Modeling Participation Intention of Adults in Continuing Education – A Behavioral Approach

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Abstract

The study examined how attitudes and subjective norms could be used to predict participation intention of adults in continuing education. In this research, attitudes comprised the two variables of positive attitude and negative attitude and subjective norms included normative belief and motivation to comply. Structural equation modeling using a maximum likelihood estimator was used to test the data collected from 752 adult respondents in Hong Kong, China. The results indicated that the relationships between positive attitude, negative attitude, normative belief and participation intention were significant. The relationship between motivation to comply and participation intention was found insignificant. However the strong relationship between motivation to comply and positive attitude revealed the indirect influence of motivation to comply on participation intention through positive attitude. The result also disclosed the phenomenon that normative belief was a better predictor of participation intention in continuing education than positive and negative attitudes in this context.

The Theory of Reasoned Action (Fishbein & Ajzen, 1975) was used as the basis of reference in developing the conceptual framework of this study. The revised attitudes towards continuing education scales (Blunt, 2002) were shown to have validity in terms of the direct association with the various attitudes of adults towards continuing education. It was concluded that positive attitude, negative attitude, normative belief and motivation to comply with perceived social influence provided meaningful indicators of the respondents in the sample as well as reliable predictive variables to participation intention in continuing education.

Keywords: Attitudes, Subjective norms, Normative belief, Motivation to comply, Participation intention in continuing education, Hong Kong

1. Introduction

1.1 Aims of This Research

This research was driven by the purpose of identifying the factors prompting adults to participate in continuing education studies. The first aim is to identify major factors that influence the participation intention of adults in continuing education. The second aim is to test the applicability of attitudes and subjective norms in predicting the participation intention of adults in continuing education. This research is the first to adopt the concepts of attitudes and subjective norms to predict behavioral intention to participation in continuing education in Hong Kong, China.

1.2 Rising Importance of Continuing Education

Many academics and educators are aware of the existence of the high growth market in the fields of adult and part-time student education today. In many countries, courses providing for these two types of students are being referred to as continuing education. Continuing education is considered having high potential in their development

outlook (Servier, 2003). The development of continuing education and its market significance constitutes an important part to the economic growth of a country. The rising demand in continuing education is also of increasing concern to educational institutions or enterprises providing continuing education programs. If the institute is able to successfully attract adult students to enroll in their continuing education programs, it implies that it is actually facing a market of training needs with unlimited opportunities.

1.3 Continuing Education as Part of the Service Industry in the Economy

What are the factors prompting adults to participate in continuing education studies? This subject has been studied by many academics over the years. To take full advantage of the opportunity, it is important to understand the factors that motivate an adult to participate in continuing education. In fact, like any other firms and companies, institutions need to focus on their market share, efficiency, productivity, return on investment, as well as the quality of services provided to customers. These factors in turn create word-of-mouth amongst students, thereby enhancing the reputation of the institutions and their future profitability (Allen & Davis, 1991). Being part of the service industry, institutions should be concerned about the quality of their education "products" and the relationship between student customers and the products (Devinder, 2003).

1.4 Participation in Continuing Education and Consumer Behavior

Increasingly, adult students are being viewed as the customers of continuing education. In many cases, adult students find ways to reflect their demand to institutions for the types of curricula and courses they offered, flexible scheduling of courses, modes of studies and learning support. Adult students display consumer-like behavior. They show a completely new student status for products and services; they want to obtain services similar to customers of the business model - such as the right schedule, convenient location and services meeting individual needs (Haag, Cummings, & McCubbrey, 2001; Oblinger & Oblinger, 2005). Continuing education has become a market-driven industry and the adult students have assumed the position of buyers. There is today an urgent need for institutions to address to the learning needs and service demands of adult students.

1.5 Continuing Education in Hong Kong

Like other countries around the world, continuing education in Hong Kong is undergoing a rapid development and transformation. Economic development has brought about drastic changes in the modes of employment. The emphasis of a knowledge-based society has led to enhanced demand in continuing education. In Hong Kong, continuing education is a classification relative to formal education. Continuing education generally refers to both academic and non-academic courses undertaken by working adults after they have completed formal secondary, higher or college education. Continuing education programs include a wide range of academic, vocational, professional, social and cultural programs.

With regard to the scope of continuing education, according to the 1972 United Nations Educational Scientific and Cultural Organisation, the learning objectives of continuing education was no longer restricted to the learning of usual educational subject-matter, but to extend to the acquisition of knowledge, information, techniques and know-how, achievement of appreciation skills and attitudinal changes, enhancement of personal dignity or having a better grasp of real life issues and problems (UNESCO, 1972).

Specifically, the target respondents of this study included both working and non-working adults aged 18 years or above, who have completed full-time formal studies. They were no longer participating in full-time education but to participate in organised part-time educational activities on a voluntary basis. The qualifications of continuing education covered the programs with certificates awarded on completion of studies as well as those programs with no certificate being awarded on completion. The education level could range from diploma, degree, master degree, postgraduate degree, etc. It also covered short-term courses such as vocational skills, arts, sports and other interest classes. In addition, continuing professional development courses designed for professionals to meet specific job requirements of professional and technical requirements are also included within the scope of this study.

2. Theoretical Framework

2.1 Attitudes, Subjective Norms and Behavioral Intention

What are the factors prompting adults to participate in continuing education studies? Fishbein and Ajzen considered that a person’s behavior is related to his behavioral intentions. Behavioral intention about a given object is influenced by attitudes and subjective norms (Fishbein & Ajzen, 1975). Attitudes are the result of learning of a person based on past experience.

Attitudes represented the overall evaluation of the positive or negative attitudes of the person about the act or object (Eagly & Chaiken, 1993). They each reflected the tendency of approval and disapproval towards the behavior

(Fishbein & Ajzen, 1975). In this research, attitudes comprised the variables of positive attitude and negative attitude. Subjective norms in this research were made up of the two constructs of normative belief and motivation to comply (Fishbein & Ajzen, 1975). Normative belief represented a person's perception about the approval or disapproval of other specific important referents towards the behavior. In principle, the more positive the attitude towards the behavior, the more likely a person would engage in the corresponding behavior. Motivation to comply represented the person's motivation to act according to the approval or disapproval of specific important referents towards the behavior.

2.2 Theory of Reasoned Action

The concept of the Theory of Reasoned Action (TRA) is based on the causal relationship between attitudes, subjective norms, behavioral intention and behavior. TRA believes that the most important factor influencing a person's behavior is behavioral intention. Behavioral intention is a function of the person's beliefs in the outcome in execution of the behavior (attitudes), as well as the person's perceived social pressure from specific important reference persons (subjective norms) in performing the behavior（Fishbein & Ajzen, 1975; 1980）. The behavioral intention of a person is affected by his attitudes towards the behavior and his subjective norms. Mathematically, these relationships are represented by the equation as follows:

$BI = {}_{W1}AB + {}_{W2}SN$

Where:

B = behavior

BI = behavioral intention

AB = attitudes towards the behavior

SN = subjective norms

w_1, w_2 = empirically determined weights used to indicate the relative influence of attitudes and subjective norms on behavioral intention

The above equation explained that attitudes and subjective norms affected behavioral intention and even behavior. The equation suggested that behavioral intention is a function of attitudes and subjective norms. The greater attitudes and subjective norms are consistent with each other, the greater would be their influence to behavioral intention. If attitudes and subjective norms were not consistent with each other, behavioral intention could only depend on the influence as a result of the relative strength between attitudes and subjective norms. Alternatively, behavioral intention could also be determined by the stronger side between attitudes and subjective norms.

TRA measures attitudes as the sum-of-product of the strength of each belief and the person's perception of the outcome associated with that belief. On the same basis, subjective norms were measured as the sum-of-product of the strength of each normative belief and the individual's motivation to comply with their important referents (Ajzen & Fishbein, 1975). In measuring attitudes and subjective norms in TRA researches, respondents would be asked about specific behavioral beliefs and the outcome evaluation related to the beliefs (Francis et al., 2004). TRA had been used to predict and enhance understanding about the motivating factors leading to certain behavior. It helped identify the factors and strategies leading to behavioral changes. Ajzen and Fishbein (1980) considered that the few basic concepts of TRA are sufficient to explain a variety of behavior, especially the consumers' purchasing behavior. With regard to the application of TRA in continuing education researches, Pyror (1990) has tested the predictive and explanatory utility of TRA for research on participation in continuing education; Yang et al. tested the applicability of TRA and Triandis model to participation in a continuing professional education program of veterinarians (Yang, Blunt & Butler, 1994); and Becker and Gibson (1998) tested how well TRA predicted respiratory care practitioners' participation intentions for completing a baccalaureate degree through distance education.

2.3 The Law of Comparative Judgment

Alternatively, the law of comparative judgment of Thurstone (1929) obtained measurement of attitudes based on the pairwise comparison process. The measurements represent the positive-to-negative feeling of attitudes about an attitude object, the nature of the attitudes and attitude statements on the continuum where they lie, and a person's subjective attitude response towards the attitude object. Thurstone's theory asks the subjects to provide one positive or negative response for each attitude item. It relies on the median value along the continuum to measure the normative scale value of an attitude.

In developing the conceptual framework, this study applied aspects of both the Theory of Reasoned Action (TRA) and Thurstone's theory to measure attitudes and subjective norms. First, the study adopted TRA's framework by

using the attitude and subjective norm concepts (Fishbein & Ajzen, 1975) as the variables that influenced participation intention in continuing education. Thurstone's pairwise comparison concept was adopted by categorizing attitudes into positive attitude and negative attitude. Based on the TRA approach, subjective norms consisted of normative belief and motivation to comply.

Regarding the research methodology, TRA's methodology in measuring attitudes and subjective norms had not been followed in this study. The direct measurement method (Antonak et al., 1988) was used in this research whereby respondents were invited to respond directly by rating the scale statements in respect of the indicators of the five constructs of positive attitude, negative attitude, normative belief, motivation to comply and participation intention respectively. One criticism about the direct measurement method had been its lack of concern of the attitudes and beliefs lying outside the conscious awareness and control of the subject (Cunninghan et al., 2001). However, Dovodio and Fazio (1994) argued that where deliberate behavior was influenced by social norms, the direct measurement method of the traditional self-report measures showed evidence of validity.

2.4 Positive Attitude and Negative Attitude

The conceptualization of attitudes was manifested in its motivation function and, in particular the positive and negative evaluative processes underlying the concept of motivation (Cacioppo & Berntson, 1994). As the negative attitude towards a specific behavior or object of a person increased, his positive attitude diminished. Alternatively when a person endorsed the positive beliefs about the attitude object, it also revealed his abandonment of the related negative beliefs (Lasren et al., 1997).

Positive and negative attitudes are characterized by their distinct activation and ambivalence functions. The more a person's beliefs are related to the attitude object, the more definite is his attitudes and the tendency towards the direction of the extreme end of the measurement scale of the target object (Lasren et al., 1997). The evaluative process of attitudes towards the object behavior can be interpreted as an evaluation along the two extremes on the measurement scale. The result of laboratory research has provided support to the positive and negative evaluative process underlying many attitudes and that positive attitude and negative attitude are distinguishable and functionally independent with each other.

2.5 Conceptual Background and Hypotheses of This Research

This research proposed a conceptual framework to predict adults' participation intention in continuing education. The model of conceptual framework comprised five constructs including positive attitude, negative attitude, normative belief, motivation to comply and participation intention to continuing education. The proposed conceptual framework is presented in Figure 1.

Insert Figure 1 about here.

Based on the above literature review, the theoretical basis of the conceptual framework and the issues raised, ten hypotheses with focus on the relationships among the five constructs were proposed. The theoretical basis of the hypotheses leading to the conceptual framework is discussed.

2.6 Positive Attitude and Negative Attitude

In considering the bipolar conceptualization of attitude, Cacioppo distinguished between the positive and negative evaluative processes of positive attitude and negative attitude. This evaluative process about an attitude object implied that positive attitude and negative attitude correlated and covariated with each other (Cacioppo & Berntson, 1994). As education is socially acceptable behavior (Timmer & Kahle, 1983), positive attitude about education is thought to prevail over negative attitude. It is hypothesized that the flow of influence is from positive attitude to negative attitude. On this basis, the following hypothesis is proposed.

H1: Positive attitude has a negative effect on negative attitude.

2.7 Normative Belief and Motivation to Comply

Behavioral intention is related to behavior. It is influenced by a person's beliefs through both attitudes and subjective norms (Glanz, Rimer, & Lewis, 2002). Subjective norms represent the influence of the specific important referents towards the person. Subjective norms comprised the two variables of normative belief and motivation to comply. Normative belief refers to a person's perception about the views of the specific important referents towards the object behavior. Motivation to comply is the tendency of individuals to obey to the specific important referents about the attitude object behavior (Ajzen & Fishbein, 1980). Based on the relationships between normative belief and motivation to comply, the following hypothesis is proposed.

H2: Normative belief has a positive effect on motivation to comply.

2.8 Positive Attitude, Negative Attitude, Normative Belief and Motivation to Comply

The more favorable a person's attitudes and subjective norms are towards the object behavior, the stronger should be his intention to perform the act. In fact there existed situations where attitudes and subjective norms were in conflict with each other. For instance a woman held a positive attitude towards buying a diamond ring, but she perceived the pressure of negative response from her husband. Therefore, to predict behavioral intention, it is necessary to understand the relative strength of and the relations between a person's attitudes and subjective norms towards the object behavior (Ajzen, 1991). Based on the relationships between positive attitude, negative attitude, normative belief and motivation to comply, the following hypotheses are proposed.

H3: Normative belief has a positive effect on positive attitude.

H4: Normative belief has a negative effect on negative attitude.

H5: Motivation to comply has a positive effect on positive attitude.

H6: Motivation to comply has a negative effect on negative attitude.

2.9 Factors Affecting Participation Intention

TRA holds that there is a high degree of correlation between behavioral intention and behavior. Attitudes were internal variables whereas subjective norms referred to social influence affecting the behavioral intention of a person. Attitudes and subjective norms help us to improve the understanding of behavior, but they cannot predict behavior directly (Ajzen & Fishbein, 1980). More specifically, the relationships between attitudes, subjective norms and behavior are not direct; they can only help predict behavioral intention. Attitudes and subjective norms are factors influencing behavioral intention.

In this research behavioral intention is influenced by the predicting variables of positive attitude, negative attitude, normative belief and motivation to comply of adults. Through an understanding of the behavioral intention of consumers, it is possible for us to predict their behavior. Based on the relationships between positive attitude, negative attitude, normative belief, motivation to comply and participation intention, the following hypotheses are proposed.

H7: Positive attitude has a positive effect on participation intention in continuing education.

H8: Negative attitude has a negative effect on participation intention in continuing education.

H9: Normative belief has a positive effect on participation intention in continuing education.

H10: Motivation to comply has a positive effect on participation intention in continuing education.

Ten hypotheses were covered by the conceptual framework of this study about participation intention in continuing education. The research framework is illustrated in Figure 2. The framework also provided the basis for the compilation of the indicators for the variables of this research.

Insert Figure 2 about here.

2.10 Research Methodology

The research methodology involved the measurement of positive attitude, negative attitude, normative belief, motivation to comply and participation intention to continuing education. As these variables are not directly observed, its measurement was a complex matter. To measure the variables, data were collected by inviting respondents to select the ratings on five-point Likert scales (Likert, 1932) from 5 (strongly agree) to 1 (strongly disagree) of each indicator for various variables .

Previous studies had categorized the methods for measuring attitudes into direct and indirect measurement. In the direct measuring method, respondents were made aware of their attitudes being measured. Some examples of direct measurement included interviews, surveys, rankings, checklist, and social distance scales, etc. (Antonak & Livneh, 1995). In this study the direct measurement method was used in measuring all the five variables.

Many scholars have recommended the use of existing questionnaire (Horne, 1985; Antonak & Livneh, 1995) as the internal consistency and external validity of ready-made instruments were usually well established based on prior researches. The variables of positive and negative attitudes were adopted from the "Revised attitudes towards continuing education scale" (RATCES) (Blunt, 2002). The RATCES was a 9-item scale measuring attitudes towards continuing education. The scale was a revised version of the 22-item "Attitudes towards continuing education scale" (ATTCES) (Darkenwald & Hayes, 1988; Hayes & Darkenwald, 1990). Following the test utilizing structural equation modeling, Blunt (2002) had reduced the 22-item ATTCES to the 9-item RATCES. The RATCES scale consisted of five positive attitude items and four negative attitude items suitable for the research purpose of this

study in measuring attitudes. In this study, the choice of the ready-made technique (RATCES) was theory-driven and, the direct measuring method was based on research needs meeting the purpose of this research (Dawes, 1984).

Instead of adopting TRA's measurement method for measuring attitudes and subjective norms, this research makes use of the a ready-made attitude scale of the "Revised attitudes towards continuing education scales" (RATCES) (Blunt, 2002) for measuring positive and negative attitude towards participation intention in continuing education". Subjective norms were measured directly using standard statements for normative belief and motivation to comply with reference to Francis' sample procedures in constructing of a questionnaire for normative belief and motivation to comply (Frances et al., 2004).

2.11 Sample

The target population of this survey was adults in Hong Kong aged 18 or above. They were generally found in a lot of social organisations; industries; institutions; corporations, etc. Due to time and cost constraints, convenience sampling method was used. The only limitation of using this type of non-probability sample was that the degree to which the sample differs from the population remains unknown. An online questionnaire was designed to collect the data and a total of 752 valid questionnaires were collected.

2.12 Questionnaire

The questionnaire consisted of five variables including a total of 21 indicators. These indicators were formed to generate data to measure the strength of the variables including positive attitude, negative attitude, normative belief and motivation to comply to influence participation intention of the respondents. The details of the 21 indicators are described as follows.

Positive attitude

(1) Continuing education helps people make better use of their lives.

(2) Continuing education would make me feel better about myself.

(3) I enjoy educational activities that allow me to learn with others.

(4) Continuing education is an important way to help people cope with changes in their lives.

(5) Money spent on continuing education for employees is money well spent.

Negative attitude

(1) I am fed up with teachers and classes.

(2) Successful people do not need continuing education.

(3) Continuing education is mostly for people with little else to do.

(4) I dislike studying.

Normative belief

(1) People important to me expect me to participate in continuing education.

(2) People important to me think that I should participate in continuing education.

(3) People important to me want me to participate in continuing education.

(4) I feel under social pressure for me to participate in continuing education.

Motivation to comply

(1) The approval of the person I consider important to me is important to me.

(2) If the person who is important to me thinks that I should participate in continuing education, I consider his recommendation matters to me.

(3) Generally, I prefer to adopt the recommendation of the people I consider important to me.

(4) If most people I know have participated in continuing education, doing what others do is important to me.

Participation intention

(1) I expect to participate in continuing education.

(2) I plan to participate in continuing education.

(3) I want to participate in continuing education.

(4) I intend to recommend others to participate in continuing education.

3. Results

3.1 Exploratory Factor Analysis

A principal components analysis was undertaken to decide the number of underlying factors that have given rise to the hypothesized correlations between the above variables of positive attitude, negative attitude, normative belief, motivation to comply and participation intention.

The Bartlett's spherical test was conducted to check the sample suitability for factoring analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling standard suggested that a KMO value of 0.8 was suitable and above 0.9 was very suitable (Kaiser, 1974). The KMO of the sample was 0.842 with Bartlett's test of sphericity value P at .000. The Bartlett's spherical test and the KMO measurement confirmed the suitability of the data of this sample for factor analysis. Only factors with eigenvalues greater than one were retained.

The results of factor analysis based on factor loading of 0.6 or above （Hair, 1998）led to the categorization of 19 indicators under the five variables of positive attitude, negative attitude, normative belief, motivation to comply and behavioral intention. The list of the 19 indicators and the respective mean and standard deviation values were rationalized in Table 1.

Insert Table 1 about here.

Cranach's alpha coefficients were used to measure the reliability coefficients of the internal consistency of data. The coefficient values ranged between 0.60 and 0.65 is unacceptable; 0.65-0.70 is the acceptable minimum; 070-0.80 is good; and 0.80-090 is very good (DeVellis, 1991). The analysis showed that the Cronbach's alpha for all the five factors was 0.781, indicating that the data has achieved good reliability for further analysis. The Cronbach's alphas of the factors are presented in Table 2.

Insert Table 2 about here.

3.2 Confirmatory Analysis - Structural Equation Model

Following the completion of the principal component analysis on the sample data, the testing of the hypotheses presented in the conceptual framework in Figure 2 was conducted using structural equation model (SEM). The five variables are the latent variables of the model and the indicators are their respective observed variables belong to them. Based on the hypotheses, the casual structural of the latent variables are predicted using structural equation modeling analysis. The process of testing the SEM model involves two major steps; they are (1) validating the measurement model; and (2) fitting the structural model. The former is mainly undertaken by confirmatory factor analysis (CFA), while the latter is realized through conducting path analysis among the latent variables (Albright, 2009).

The estimation of the model of this research was undertaken using maximum likelihood estimates and the SEM model and path analysis were undertaken using the Analysis of Moment Structure (Amos) 19 statistical program. Model fit indices were used to compare between models and to assess whether one model fit the data better than the other one. Analysis was performed to test the casual relationships of the latent variables. Model building followed by model trimming was conducted to improve the model fit of the SEM model. The model was tested using goodness-of-fit tests to determine whether the data fit the hypothesized paths specified.

3.3 Sample Size

The SEM model is one type of multivariate analysis. As SEM model is constructed on the basis of theories and hypotheses, the model involves very complex relationships between variables. Therefore SEM analysis tends to be very sensitive to sample size. Some researchers considered that the sample size should be at least 100 to 200 (Loehlin, 1992; Hoyle, 1995). The result of literature review indicated that the most commonly used sample size was between 200 and 400 for a SEM analysis involving 10 to 15 indicators. For a SEM analysis involving 10 indicators, at least 200 samples would be required for the model to yield significant results (Schumacker & Lomax, 2004). By convention, sample size of 200 is adequate (Hoelter & Swineford, 1983). Other researchers maintained that the sample size should be 10 to 20 times of the number of variables (Mitchell, 1993) or at least five samples for each indicator (Bentler & Chou, 1987). As there are five variables involving 21 indicators in this research and the valid number of questionnaires collected is 752, the sample size of this research has well exceeded the minimum requirement.

3.4 Model Fit

Some of the most commonly used model fit indices are chi-square (X^2/df); normal fit (NFI); incremental fit (IFI); comparative fit (CFI); goodness of fit (GFI); adjusted goodness of fit (AGFI); Tucker-Lewis Index (TLI); Root Mean Square Error of Approximation (RMSEA); and Root Mean Square Residue (RMR). According to the

conventional practice of researchers, the standards of the model fit indices are summarized in Table 3.

Insert Table 3 about here.

3.5 Analysis and Results

The full SEM model representing all ten hypothesized relationships was presented in Figure 3.

Insert Figure 3 about here.

The various model fit indices were presented in Table 4 with a significant chi-square value of 3.264. The fit indices of RMSEA (.055) and the RMR (.038) were slightly greater than the standards. Apart from that, all other indices indicated a relatively good fit.

Insert Table 4 about here.

The Parameter estimation results of the full SEM model were presented in Table 5. Upon examining the full SEM model, the estimation results suggested that two of the ten direct paths were not significant.

Insert Table 5 about here.

To improve the model, trimming it to make it more parsimonious becomes necessary. One way to conduct model trimming is to delete the paths with critical ratios below 1.96 and therefore not significant at the P=.05 level. The results indicated that both the critical ratios and the P-value significance of the two paths, namely (1) normative belief and negative attitude; and (2) motivation to comply and participation intention in continuing education were not significant and therefore were deleted from the model. After model trimming was undertaken, the parsimonious SEM model was presented in Figure 4.

Insert Figure 4 about here.

The various model fit indices of the parsimonious SEM model presented in Table 6 indicated an improved chi-square with the value reduced from 3.264 to 3.243. While the RMSEA and RMR remained slightly bigger than the standards, the model fit values of all other indices generally indicated a good model fit.

Insert Table 6 about here.

Table 7 summarizes the total effects, direct effects and indirect effects represented by the path coefficients. As indicated by the correlation coefficient of the direct effects between latent variables, the hypothesized relationships between the sample data and the research model were completely consistent. For example, negative attitude was negatively related to the four latent variables of positive attitude (-.114), normative belief (-.057), motivation to comply (-.141) and participation intention (-.216). Among these four hypotheses, the relationship between negative attitude and normative belief was found to be insignificant, indicating that the related hypothesis was not supported by the data.

Insert Table 7 about here.

The relationships between positive attitude and the two latent variables namely normative belief (.144) and motivation to comply (.170) were significant and the related hypotheses were supported. The direct effect between normative belief and motivation to comply was notably high (.618) indicating the strong correlation between these two latent variables. Regarding the relationships between participation intention and the three variables of normative belief (.262), positive attitude (.246) and motivation to comply (.080), except for motivation to comply, the relationships between participation intention and the former two variables were both significant and positive and thus the two related hypotheses were supported.

In the full SEM model, participation intention was significantly correlated with the four variables of positive attitude, negative attitude, normative belief and motivation to comply with square multiple correlation $R^2 = .294$, based on probability level above 0.001. The square multiple correlation (SMC) is the percentage of the variance of the variable that can be explained by the predictor variables shown in the model as reflected by the direct effects upon it (Garson, 2011). A comparison of the full model with the parsimonious model has shown that deleting the two paths from the model did not significantly reduce the significance effect of the three variables of positive attitude, negative attitude and normative belief to participation intention with the SMC remains unchanged ($R^2 = .294$). Likewise the SMC of the other variables has also remained unchanged after deleting the two insignificant paths of (1) normative belief and negative attitude; and (2) motivation to comply and participation intention in continuing education. The SMCs of the latent variables for the full SEM model and the parsimonious SEM model were similar. The SMCs of the latent variables applicable to both models were shown in Table 8.

Insert Table 8 about here.

Based on results of the above confirmatory analysis, the causal relationships as indicated by the ten hypotheses between the latent variables of the structural equation model are shown in Table 9.

Insert Table 9 about here.

4. Discussion

Continuing education has occasionally been the focus of attitude and behavioral studies, yet little research has examined the integral components of attitudes and subjective norms and their relationships with participation intention in details. The present study extends conventional attitude research by measuring the components of positive attitude, negative attitude, normative belief and motivation to comply not usually measured directly in attitude researches.

The conceptual framework that guided this research were the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975; 1980）. The predictive and explanatory value of attitudes and subjective norms for research on participation in continuing education was tested in this study. Survey data using a questionnaire posted on the internet were collected from 752 adults. Structural equation modeling (SEM) was conducted to analyze the predictor variables of positive attitude, negative attitude, normative belief and motivation to comply based on direct measurement method by inviting respondents to directly rate the scale statements in respect of the indicators of the five constructs. Correlation was conducted among these predictors of participation intention. The significant predictor variables of positive and negative attitudes, normative belief and motivation to comply yielded R^2 = .294 which accounted for 29.4% of the variance in intention to participate. Although the result did not reach 50%, it still demonstrated satisfactory predictive outcome of the preditor variables. The research supported the postulation that participation intention to continuing education was influenced by attitudes and subjective norms, whereas attitudes comprised positive and negative attitudes and subjective norms included normative belief and motivation to comply. This research supported the value of using TRA's variables for predicting participation intention.

The revised attitudes towards continuing education scales (RATCES) (Blunt, 2002) were found to possess high content reliability. The nine items representing the five indicators of positive attitude and the four indicators of negative attitude were neatly factored under their respective constructs. The study confirmed the distinction between positive attitude and negative attitude and their corresponding positive and negative evaluative process (Cacioppo & Berntson, 1994) either in promoting or hindering participation intention.

The results confirmed the direct and indirect relationships between the four predictor variables and participation intention. The direct linkages from positive attitude, negative attitude and normative belief to participation intention are significant while the influence of motivation to comply is insignificant. Among these relationships, the influence of normative belief is the strongest, followed by positive attitude and negative attitude.

The direct linkage of motivation to comply with participation intention was insignificant and its direct path had been deleted during the model trimming process. However the linkage between motivation to comply and positive attitude and negative attitude revealed its indirect influence to participation intention through these two variables.

The study revealed the direct influence of subjective norms to attitudes. The results indicated that three related relationships were significant. These relationships included (1) normative belief and positive attitude; (2) motivation to comply and positive attitude; and (3) motivation to comply and negative attitude. These findings are different from the results of earlier researches. Regardless of whether the behavior is ethics related or not, for example, passing on positive attitude about natural food to other persons may result in a positive change in the choice of natural food of others (Tarkiainen & Sundqvist, 2005). In this study, both the positive or negative evaluation of the specific important referents could result in a change of attitude of the subjects about continuing education.

Attitudes had been purported by most researchers as being more influential than subjective norms in predicting behavioral intention（Ray, 1981；Pryor, 1990；Yang, Blunt & Butler, 1994）implying that the combined effect of positive and negative attitudes was greater than that of normative belief and motivation to comply. The findings of this study were different from these earlier results. The findings implied that this generalization might not be always true. On the basis of the data collected from this sample, the influence of normative belief was more significant than positive attitude and negative attitude. While the study of attitudes was an important subject in behavioral researches, more emphasis should be given to the study of subjective norms in future.

To recap, the first aim of this study is to identify major factors in respect of attitudes and subjective norms that influence the participation intention of adults in continuing education in Hong Kong. The second aim is to test the applicability of attitudes and subjective norms to predict the participation intention of adults in continuing education. TRA assumes the causal relationships between attitudes, subjective norms and behavioral intention. According to the research findings of many scholars, TRA's function in this aspect had been verified. By adopting TRA's

variables in continuing education research, this study confirmed the suitability of TRA's component variables including attitudes and subjective norms in participation behavior study in the continuing education disciplines.

According to TRA, attitudes are related to subjective norms. Subjects holding positive attitude are more likely to possess greater participation intention in continuing education. Alternatively subjects holding negative attitude are less likely to have the intention to participate in continuing education. Also, the more supportive was the specific important referents in continuing education, the higher the intention of the respondents to take part in the study. Through studying the behavioral factors affecting the participation intention of continuing education, this study confirmed the predicting utility of attitudes and subjective norms in this continuing education research.

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Table 1. Categorization of Indicators after Factoring Analysis

Variable	No. of Indicator	Name of Indicator	Indicator	Mean	SD
Positive attitude	4	at_pos1	Continuing education helps people make better use of their lives.	4.00	0.695
		at_pos2	Continuing education would make me feel better about myself.	3.84	0.737
		at_pos3	I enjoy educational activities that allow me to learn with others.	3.86	0.825
		at_pos4	Continuing education is an important way to help people cope with changes in their lives.	3.81	0.814
Negative attitude	4	at_ngv1	I am fed up with teachers and classes.	2.25	0.813
		at_ngv2	Successful people do not need continuing education.	1.89	0.827
		at_ngv3	Continuing education is mostly for people with little else to do.	1.87	0.843
		at_ngv4	I dislike studying.	1.95	0.912
Normative belief	3	sn_bef1	People important to me expect me to participate in continuing education.	3.48	0.919
		sn_bef2	People important to me think that I should participate in continuing education.	3.44	0.912
		sn_bef3	People important to me want me to participate in continuing education.	3.11	0.945
Motivation to comply	4	sn_cmp1	The approval of the person I consider important to me is important to me.	3.75	0.832
		sn_cmp2	If the person who is important to me thinks that I should participate in continuing education, I consider his recommendation matters to me.	3.69	0.779
		sn_cmp3	Generally, I prefer to adopt the recommendation of the people I consider important to me.	3.66	0.788
		sn_cmp4	If most people I know have participated in continuing education, doing what others do is important to me.	3.28	0.906
Participa-tion intention	4	bh_int1	I expect to participate in continuing education.	3.82	0.736
		bh_int2	I plan to participate in continuing education.	3.63	0.791
		bh_int3	I want to participate in continuing education.	3.51	0.838
		bh_int4	I intend to recommend others to participate in continuing education.	3.33	0.818

Table 2. Cronbach Alpha Coefficients for Internal Reliability

Variable	Indicator No.	Cronbach's Alpha
		N=752
Positive attitude	4	.835
Negative attitude	4	.796
Normative belief	3	.891
Motivation to comply	4	.795
Participation intention	4	.814
Total, Cronbach's Alpha	19	.781

Table 3. Recommended Standards of Model Fit Indices

Model Fit Indices	Recommended Standards
Chi-square (X^2/df)	Less than 5. (Schumacker & Lomax, 2004)
· Normal fit index (NFI) · Incremental fit index (IFI) · Comparative fit (CFI) · Goodness of fit index (GFI） · Adjusted Goodness of Fit Index (AGFI) · Tucker-Lewis Index (TLI)	Greater than 0.9. The closer to 1, the better the model fit
Root Mean Square Error of Approximation (RMSEA)	Good model fit if less than or equal to .05. Adequate fit if less than 0.08. The closer to 0, the better the model fit.
Root Mean Square Residue (RMR)	Less than 0.035. The closer to 0, the better the model fit.

Table 4. Goodness of Fit Measures of the Full Structural Equation Model

X^2	*df*	X^2/df	NFI	IFI	CFI	GFI	AGFI	TLI	RMSEA	RMR
447.163	137	3.264	.941	.958	.958	.941	.918	.948	.055	.038

Table 5. Parameter Estimation Results of SEM Analysis

SEM Path			S.E.	C.R.	P	Standardized Estimate
Motivation to Comply	<---	Normative Belief	.033	10.532	***	.618
Positive Attitude	<---	Motivation to Comply	.101	3.158	.002**	.170
Positive Attitude	<---	Normative Belief	.053	2.883	.004**	.144
Negative Attitude	<---	Motivation to Comply	.056	-2.333	.020*	-.141
Negative Attitude	<---	Normative Belief	.029	-1.028	.304	-.057
Negative Attitude	<---	Positive Attitude	.021	-2.650	.008**	-.114
Participation Intention in Continuing Education	<---	Motivation to Comply	.072	1.684	.092	.080
Participation Intention in Continuing Education	<---	Negative Attitude	.065	-5.449	***	-.216
Participation Intention in Continuing Education	<---	Positive Attitude	.028	7.187	***	.246
Participation Intention in Continuing Education	<---	Normative Belief	.038	5.862	***	.262

*** Significant on probability level = 0.001.

** Significant on probability level = 0.01.

* Significant on probability level = 0.05.

Table 6. Goodness of Fit Measures of the Reduced Structural Equation Model

X^2	*df*	X^2/df	NFI	IFI	CFI	GFI	AGFI	TLI	RMSEA	RMR
450.820	139	3.243	.940	.958	.958	.940	.918	.948	.055	.038

Table 7. Standardized Total, Direct and Indirect Effects between Latent Variables

Latent Variable	Effect	Normative belief	Motivation to comply	Positive attitude	Negative attitude	Participation intention
Motivation to Comply	**Total**	.618				
	Direct	.618				
	Indirect					
Positive Attitude	**Total**	.249	.170			
	Direct	.144	.170			
	Indirect	.105				
Negative attitude	**Total**	-.172	-.160	-.114		
	Direct	-.057	-.141	-.114		
	Indirect	-.115	-.019			
Participation intention	**Total**	.409	.156	.271	-.216	
	Direct	.262	.080	.246	-.216	
	Indirect	.148	.076	.024		

Table 8. Square Multiple Correlations of Latent Variables

Latent Variable	SMC
Normative Belief	.000
Motivation to Comply	.385
Positive Attitude	.080
Negative Attitude	.059
Participation Intention in Continuing Education	.294

Table 9. Results on Hypothesis Testing

	Hypothesis	Result	Effect
H1	Positive attitude has a negative effect on negative attitude.	Supported	Negative
H2	Normative belief has a positive effect on motivation to comply.	Supported	Positive
H3	Normative belief has a positive effect on positive attitude.	Supported	Positive
H4	Normative belief has a negative effect on negative attitude.	Not supported	Negative
H5	Motivation to comply has a positive effect on positive attitude.	Supported	Positive
H6	Motivation to comply has a negative effect on negative attitude.	Supported	Negative
H7	Positive attitude has a positive effect on participation intention in continuing education.	Supported	Positive
H8	Negative attitude has a negative effect on participation intention in continuing education.	Supported	Negative
H9	Normative belief has a positive effect on participation intention in continuing education.	Supported	Positive
H10	Motivation to comply has a positive effect on participation intention in continuing education.	Not supported	Positive

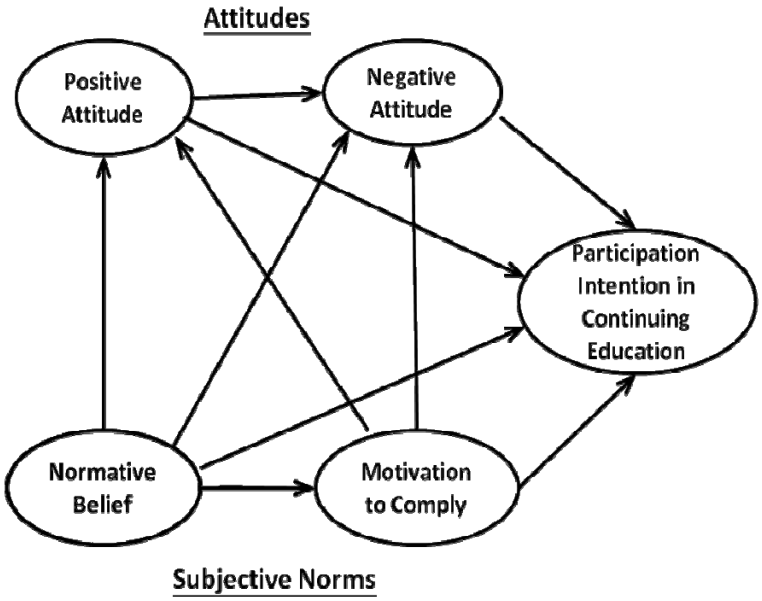

Figure 1. The Proposed Conceptual Framework to Predict Participation Intention in Continuing Education

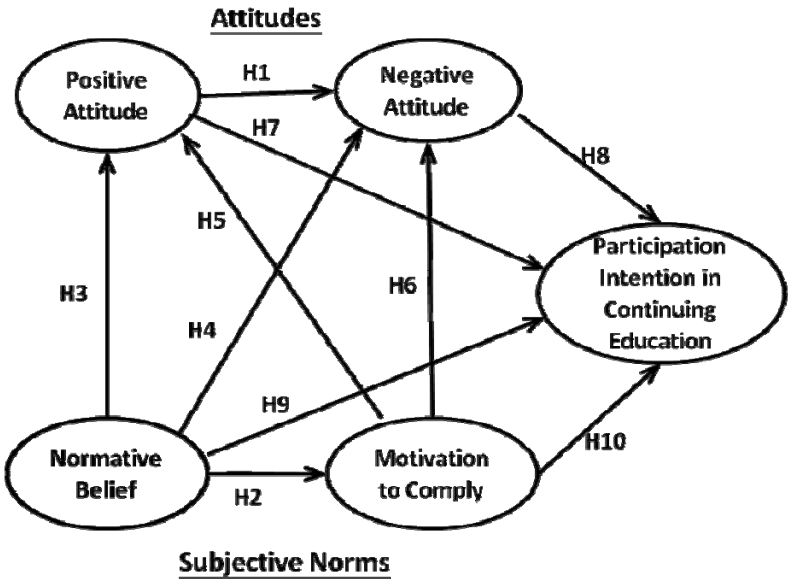

Figure 2. The Proposed Conceptual Framework and Hypotheses

Notes: H1 to H10 indicates the ten hypotheses of the conceptual framework.

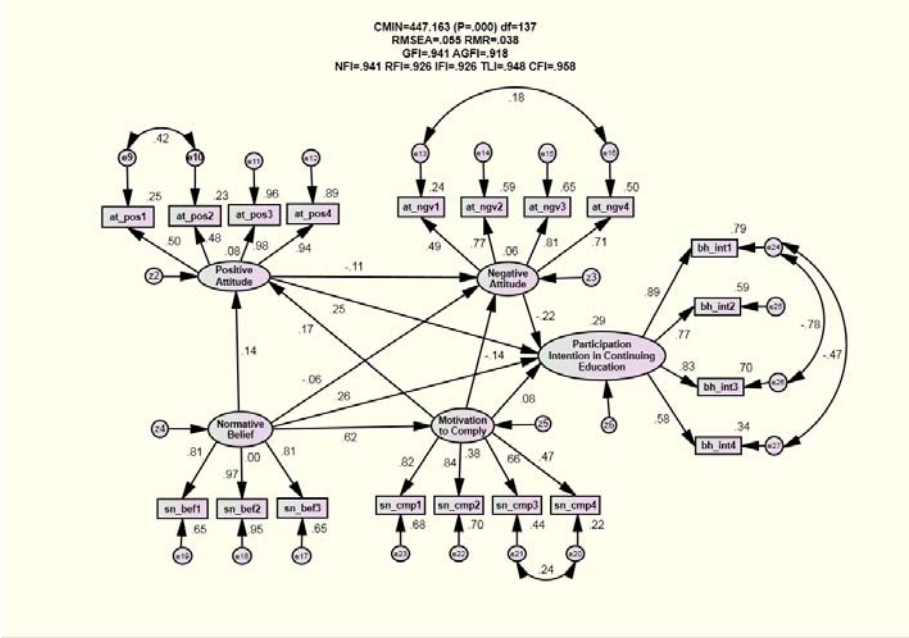

Figure 3. The full Structural Equation Model

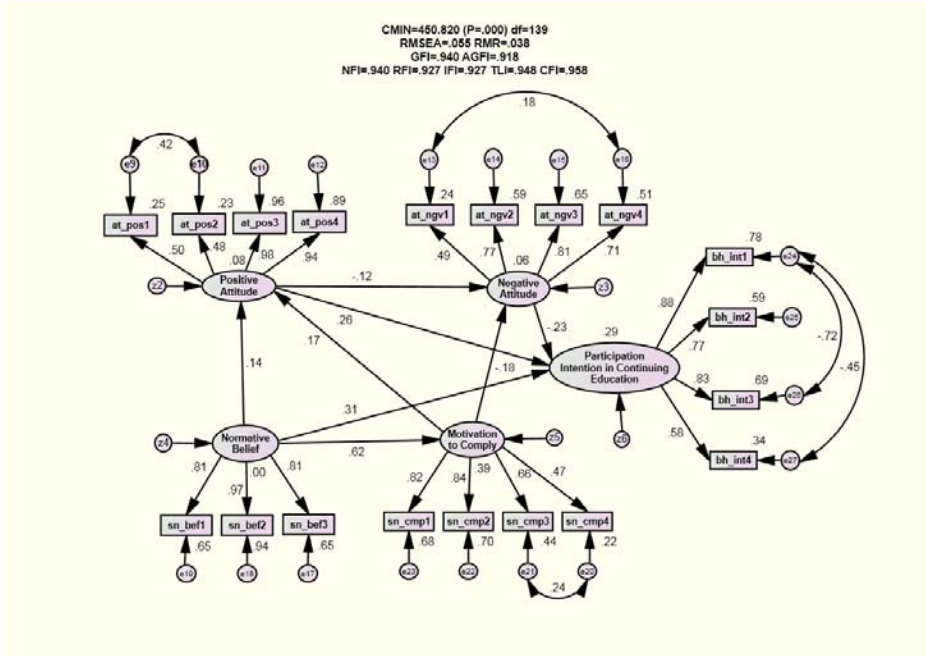

Figure 4. The Parsimonious Structural Equation Model