

A Measurement of Higher Education Students' Intention in International Class Online-Learning System for Confronting the Global Education Challenge

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ABSTRACT

The global education is inevitable situation that must be confronted by worldwide higher education. The high standards and the ability to demonstrate the online-learning approach is measured in this research. The behavioral theory named Theory of Reasoned Action (TRA) was used as the measured instrument. Four hypotheses were performed on each of respondent types. The respondent was part of Taiwan public university. A total of 160 Taiwanese and 160 foreign students were involved in filling the questionnaire. A Structural Equation Model (SEM) with the approach of Confirmatory Factor Analysis (CFA) was conducted. The analysis result reveals the positive relationship on TRA model in the respondents' data. All the hypotheses were accepted. The result indicates 38 percent of Taiwanese students' intention in using online learning, while 43 percent of foreign students' intention were projected. Several discussions were mentioned. The result can be used for reference by any institution in which they will conduct the international class with online-learning media.

Keywords: *online learning, TRA, Taiwanese, foreign students, SEM*

1. INTRODUCTION

The globalization trend has changed today's universities paradigms all around the world to attract not only the local students but also the international students. The paradigm to put an attention to the students and satisfy their educational system followed by the advance growth of internet technology, it has enforced the higher education to implement and use the online-based learning system. Online-learning is perceived as an assistive system that applies internet technology to help the learning process between professors and students integrated into a single system [1]. The use of online-learning principally intends to provide the solution ways to share the course material and other educational information without any limitation of time and geographic issue [2]. An online-learning approach is regarded as a successful learning system if it can act as an interactive classroom and be able to meet users' expectations. If the civitas academia feel unsatisfied to use the online system, then its advantages cannot be optimally taken.

The present study use the Taiwan higher education as the case study. In Taiwan, where the word used is not in alphabetic type, the communication between local language and international language through online-learning needs to be adjusted in order to minimize the

obstacles of communications during the teaching class process. Some of the available online-learning provided by third parties offers the multi-language translation as one of the online-learning features [3,4]. This study hence tried to examine both local students and international students' experiences in using online-learning system. A famous behavior research model, namely the Theory of Reasoned Action (TRA), is being utilized as the evaluation model. The aim is to determine the critical factor which has the evidence of significance influence on students' intention to use the online-learning system and to provide several recommendations based on the findings.

2. LITERATURE REVIEW

The TRA model was initially introduced by Fishbein and Ajzen to investigate the human behavioral intention in the disciplines of social science researches [5,6]. The TRA model consists of several factors that able to depict the humans' intention, which consist of Attitude as well as Subjective Norms (SN) and Behavior Intention (BI).

Based to Fishbein and Ajzen, Attitude (AT) is easily described as the degree of people agree on the likable and unlikable feeling in performing the behavior particular behavior. Subjective Norms (SN) are defined as the human perception that comes from someone or some group who

are considered essential to give significant influences to perform a specific behavior. Both A and SN have a positive relationships with Behavior Intention (BI). Behavior Intention shows the human intention in performing a particular behavior. Several empirical types of research regarding IT-related usage are well explained by the TRA model [7-10]. In this research, the TRA model will be used to measure both local and international students' intention in using the online-learning system. The perceived interactivity will be added as the antecedence of A and SN in predicting the BI.

In this research, Attitude (A) is described as the student favorable perception to use online-learning [11]. Past researches with multiple models validated the role of attitude to provide as a strong predictor in user behavior intention [12,13]. Evidence on behavior research related to online-learning shows the positive value between A and BI [11,14,15]. Thus, the correlation is tested on both local and international students on the following hypothesis:

H1: Attitude (A) is positively perceived to behavior intention (BI) of the student to use online-learning. Subjective norms (SN) can be seen as the student perception that comes from someone or some group who have a significant influence to use online-learning. Cheon et al. [16], in his research related to mobile learning readiness in university, mentioned that professors and peer-students are the two instances in university who provide the massive influence on the student to use mobile learning. Similarly, in this research, professors and peer-students have more occasions to encourage the student in using online-learning by personally use in class activity. Several research studies reveal the positive value between SN and BI in using online-learning [14,17]. Therefore, the following hypothesis is proposed:

H2: Subjective Norms (SN) are positively perceived to behavior intention (BI) of the student to use online-learning.

Perceived interactivity (PI) is used as the antecedences factor due to the use of the online-learning tool intended to assist the communication for both professors and students in developing conducive situation. Perceived interactivity is described as a personal perceived on communication mechanism and capability in responsive and flexible navigated matters [11]. The positive value of PI was seen by Sun and Shu research [18]. Similar result is shown by Lin, et al. [11] has validated the significant correlation value of PI to affect the Attitude through the mediation of the TAM model. This study considers not only PI can influence the A, but also PI will influence the SN. Although there is no evidence to validate the correlation in past research, the probability of PI in affecting SN similarly has the same portion to PI in affecting A. Therefore, both correlations from the PI to A and PI to SN are tested on the proposed hypotheses:

H3: Perceived interactivity (PI) is positively perceived to attitude (AI) of the student to use online-learning.

H4: Perceived interactivity (PI) is positively perceived to subjective norms (SN) of the student to use online-learning.

The four inter-correlated factors, as shown in Figure 1., will be tested by SEM to justify the initial hypotheses.

3. RESEARCH METHODOLOGY

The method of this study is a structural model relationship of the extended TRA model, with the statistical confirmatory factor analysis (CFA). A developed questionnaire was prepared as instrument for gathering the data as the depiction of each indicator. The questionnaire comprised of two sections. The first section is asking about nine observed variables as the representation of the extended TRA model. The nine observed variables were measured by a five-point Likert scale, which projected from 1 as "I strongly disagree" to 5 as "I strongly agree." The next section was exploring the background profile. The questionnaire was taken from July 2013 to October 2014, and a total of 160 Taiwanese and 160 foreign students' data respondents was collected.

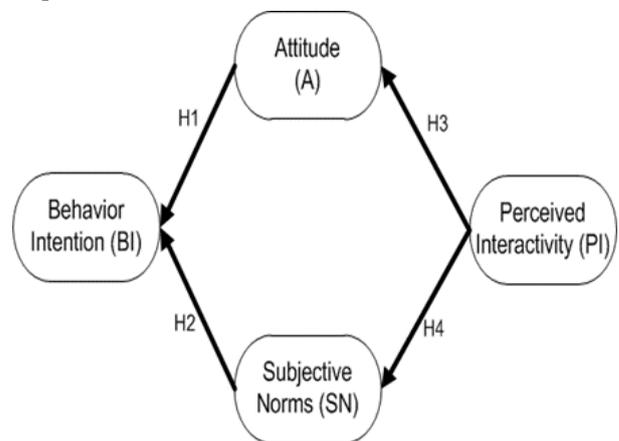


Figure 1. The proposed hypothesis

4. ANALYSIS AND DISCUSSION

Both online-paper-based questionnaires were collected. A total of 320 respondents, which consist of 160 local students and 160 international students participated in the study. The 209 male and 111 female recorded the respondents' gender. The age of the respondents ranges from 19 to 45 years old. Table 1 and Table 2 summarized the detailed statistical result for fifteen observed questions of both local and international students. All of the average values of each question ranged between 3 and 4. The results explicitly reveal that respondents at least slightly agreed upon the importance of factors BI, SN, A, and PI based on their online-learning experiences. The value of Cronbach α of both Table 1 and Table 2 exceeds 0.70 [19,20], which indicates the consistency and acceptable reliability of the questionnaire. In the similar consistency check, composite reliability (CR) shows the reliability by taking the value of the loading (β) as the parameter, and this study has gathered more than 0.70 for both CR and loadings [16,21]. The

average variance extracted (AVE) shows the variable quantity to describe the constructed model, and it requires a minimum of 0.5 [16]. Both Table 1 and Table 2 show the excellent reliability and convergent validity, which can be said as statistically satisfied.

Table 1. Descriptive Statistics of Taiwanese Students

Items	Mean	Stdev	β	α	CR	AVE
BI_1	3.94	0.78	0.81	0.85	0.84	0.64
BI_2	3.69	0.76	0.76			
BI_3	3.70	0.80	0.83			
A_1	3.61	0.77	0.81	0.83	0.84	0.63
A_2	3.59	0.74	0.88			
A_3	3.62	0.72	0.68			
SN_1	3.27	0.81	0.87	0.88	0.88	0.72
SN_2	3.22	0.81	0.89			
SN_3	3.36	0.80	0.78			
PI_1	3.21	0.76	0.79	0.80	0.80	0.57
PI_2	3.26	0.83	0.76			
PI_3	3.46	0.77	0.72			

Table 2. Descriptive Statistics of Foreign Students

Items	Mean	Stdev	β	α	CR	AVE
BI_1	3.71	0.96	0.77	0.86	0.85	0.66
BI_2	3.48	0.98	0.83			
BI_3	3.66	0.91	0.84			
A_1	3.85	0.87	0.90	0.91	0.91	0.77
A_2	3.86	0.82	0.90			
A_3	3.85	0.90	0.84			
SN_1	3.2	1.0	0.81	0.90	0.90	0.75
SN_2	3.2	1.0	0.92			
SN_3	3.2	0.91	0.87			
PI_1	3.47	0.92	0.85	0.78	0.80	0.59
PI_2	3.24	0.89	0.89			
PI_3	3.67	0.81	0.51			

The result of factor loadings in Table 1 and Table 2 shows the value of more than 0.7, except for A3 in Table 1 and PI3 in Table 2. Both values are considered as a weak value to represent the factor's dimensionality, and therefore, it must be eliminated on both sides for comparison purposes. The study reveals the model fit of both local and international students have met up the required value of more than 0.90 [22-32], which are Goodness of Fit (GFI) by 0.95 and 0.93; Normed Fit Index (NFI) by 0.95 and 0.94; the index of Tucker Lewis (TLI) by 0.98 and 0.96; the index of Comparative Fit (CFI) by 0.98 and 0.97. The findings revealed the evaluation mode to have a good fit and robust enough to represent the real situation in both local and international students' perception.

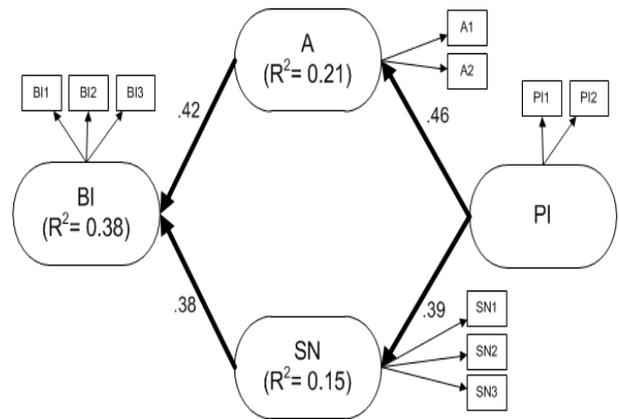


Figure 2. The result of the local student model

The results of structural equation modeling (SEM) are shown in Figure 2 and Figure 3. Four correlations have positive results. This study hence validated the four hypotheses in the overall model. Attitude factor was revealed to be a dominant factor to affect Taiwanese and foreign student's behavior intention ($\beta_{A \rightarrow BI} = 0.42$ and 0.47 accordingly). The findings indicate how the favorable feeling can majorly affect the student's behavior intention to utilize the online-learning, and the study suggests several recommendations to respond to the result.

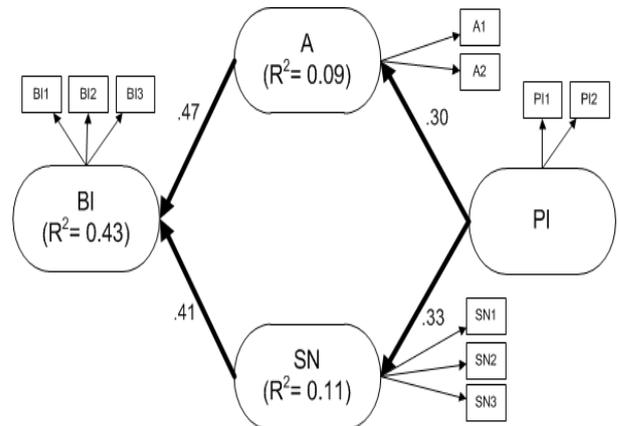


Figure 3. The result of the international student model

The first recommendation is by emphasizing on how to make the possible environment in the teaching class, where both local student and international student can realize by themselves to like to operate online-learning frequently. Since the attitude is affected by the interactivity factor of online learning, the interaction should be performed as pleasant as possible. Some other research mentioned how the usefulness and the easiness to use on IT-device could enhance the student's attitude [13, 33], which can also be suggested in this study to create the circumstances where the student captures the interactivity of online-learning as useful and easier to use. In terms of behavior intention comparison, by the specific TRA measurement model, international students perceive a more significant value to use online learning than local students. The situation majorly is driven by the value of A ($\beta A \rightarrow BI = 0.47$) and SN ($\beta SN \rightarrow BI = 0.41$) that international students' feelings are considerably more prominent than the value of A ($\beta A \rightarrow BI = 0.42$) and SN ($\beta SN \rightarrow BI = 0.38$) of local students. This situation leads to the suggestion to elevate the A and SN of the local student to elevate the behavior intention in using online learning. Finally, the results of BI's regression weight of both local and international students are comparable to other behavior research, which used SEM and put the online learning as the evaluation object [11].

5. CONCLUSION

The use of online-learning provides a pleasant learning environment for both students and professors. The online-learning platform enabled more accessible and faster communications between participants in university and considered as a vital tool. This research investigates the experiences of both local and international students using E-learning by using extended Theory of Reasoned Action (TRA). The proposed on each model is comprised of the four factors, and the measurement validated all four hypotheses on both local student model and international student model. The research affirms the convenience of applying the extended TRA model as a structured combination of measurement on a student's behavior intention level in online-learning.

Attitude is considered as a dominant factor that exerts a strong influence on both local and international students' behavior intention. The findings led to practical recommendations emphasizing on how to make the likely situation in the teaching class, where both local student and international students can consciously by themselves like to operate online-learning frequently. The interaction should be performed as pleasant as possible to create the circumstances where the student capture the interactivity of online-learning as useful and easier to use. The study also considers how international students have a more significant intention in using online-learning, which leads to the recommendation to encourage the A and SN of the local student to increase the behavior intention in using online-learning

In conclusion, the evaluation model's variance percentage of behavior intention is 38 percent of local students and 43

percent of international students. This finding leads to the future study by exploring exogenous factors outside of the model that affect the students' intention level of online-learning usage.

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