

Predicting the Intention of Undergraduate IS Students to Earn IT Certification

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ABSTRACT

IT/IS hiring managers have indicated that they may use certification to differentiate between job candidates with similar levels of education and experience. Some studies and salary surveys have indicated that certified employees make more money and bonuses than non-certified workers. Despite the obvious benefits, some IS students choose not to pursue certification. This study will use the Theory of Planned Behavior to identify the factors that influence students' intentions to earn an IS-related certification. The different effects of cognitive beliefs and affect (feelings) will be explored. Results will be compared to those of a similar study of hiring managers to identify differences.

KEYWORDS: certification, theory of planned behavior, affect.

1. Introduction

IT/IS hiring managers have indicated that they may use certification to differentiate between job candidates with similar levels of education and experience. They consider IT certification as having about the same level of credibility as certifications from other areas such as accounting (CPA), HR certification (SPHR), and other industry certifications (Anderson, Barrett, & Schwager, 2002). IT companies have indicated that they view IS certification at least as important as a bachelor's degree (ITAA, 2001).

The value that managers place on certification is also indicated by studies that have found that certified employees often make more money and bonuses than non-certified workers (Gabelhouse, 2002; McCarthy, 2002; Schaffhauser, 2002; Sosbe, 2001; Tittel, 2001) and that certification helps IT

employees earn promotions (Dohner, 2001). Other studies report that individuals have received raises after obtaining certification (Gabelhouse, 2001). Despite the obvious benefits, some IS students choose not to pursue certification.

It cannot be asserted with confidence the reasons for which some IS students pursue certification while others do not. We intend to begin answering the question: "What factors predict the intent of IS students to earn IT certification?"

2. Background Theory

A small set of widely applied theories is commonly used to investigate intentions and behaviors. Among the most commonly used is the theory of planned behavior (TPB) (Ajzen, 1991), and extensions of it.

The theory of planned behavior, shown in Figure 1, expands the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975) to deal with behaviors under incomplete volitional control by including an additional construct: perceived behavioral control. Performance of behaviors under incomplete volitional control may depend on availability of opportunities and resources, including time, money, skills, and cooperation of others (Ajzen, 1991). TPB has been used in multiple fields to predict intention and behavior (Ajzen, 2001; Armitage & Conner, 2000; Ingram, Cope, Harju, & Wuensch, 2000; Sutton, 1998), including intention related to information technology use (Chau & Hu, 2001; F. Davis, 1989; Harrison, Mykytyn, & Riemenschneider, 1997). 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 & Fishbein, in press).

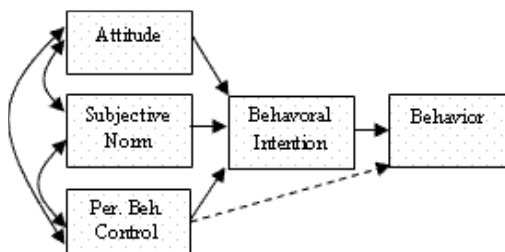


Figure 1: Theory of Planned Behavior (after Ajzen, 1991)

Much of the research relating to TPB has dedicated minimal attention to the role of emotion or *affect* in the prediction of intentions (Ajzen & Fishbein, in press). In 2001, Ajzen noted that "it has been found that individuals differ in their reliance on cognition versus affect as determinants of attitude, and that the two components also take on different degrees of importance for different attitude objects" (Ajzen, 2001). Another recent study (Ajzen & Fishbein, in press) states that attitude measures should contain items representing both the instrumental (such as desirable/undesirable or valuable/worthless) and experiential (such as pleasant/unpleasant or interesting/boring) subcomponents of attitude toward a behavior. Ajzen admits that emotions have a place in these theories (Ajzen & Fishbein, in

press). A previous study on the use of certifications in IT hiring decisions (Hunsinger & Smith, 2005) provides evidence that both affect and cognition influence managers' attitudes.

As shown in Figure 2, we include affect and cognition as separate constructs in our study in order to determine their importance in predicting IS students' intentions to obtain IT certification.

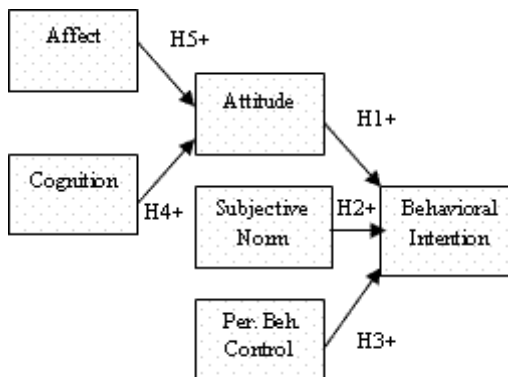


Figure 2: Model of IS Students' Intention to Earn IT Certification

3. Hypotheses

According to the TPB, a person's intention to perform the behavior in question is stronger when attitude and subjective norm are more favorable and perceived behavioral control is greater (L. E. Davis, Ajzen, Saunders, & Williams, 2002).

Attitude toward the behavior is the degree to which a person has a favorable or unfavorable evaluation of the behavior in question (Ajzen, 1991). In this study, the behavior is obtaining IT certification within six months after graduation from college.

Hypothesis 1: Attitude toward the behavior is significantly and positively correlated with intent to obtain IT certification within the next twelve months.

Subjective norm refers to the person's perception of the social pressures to perform or not perform the behavior (Ajzen, 1991).

Hypothesis 2: Subjective norm is significantly and positively correlated with

intent to obtain IT certification within the next twelve months.

Perceived behavioral control refers to the perceived ease or difficulty of performing the behavior (Ajzen, 1991). It is derived from Bandura's (Bandura, 1977) concept of self-efficacy – "the conviction that one can successfully execute (a given) behavior" (Eagly & Chaiken, 1993).

Hypothesis 3: Perceived behavioral control is significantly and positively correlated with intent to obtain IT certification within the next twelve months.

Attitude may be better explained if we consider its affective and cognitive aspects (Ajzen, 2001; Lavine, Thomsen, Zanna, & Borgida, 1998; Manstead & Parker, 1995; J. D. Morris, Woo, Geason, & Kim, 2002; Verplanken, Hofstee, & Janssen, 1998).

Affect is based upon emotions or feelings, while cognition is based upon outcome beliefs.

This study separates affective evaluations from outcome beliefs as suggested by Manstead and Parker (Manstead & Parker, 1995). Previous studies on affect and cognition have found that they are positively correlated with attitude (Lavine et al., 1998). However, the relative effect and the significance of affect and cognition may depend on the behavior. In the case of the use of IT certification in the hiring process, results of the previous study suggest that both affect and cognition will be positively related to attitude.

Hypothesis 4: Cognition is significantly and positively correlated with attitude regarding obtaining IT certification.

Hypothesis 5: Affect is significantly and positively correlated with attitude regarding obtaining IT certification.

The model described in Figure 2 implies that the attitude construct mediates the relationship between affect and behavioral intention. A variable may function as a mediator to the extent that it accounts for the relation between the independent variable and the outcome variable. A mediator may explain how

or why certain effects occur (Baron & Kenny, 1986).

A four step approach (Baron & Kenny, 1986) will be used to determine whether a variable functions as a mediator. Sobel's test (Sobel, 1982) will be used to calculate the indirect effect of the independent variable on the dependent variable via the mediator.

The following hypotheses are suggested by the model in Figure 2:

Hypothesis 6: Attitude fully mediates the relationship between affect and behavioral intention.

Hypothesis 7: The indirect effect of affect on behavioral intention via the mediator (attitude) is significantly different from zero.

3.1 Measures

3.1.1 Outcome Beliefs and Evaluations (Cognition)

Outcome belief measures will be based upon input from interviews with undergraduate students concerning IT certification. Respondents will be asked to rate statements on a seven-point scale ranging from Strongly Disagree (-3) to Strongly Agree (+3). Participants will also indicate the outcome evaluation for each statement on a Likert-type scale ranging from Very Undesirable (1) to Very Desirable (7). The cognition measure will be computed by multiplying the likelihood rating for each outcome by its outcome evaluation and summing the products over the outcomes.

3.1.2 Affect

Affect will be computed using previously validated measures (Crites, Fabrigar, & Petty, 1994; Simons & Carey, 1998). Participants will indicate responses on a five-point Likert-type scale ranging from 1 to 5.

3.1.3 Direct Measure of Attitude

A direct measure of attitude toward intention to obtain certification will be computed using statements validated in previous TRA and TPB studies that were found to exhibit high internal consistency (Ajzen, 1991; Ajzen, 2001; Sheppard, Hartwick, & Warshaw, 1988; van den Putte, Hoogstraten, & Meertens, 1991).

3.1.4 Normative Beliefs and Motivation to Comply

To measure normative beliefs, participants will rate their agreement or disagreement with statements about the views of referent groups, such as the person's professor(s) and potential employers, using a seven-point scale ranging from Strongly Agree (+3) to Strongly Disagree (-3). Referent groups were identified in the interviews. Respondents will also be asked to rate their motivation to comply with the opinions of each referent group on a seven-point scale ranging from Very Undesirable (1) to Very Desirable (7)). An indirect measure of subjective norm will be calculated by multiplying each normative belief by the corresponding motivation to comply and summing the products across the beliefs.

3.1.5 Perceived Control and Degree of Facilitation

Several statements generated from the preliminary interviews will be used to measure the strength of the respondent's control beliefs; related statements will be used to compute the perceived degree of facilitation of these beliefs. Beliefs will be rated on a scale ranging from Strongly Agree (+3) to Strongly Disagree (-3), while perceived degree of facilitation will be rated using values from 1 to 7. Perceived behavioral control will be calculated by multiplying each control belief by the corresponding perceived degree of facilitation and adding the products across the three beliefs.

3.1.6 Behavioral Intention

Two previously validated items will be used to measure each respondent's intention to obtain certification in the hiring process (Ajzen, 1991; Ajzen & Fishbein, 1980).

3.2 Population and Sample

The population of interest for this study is undergraduate Information Systems students in the United States. The population to be targeted in this study is accessible undergraduate Information Systems students located primarily in the Southeastern United States.

Burns and Grove (Burns & Grove, 2001) recommend the use of at least 30 subjects per independent variable in order to ensure that the ratio of subjects to independent variables is substantial. Since the first portion of the model to test contains three independent variables (attitude, subjective norm, and perceived behavioral control) and the second contains two independent variables (affect and cognition), the minimum sample size for this study is 90. Previous studies using hierarchical multiple regression and the theory of planned behavior have often used sample sizes of less than 200 (Christian & Armitage, 2002; M. G. Morris & Venkatesh, 2000).

Approximately 400 undergraduate Information Systems majors from several universities will be asked to participate in this study. Participants will complete a Web-based survey (Survey Monkey). We anticipate a response rate of at least 25%. To increase the likelihood that students will complete the survey, we will randomly reward several participants with prizes such as a portable DVD player and blank DVDs.

4. Analysis

We will use hierarchical multiple regression to analyze the questionnaire responses. This technique has been used in a number of previous studies that utilize the theory of planned behavior (Chau & Hu, 2001; F. D. Davis, Bagozzi, & Warshaw, 1989; Harrison et al., 1997; M. G. Morris & Venkatesh, 2000; Venkatesh, 2001). Before analyzing the data, we will verify the assumptions of normality, homoscedasticity, linearity, and independence using scatterplots and other tests such as Durbin-Watson.

Intention will be the dependent variable for the first regression. Assumptions based on theory and research determine when terms should be entered into the model (Stockburger, 1998). As each term or terms

is entered, the change in R^2 will be calculated and we will determine whether each change is significantly different from zero (Stockburger, 1998). We will follow the suggestion of Ajzen and Madden (Ajzen & Madden, 1986) regarding order of entry of variables in the TPB, beginning with attitude, followed by subjective norm then perceived behavioral control.

For the second regression, attitude will serve as the dependent variable, with cognition entered into the equation as the first independent variable, followed by affect. Affect will be entered last since it is not explicitly measured in TPB.

We will also compute a correlation matrix for the constructs and examine the tolerance for each variable to test for multicollinearity. The results from both the hierarchical regression analyses and the correlation matrix will be used to test the hypotheses.

5. Conclusions

We expect to complete the data collection and analysis in early October 2006 and will present our findings at ISECON. We will also compare our findings from this study with findings from a previous study dealing with hiring managers' intentions to use IT certification in the employee hiring process.

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