinger and Smith, 2004) that identifies managers' salient beliefs that affect the adoption and use of certification during hiring. However, the relationships proposed in the theory have not been tested. It cannot be asserted with confidence the reasons for which some managers use certification as a selection tool while others do not, and, among managers who use certification, whether they consider it more useful under some circumstances than for others. I intend to begin answering these questions by investigating the intent of managers to use IT certification in the course of hiring for a given position. Specifically, I intend to determine:

What factors predict the intent of managers to use IT certification as a selection tool when hiring to fill IT positions?

Prior publications and research on IT certification have suggested factors such as the characteristics of certifications, hiring firms, or the position being filled as well as several salient beliefs of managers that might influence their intent. I plan to conduct an unbiased study, building on existing theory on the use of selection tools and on behavioral intent to help answer a question that concerns several groups of stakeholders.

3. IMPORTANCE OF THIS RESEARCH

Certification can be expensive and time-consuming. *Future IT workers* need to know whether and which certifications will help them get a job. Knowing the factors that predict

managers' intent to use IT certification in selection will give them guidance when making certification choices.

Designers and sponsors of IT certifications, including IT vendors, would benefit from knowing what makes it more likely that managers will use certifications in general and, if particular features make use more likely, how they might design the content or process of certification to maximize the intent of managers to use them. According to an IDC survey, nine of the top ten software vendors offer at least one type of IT certification (Tittel, 2001). And, as vendors' products are upgraded over time, over half of the individuals certified on a previous version will recertify on the new product once the new certification becomes available (Tittel, 2001).

Vendors may profit directly from offering certifications (Martinez, 2001) and often publish study materials to help candidates prepare for their certification exams. Large companies such as Microsoft, Sun, and IBM derive revenue from both their training and certification programs (Tittel, 2001). Certification also provides a way for vendors to create an "extension to their technical support staff" at no cost to the vendor (Tittel, 2000) and to increase their product visibility (Atienza, 2001).

Third-party training and testing centers want to offer products of interest and benefit to their customers. A number of IT training companies offer certification preparation classes, offering a variety of instructor-led, computer-based, and Web-based training alternatives (Tittel, 2000). For-profit training providers must offer profitable courses in order to remain in business. Upon which certifications should they focus?

This research will represent the first attempt to apply well-established theory to managers' use of IT certification in the hiring process. This is research in progress and hence the purpose of the paper is to share the ideas regarding it and get preliminary feedback. The knowledge and insights gained will enhance our understanding of managers' beliefs about certification and their actions during the hiring process, areas that are little understood in the IT field despite their importance to several large groups of stakeholders.

4. BRIEF LITERATURE REVIEW / THEORETICAL BASIS FOR WORK

The research question falls within the domains of employee selection and the prediction of behavioral intention.

4.1 Employee selection

Individuals differ in terms of their knowledge, skills, abilities, and other characteristics (KSAOs), which challenges managers to assess the capabilities of job candidates (Schmitt and Chan, 1998). Organizations spend more money on employee selection than on any other area within human resource management (Schmitt and Borman, 1993). Companies that use employee selection practices often have greater profits, faster profit growth, and better overall performance than other firms (Terpstra and Rozell, 1993).

Organizations may use one or more assessment methods such as interviews, biodata, testing, and assessment centers in the hiring process. These methods provide information about the job candidate's KSAOs to the hiring organization. Managers may favor some assessment methods over others depending on a variety of factors. Hiring managers may use testing when there is a large number of job applicants in order to quickly filter out individuals who do not possess the skills or knowledge required (Arthur, 1991).

Even though companies can create and administer their own tests to potential employees, legal issues, psychometric requirements, and other factors such as overall cost may make it necessary for employers to consider alternatives, such as the use of third-party certifications, in lieu of their own testing to indicate adequate skill and knowledge levels (Arthur, 1998). Hiring managers often use the results of certification exams as a way to ensure competency in nursing, accounting, and law. Certification is also used in some fields in Information Technology to ensure that job candidates possess certain knowledge and proficiencies (Hunsinger and Smith, 2004).

4.2 Behavioral intention

A small set of widely applied theories is commonly used to investigate intentions and behaviors. These include the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980), the theory of planned behavior (TPB) (Ajzen, 1991), the technology acceptance model (TAM) (Davis, 1989), and extensions of these theories.

The TRA, shown in Figure 1, has been applied in numerous studies to analyze a variety of situations and behaviors (Sheppard, Hartwick et al., 1988; Becker, Randall et al., 1995; Morrison, Gillmore et al., 1996; Vincent, Peplau et al., 1998). According to the TRA, an individual's performance of a specific behavior is determined by his behavioral intention (BI) to perform it, which is determined by the individual's attitude (A) and the subjective norm (SN) about the behavior. The relationship is described as: $BI = A + SN$, where attitude is the sum of the products of the strength of individuals' salient beliefs about the consequences of performing the behavior, b_i , and the individuals' evaluation of those consequences, e_i . Subjective norm (SN) is the sum of the products of the strength of individual's normative beliefs, nb_i , and his motivation to comply with these expectations, mc_i . Normative beliefs refer to an individual's perceived expectations of specific people or groups.

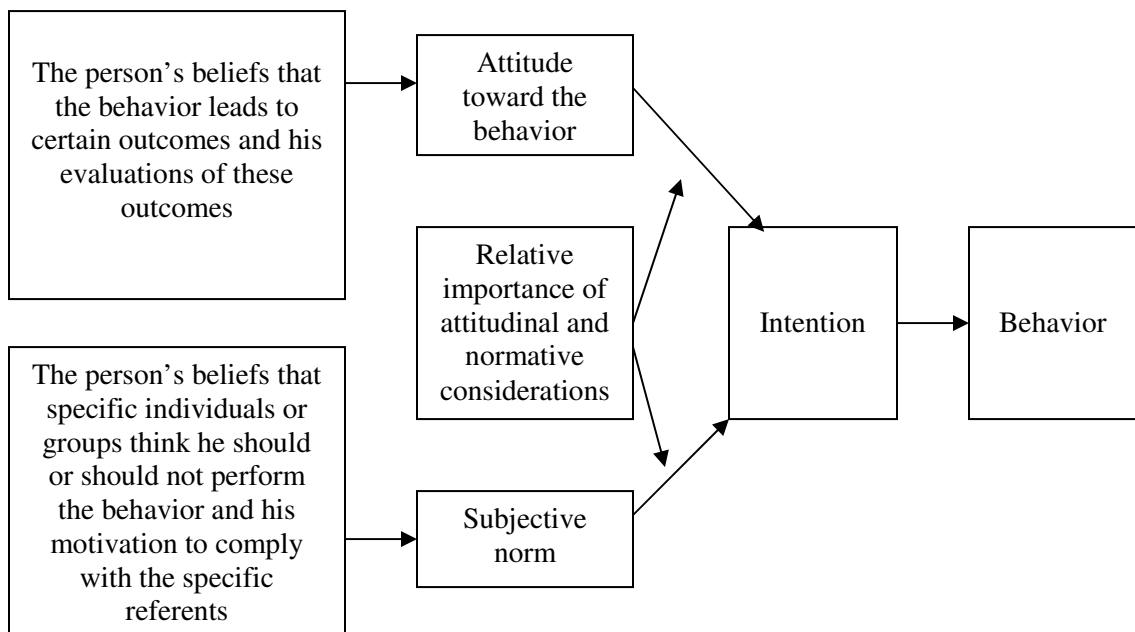


Figure 1: Theory of reasoned action (after Fishbein and Ajzen, 1980).

The theory of planned behavior (TPB) was introduced in 1985. It is an extension of the theory of reasoned action that includes an additional antecedent of intention: the degree of *perceived behavioral control* (Ajzen, 1991). Perceived behavioral control (PBC) refers to a person's perceptions of "... the presence or absence of requisite resources and opportunities" (Ajzen and Madden, 1986). It is derived from Bandura's (Bandura, 1977) concept of self-efficacy – "the conviction that one can successfully execute (a given) behavior" (Eagly and Chaiken, 1993). PBC is calculated:

$$PBC = \sum cb_k pf_k$$

where cb_k represents the strength of control beliefs and pf_k represents the perceived degree of facilitation. A control belief is the perception of the availability of opportunities, resources, and skills. Perceived facilitation is a person's assessment of the importance of those resources to the achievement of outcomes.

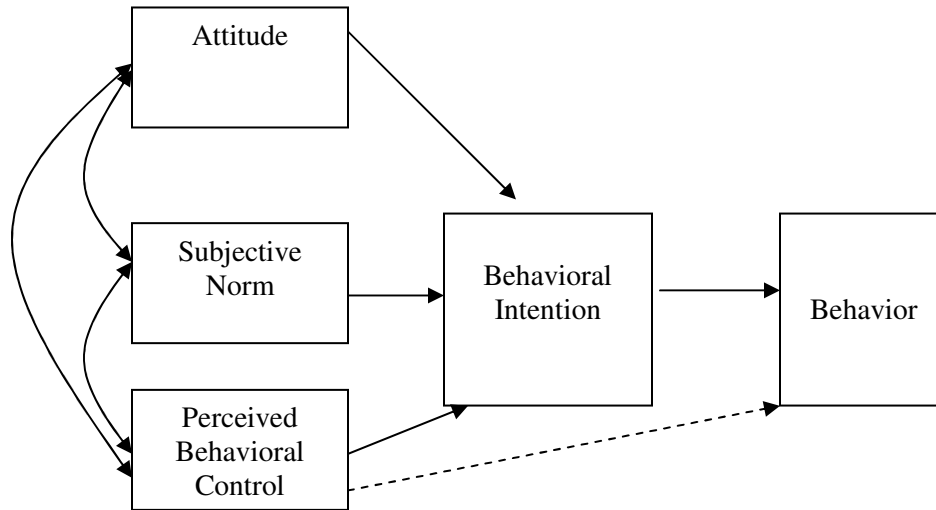


Figure 2: Theory of planned behavior (after Ajzen, 1991).

In previous studies, measures of perceived behavioral control have often been found to improve prediction of behavior above and beyond attitude and subjective norm, especially when volitional control is not high (Ajzen and Fishbein, in press). TPB has been used in various studies in multiple fields to predict intention and behavior (Sutton, 1998; Armitage and Conner, 2000; Ingram, Cope et al., 2000; Ajzen, 2001). Even though TPB has had considerable success in predicting intentions and behaviors in a variety of domains, some researchers argue that methodological and theoretical issues still need to be resolved (Manstead and Parker, 1995). Some investigators (Conner and Armitage, 1998) maintain that TPB's constructs may not be sufficient to fully explain people's intentions and actions. The amount of explained variance in intentions has been increased in some previous studies by adding one or more predictors. Ajzen has left open the opportunity for additions to TPB (Ajzen and Fishbein, in press).

The Technology Acceptance Model (TAM) is an alternative to the Theory of Planned Behavior (TPB) in certain circumstances. TAM claims that intention can be predicted given the perceived usefulness and perceived ease of use of a system (Davis, 1989). TAM is mentioned here since it has been used in a number of previous studies. However, while TAM may prove useful later in examining the use of IT certification, it will not be a base for this study since it was designed to predict the intent to adopt a technology. TRA and TPB are more general models of intention.

Ajzen has acknowledged that much of the research that has been conducted using the theories of reasoned action and planned behavior has paid little attention to the role of affect, even though he admits that emotions have a place in these theories (Ajzen and Fishbein, in press). A previous study on the use of certifications in IT hiring decisions (Hunsinger and Smith, 2004) provides evidence that both affect and cognition are factors in determining managers' attitudes.

A number of researchers have constructed alternative versions of the TRA, TPB, and TAM. In some cases, adding a new construct has improved the prediction of behavior above and beyond the level obtained by including only the original TPB constructs (Ajzen and Fishbein, in press). I propose including affect and cognition as separate constructs in the theory of planned behavior in order to determine their importance in predicting hiring managers' intention to use IT certification in the employment process.

5. RESEARCH MODEL AND HYPOTHESES

Figure 3 illustrates the model from which the hypotheses are derived. The attitude, subjective norm, perceived behavioral control, and intention constructs are derived from the theory of planned behavior. Since my goal is only to predict intention, the TPB behavior construct and associated relationships have been omitted. Future work may be conducted to explore other relationships and actual behavior.

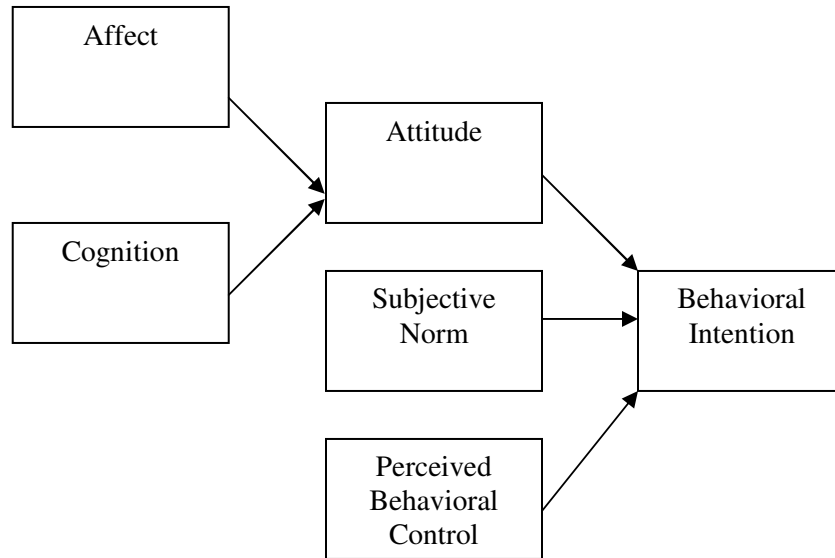


Figure 3: Model of Managers' Intention to Use IT Certification in Hiring Decisions.

In addition to the constructs of the TPB, I have added separate constructs for affect and cognition. There may be other factors that influence intention to use IT certification including the level of the position being filled (entry vs. non-entry or managerial vs. non-managerial), and the field (such as telecommunications) of the position, among others (Hunsinger and Smith, 2004). In this research, I will examine the role of affect and cognition on the theory of planned behavior, controlling for level of the position and the field.

According to the theory of planned behavior, behavioral intention is predicted by attitude, subjective norms, and perceived behavioral control. Other research based on the theory has indicated a positive correlation between these constructs and intention although the relationships were not always significant. Hence the hypotheses below.

Hypothesis 1: Attitude is positively correlated with behavioral intention.

Hypothesis 2: Subjective norm is positively correlated with behavioral intention.

Hypothesis 3: Perceived behavioral control is positively correlated with behavioral intention.

Some previous research has suggested that affect and cognition may play different roles in determining attitude. This study will separate affective evaluations from behavioral beliefs as suggested by Manstead and Parker (Manstead and Parker, 1995).

Hypothesis 4: Affect is positively correlated with attitude.

Hypothesis 5: Cognition is positively correlated with attitude.

6. RESEARCH DESIGN

The population of interest for this study is managers who hire new Information Technology (IT) employees in the United States. The population to be targeted in this study is accessible IT hiring managers located primarily in the Southeastern United States.

Pretests will be conducted before carrying out the widespread distribution of the questionnaires in order to make final modifications to the instrument and to verify that the questionnaire possesses acceptable reliability and validity. A pilot study will be done as an initial test of the model. Cronbach's alpha will be used to evaluate the degree of internal consistency of the non-belief items. To determine whether participants answer questions similarly on different days, they will be mailed another set of questions on a second occasion approximately one week later. This will allow for the computation of test-retest reliability (temporal stability). The hiring managers will also be asked to provide suggestions concerning the length of the questionnaire, sequence of questions, wording issues, or any other comments. The instrument will be refined based upon the feedback provided by the participants and the results of this analysis.

After the pretests are completed, I will distribute my revised questionnaire to approximately 2,000 hiring managers through Society of Human Resource Management (SHRM) chapters, AITP chapters, and The Employers Association using postal mail, email, fax, and the Web. For the questionnaires that will be mailed, I will follow the Dilman method (Dilman, 1978).

Previous studies which test the theory of planned behavior have often used either hierarchical regression (Tabachnick and Fidell, 2000) or structured equation modeling (SEM) (Gefen, Straub et al., 2000). Hierarchical regression supports smaller sample sizes than LISREL and PLS (Gefen, Straub et al., 2000). Also, with hierarchical regression, I will be able to determine the order of entry of the variables based upon theory and previous studies. For future work, I may use SEM to investigate all possible relationships in the proposed extension of the TPB model and to analyze all paths simultaneously.

Hierarchical multiple regression will be used to analyze the questionnaire responses. It has been used in a number of previous studies that utilize the theory of planned behavior (Morris and Venkatesh, 2000; Christian and Armitage, 2002). In hierarchical multiple regression, the null hypothesis is that there is no relationship between additional independent variables and the dependent variable. I will test to see whether the change in R^2 is significantly different from zero as additional terms are added to the model. There are also multiple assumptions and issues to consider when using hierarchical regression including normality, homoscedasticity, multicollinearity, autocorrelation, and linearity, which will be tested prior to the comprehensive analysis.

7. SUMMARY

This study will add to the base of knowledge concerning IT certification. Little previous academic research has looked at the role of IT certification in hiring decisions. Also, no known studies using the theory of planned behavior have looked at the usage of certification in *any* field. This study will test the theory of planned behavior in a domain that has not yet been explored and potentially validate its usage in another area.

In addition, this research will build upon and possibly extend existing theory. The study will provide several groups of stakeholders, including potential employees, hiring managers, testing and training providers, and vendors, valuable information about how and why IT certification is used in the hiring process.

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