THE APPLICATION OF EXPERIENTIAL TEACHING METHODS TO ENHANCE STUDENT PERFORMANCE: A CASE OF VOCATIONAL COLLEGES IN GUANGZHOU, CHINA

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Abstract

This study aims to examine the significant impact of perceived ease of use, perceived usefulness, use attitude, social influence, use intention, convenience, and use behavior on student performance in the context of experiential teaching methods in the curriculum of labor education at Guangzhou Vocational Colleges. Questionnaires and quantitative analysis were used to collect sample data. The validity and reliability of the questionnaire were tested before it was issued. The data were analyzed by confirmatory factor analysis (CFA) and structural equation modeling (SEM) to verify the model's goodness of fit, confirm the causality and influence degree among variables, and test hypotheses. The study found that behavioral intention has the strongest impact on the use behavior, and use behavior significantly impacts Students' performance.

Introduction

Labor education is not only the education of labor itself but also the education of educators to students' labor ideology, labor knowledge and skills, and labor practice, embodying labor education's educational nature. Moreover, it is a kind of educational labor, the education of students' labor thought, knowledge, and skill; labor practice is obtained through labor, reflecting the labor of work education (Yang, 2020). The experiential teaching method is a teaching mode in which teachers create a purposeful teaching situation according to the teaching content, stimulate students' feelings and guide them to perceive and comprehend knowledge, and promote learning with emotion in the experience and practice, for the sake of promoting the integration of knowledge innovation and comprehensive use (Hu et al., 2003). In recent years, different kinds of schools opened labor education courses. Higher vocational colleges generally carry out experiential teaching methods such as service learning, professional practice, and community service, showing the characteristics of integration with community and specialty, offline and online integration, labor education, and modern education technology (Liu, 2020).

Experiential teaching means that teachers create teaching situations in teaching, and students can learn through experience, avoid negative emotions, and wrong understanding, correctly understand positive emotions, and make students fully feel the fun of learning to achieve the goal of promoting the independent development of students. (Zhang & Nunamaker, 2003). Experiential teaching emphasizes a teaching mode: to understand the phenomena through practice and to perceive, understand, feel, and verify the teaching content with personal experience (Zhang, 2006).

Applying experiential teaching methods in the curriculum of labor education in colleges can improve the teaching quality of labor education. Experiential teaching in labor schooling generally includes two types: real labor education scene experiential teaching and virtual reality education scene experiential teaching using 5G and AR and other artificial intelligence technology (Jin et al., 2019). Thus, this study aims to explain the relationship between the application of students' use behavior and their performance. This paper examines perceived ease of use, usefulness, use attitude, social influence, use intention, convenience, use behavior, and student performance.

Literature Review

1. Perceived Ease of Use

Perceived ease of use refers to the degree to which people think they can get things done with a particular system without much effort. In addition, perceived usefulness refers to the degree to which people believe that using a particular system will improve their results and performance (Chen et al., 2008). Perceived ease of use is a major determinant of consumer technology adoption behavior; It refers to the degree to which the application of technology

can release effort to the consumer (Davis, 1989; Davis et al., 1989). Therefore, ease of use means there is no complexity in people's expectations for new technologies (Teo et al., 2003). Taylor and Todd (1995) argued that perceived ease of use is whether students perceive online learning as easy to operate, which promote both perceived usefulness and attitude (Lee, 2008; Sanchez & Hueros, 2010). Thus, below assumptions are made:

H1: Perceived ease of use has a significant impact on perceived usefulness.

H3: Perceived ease of use has a significant impact on attitude.

2. Perceived Usefulness

Perceived usefulness is a subjective perception of the extent to which a user subjectively believes that the performance of a particular system can be improved during use (Teo et al., 2006). Perceived usefulness is an important predictor of the intention to use technology in different application scenarios (Avci & Askar, 2012). Previous studies applied perceived usefulness to measure the behavioral intention to use various technologies (Chan & Lu, 2006; Lee, 2009; Ma & Liu, 2004). Therefore, users' perceptions of usefulness can determine attitude and behavioral intention. This phenomenon means a useful system incentivizes more participation and exploration in an online learning environment (Lin, 2013). Therefore, this study proposes the following assumptions:

H2: Perceived usefulness has a significant impact on attitude.

H5. Perceived usefulness has a significant impact on behavioral intention

3. Attitude

Attitude is the individual acting on positive or negative feelings (Fishbein & Ajzen, 1975, p. 216). Attitude can test one positive or negative evaluation of a particular action, and the expected result can be predicted according to the formation of the view (Lee, 2009). According to Ajzen (1991), attitude comprises beliefs that affect a person's primary behavioral intentions. Attitudes are composed of beliefs that affect a person's overall behavioral intentions. Attitude is the psychological tendency of individuals to evaluate certain behavioral advantages (Lim & Ting, 2014). Venkatesh and Davis (2000) found that users' attitude towards technology positively affects behavioral intention. Consequently, this research can put forward a hypothesis:

H4: Attitude has a significant impact on behavioral intention.

4. Social Influence

Social influence means that people think it is important for those who should participate in experiential service learning and social service of virtual simulation education scene based on artificial intelligence technology (Alam et al., 2019). Social influence refers to the degree to which the opinions of others influence an individual's intention to use a particular technology (Isaac et al., 2018). Social influence refers to a change in others' thoughts, feelings, attitudes, or behaviors resulting from interaction with another person or group (Rashotte, 2007). Social influence has been recognized as an important correlation between

the use of technology and the intention to use it (Venkatesh & Davis, 2000). Social influence greatly impacts behavioral intentions, reflecting 64% of the shifts in behavioral intentions. (Maldonado et al., 2009). The previous job, which emphasizes the value of social factors in embracing technology use, aligns with the beneficial link of social effect and behavior intent. (McInerney, 2005). Therefore, a hypothesis is suggested:

H6: Social influence has a significant impact on behavioral intention.

5. Behavioral Intention

Behavioral intention is an important measure of whether technology can be used (Venkatesh et al., 2003). Behavioral intention refers to the willingness of individuals to use e-learning systems in the future from the existing learning methods. It indicates that the user is willing to carry on one specific task. (Samsudeen & Mohamed, 2019). As mentioned earlier, intent is the degree to which a person plans to perform or not perform a function in the future (Venkatesh et al., 2003). Behavioral intent refers to the possibility that a person plans to use technology (Idorenyin et al., 2018). In addition, attitudes can explain users' inner and outer perceptions more than other aspects (Hernández-Ortega, 2017). An individual's intent to engage in a certain activity is directly tied to his attitude, which is a key factor in forecasting a person's future actions (Lau & Woods, 2008). Therefore, the following assumption is proposed:

H7: Behavioral intention has a significant impact on use behavior.

6. Facilitating Conditions

Facilitation conditions refer to supporting and assisting users in implementing the technology. Facilitation conditions refer to the presence of factors in the surrounding environment that influence a person's performance of an act (Mehlinger & Powers, 2002), According to Cohen and Wills (1985), supporting tools are essential to drive use behavior. That way, users can get support from people of the system they need (Farooq, 2018). Therefore, this study makes a hypothesis:

H8: Facilitating conditions have a significant impact on use behavior

7. Use Behavioral

Use behavior is defined as the intensity with which the user uses the technology (Awwad & Al-Majali, 2015). Usage behavior is a prominent technology acceptance and usage model that supports the relationship between behavioral intent and usage to capture acceptance (Dwivedi et al., 2011). The use behavior mainly displays a person's ability to use the information system; it relates to the use of the information system scope, nature, and repeatability. It clearly shows that positive behavioral intentions can lead to positive use of what systems to do something (Agudo-Peregrina et al., 2014). Haan et al. (2019) found that using mobile devices happily is another effect of greater phone usage. The useful employing mobile devices if buying can be traced to this behavior (Grewal et al., 2018). Hence, the below hypothesis is developed:

H9: Use behavior has a significant impact on student performance.

8. Students' Performance

Students' Performance refers to the improvement of teaching quality after teaching. Generally, it includes enhancing and improving students' comprehensive quality and professional accomplishment (Idorenyin et al., 2018). As far as online learning is concerned, students are more likely to participate in online learning if they believe that the online learning system will help improve their learning efficiency and academic performance, which positively impacts user performance (Timothy et al., 2010). From the result analysis of the student model, the influence of students' behavior of information systems on students' achievement is not significant. However, from the result analysis of the teacher model, the influence of using behavior on students' achievement is significant. From this dimension, the hypothesis is accepted by teachers, although students negate it. Recent studies have confirmed teachers' views on the problem of use behavior (Venkatesh et al., 2003).

Research Framework

The researchers propose a conceptual framework model, consisted of eight variables and nine hypotheses, as shown in Figure 1:
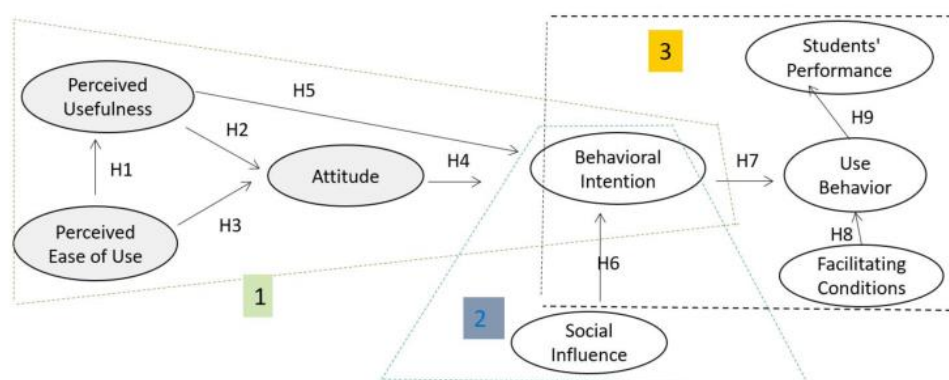
Figure 1 Conceptual Framework

Research Methodology

In this study, the questionnaire has thirty-nine measurements, three demographics, and four screening questions. The questionnaire asked about screening, lifestyle, and measurement goals. Before the questionnaire was used to collect data and test the assumptions between each conceptual framework variable, an IOC test and a Cronbach's Alpha coefficient (reliability coefficient) were performed to ensure their effectiveness and reliability. After validity and reliability testing, the questionnaire was drawn up by WJX software and sent online to first-year students, sophomores, and juniors of Guangzhou Panyu

Polytechnic and Guangdong AIB Polytechnic. Anderson and Gerbing (1988) proposed a two-step Structural Equation Model (SEM) technique used in this study to analyze the sample data. The first step is to utilize SPSS and Amos for confirmation factor analysis, or CFA, in order to assess the validity of the sample data convergence. The second step is to utilize SEM to look into the causal between all of the mental model structures to test the rationale and value of the variable relations' assumptions.

        1. Population and Sample Size

        The subjects for the study were students from two higher vocational institutions in, Guangzhou Panyu Polytechnic and Guangdong AIB Polytechnic. They have all engaged in experiential labor education, which promotes that recruiters are skilled in experiential teaching methods and have attended labor education courses. The minimum sample size calculated by the calculator is 444. To collect efficient data, the researchers determined the size of 500 samples for the study. Sampling techniques involve judgmental, stratified random (Table 1), and convenience sampling.

Table 1 Population and Sample Size

University	Population	University
Guangzhou Panyu polytechnic	11559	186
Guangdong AIB polytechnic	19751	314
Total	**31310**	**500**

Results and Discussion

        1. Demographic Information

        Table 2 shows the demographic data of 500 respondents. The Guangzhou Group was distributed to students from Guangzhou Panyu Polytechnic and Guangdong AIB Polytechnic. The respondents included 181 males and 319 females, accounting for 36.2% and 63.8%, respectively. There were 238 first-year students, 241 sophomores, and 21 juniors, accounting for 47.6%, 48.2%, and 4.2%, respectively.

Table 2 Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	181	36.2%
	Female	319	63.8%
Year of Study	Freshman	238	47.6%
	Sophomore	241	48.2%
	Junior	21	4.2%

2. Confirmatory Factor Analysis (CFA)

According to Salkind (2010), structural validity tests the conceptual framework's ties or interactions between structure and other elements. Cronbach's alpha (CA) evaluates the inner consistency of items inside a framework structure (Killingsworth et al., 2016). The Greater Cronbach's alpha, the higher the item's reliability. Alpha values range from 0 to 1, acceptable if the alpha value is between 0.7 and 0.8. A value between 0.8 to 0.9 is considered very good, and a value of 0.9 or higher is considered excellent (Hair et al., 2010). Factor loadings are above 0.50 are significant (Hair et al., 1998). Fornell and Larcker (1981) indicated that CR and AVE values are 0.7 or above and 0.4 or higher. Table 3 shows that CR values are usually over 0.8, with a minimum of 0.734 and a maximum of 0.941. The mean-variance (Ave) values were all greater than 0.4, with the vast majority more than 0.5, ranging from 0.48 to 0.665. As such, all figures are significant.

Table 3 Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Latent Variables	Source of Questionnaire	No. of Items	Cronbach's Alpha	Factors Loading	CR	AVE
Perceived Ease of Use (PE)	Davis (1989)	8	0.963	0.792-0.842	0.941	0.665
Perceived Usefulness (PU)	Teo et al. (2006)	6	0.967	0.705-0.764	0.877	0.543
Attitude (ATT)	Teo et al. (2006)	3	0.917	0.752-0.793	0.819	0.602
Social Influence (SI)	Alam et al. (2019)	4	0.868	0.703-0.742	0.815	0.524
Facilitating Conditions (FC)	Schrum (1999)	5	0.962	0.661-0.683	0.826	0.487
Behavioral Intention (BI)	Venkatesh et al. (2003)	4	0.921	0.671-0.736	0.815	0.524
Use Behavior (UB)	Ajzen (1991)	3	0.932	0.681-0.699	0.734	0.48
Students' Performance (SP)	Timothy et al. (2010)	6	0.974	0.642-0.718	0.847	0.48

Source: Created by the author.

Table 4 is the fitting index of the Guangzhou Sample Group. The statistical value of each indicator is compared with the acceptable standard. The values were CMIN/DF = 1.075, GFI = 0.939, AGFI = 0.929, NFI = 0.925, CFI = 0.994, TLI = 0.994 and RMSEA = 0.012.

Table 4 Goodness of Fit for Measurement Model

Index	Acceptable Values	Statistical Values
CMIN/DF	<5.0 (Wheaton et al., 1977)	1.075
GFI	>0.90 (Bagozzi & Yi, 1988)	0.939
AGFI	>0.85 (Schermelleh-Engel et al., 2003)	0.929
NFI	>0.90 (Arbuckle, 1995)	0.925
TLI	>0.90 (Hopwood & Donnellan, 2010)	0.994
CFI	>0.90 (Hopwood & Donnellan, 2010)	0.994
RMSEA	<0.10 (Hopwood & Donnellan, 2010)	0.012
Model summary		In Harmony with empirical data

Note: CMIN/DF = The ratio of the Chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, TLI = Tucker-Lewis index, CFI = Comparative fit index and RMSEA = Root mean square error of approximation.

When the square root of AVE is larger than the coefficient of any related structure, the validity of the discriminant is verified, And the higher the roots of AVE, the higher the power of the AVE value (Fornell & Larcker, 1981).

Table 5 Discriminant Validity

	PE	PU	ATT	SI	FC	BI	UB	SP
PE	**0.815**							
PU	0.208	**0.737**						
ATT	0.332	0.226	**0.776**					
SI	0.298	0.248	0.227	**0.724**				
FC	0.199	0.226	0.288	0.248	**0.698**			
BI	0.210	0.316	0.306	0.233	0.227	**0.701**		
UB	0.358	0.384	0.348	0.357	0.309	0.361	**0.693**	
SP	0.337	0.267	0.311	0.309	0.269	0.306	0.340	**0.693**

Note: The diagonally listed value is the AVE square roots of the variables.

3. Structural Equation Model (SEM)

The degree of the structural model fitting is verified with the goodness of fit index. In Table 6, CMIN/df = 1.334, 5.0, GFI = 0.914, > 0.90; AGFI = 0.903, > 0.85; NFI = 0.902, > 0.90; TLI (NNFI) = 0.972, > 0.90; CFI = 0.973, > 0.90; RMSEA = 0.026, > 0.10. For such, the model's degree of fit is confirmed.

Table 6 Goodness of Fit for Measurement and Structural Model

Index	Acceptable Values	Statistical Values
CMIN/DF	<5.0 (Wheaton et al., 1977)	1.334
GFI	>0.90 (Bagozzi & Yi, 1988)	0.914
AGFI	>0.85 (Schermelleh-Engel et al., 2003)	0.903
NFI	>0.90 (Arbuckle, 1995)	0.902
TLI	>0.90 (Hopwood & Donnellan, 2010)	0.972
CFI	>0.90 (Hopwood & Donnellan, 2010)	0.973
RMSEA	<0.10 (Hopwood & Donnellan, 2010)	0.026
Model summary		In harmony with empirical data

Note: CMIN/DF = The ratio of the Chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, TLI = Tucker-Lewis index, CFI = Comparative fit index and RMSEA = Root mean square error of approximation.

4. Hypothesis Testing Result

The relationship between the dependent variables in model assumptions can be weighed with regression or average path coefficients.

Table 7 Hypothesis Results of the Structural Equation Model

Hypothesis	(β)	t-value	Result
H1: PEOU ⟶ PU	0.234	4.725*	Supported
H2: PU ⟶ ATT	0.185	3.585*	Supported
H3: PEOU ⟶ ATT	0.338	6.593*	Supported
H4: ATT ⟶ BI	0.301	5.331*	Supported
H5: PU ⟶ BI	0.300	5.441*	Supported

Table 7 (Continued)

Hypothesis	(β)	t-value	Result
H6: SI → BI	0.180	3.457*	Supported
H7: BI → UB	0.505	7.657*	Supported
H8: FC → UB	0.299	5.318*	Supported
H9: UB → SP	0.476	7.464*	Supported

Note: * = p<0.05.

Source: Created by the author.

The behavioral intention has the greatest influence on the use behavior. The standardized path coefficient of behavioral intention and use behavior in H7 was 0.505, and t-value was 7.657. This supports the previous studies of Hubert et al. (2017). This clearly shows the value of behavioral intention in using experiential teaching in the labor education curriculum.

Use behavior significantly impacted Students' performance with a standardized path coefficient of 0.476 and a t-value of 7.464 in H9. This supports the previous studies of (Davis, 1989; Davis et al., 1989, 1992). This amply shows the effect of labor training on students' professional quality and ability success.

Perceived ease of use significantly impacted perceived usefulness with a standardized path coefficient of 0.234 and a t-value of 4.725 in H1. This supports the previous studies of Deng et al. (2011), and Ajzen (1991). This shows that whether the experiential teaching strategy is easily popularized in the employment education curriculum has an important effect on whether the experienced teaching method is effective.

Perceived usefulness significantly impacts attitude with a standardized path coefficient of 0.185 and a t-value of 3.585 in H2. This supports the previous studies of Çelik and Yilmaz (2011), Lee et al. (2006), Davis (1989), Ajzen (1991), Ma and Liu (2004), Chan and Lu (2006), and Lee (2009). This shows that perceived simplicity of use significantly affects attitudes toward job use of experiential lessons in the labor education curriculum.

Perceived ease of use significantly impacted attitude with a standardized path coefficient of 0.338 and a t-value of 6.593 in H3. This supports the previous studies of Davis et al. (1989, 1992), Chen et al. (2008), Davis (1989), Venkatesh and Davis (2000), and Davis (1989). This indicates that perceived ease of use significantly impacts attitudes toward experiential lessons in labor education.

The attitude significantly impacted the behavioral intention with a standardized path coefficient of 0.301 and a t-value of 5.331 in H4. This supports the previous studies of Park and Kim (2014), and Chennamaneni et al. (2012). This proves that attitude significantly affects

the intention to use experiential lessons in the labor education curriculum.

Perceived usefulness significantly impacted the behavioral intention with a standardized path coefficient of 0.300 and a t-value of 5.441 in H5. This supports the previous studies of Davis (1989), Ma and Liu (2004), Chan and Lu (2006), Lee (2009), and Lin (2013) This shows how perceived value has a major effect on using experiential teaching methods in the labor education curriculum.

Social influence significantly impacted behavioral intention with a standardized path coefficient of 0.180 and a t-value of 3.457 in H6. This supports the previous studies of Venkatesh et al. (2003), Tarhini et al. (2015), and Venkatesh et al. (2003). This shows that social impact has higher effects on using experiential teaching approaches in the labor education curriculum.

Facilitating conditions significantly impacted use behavior with a standardized path coefficient of 0.299 and a t-value of 5.318 in H8. This supports the previous studies of Raman et al. (2014), Ali et al. (2016), and Tan (2013This shows that convenience significantly affects using experiential teaching methods in the labor education curriculum.

Conclusions, Recommendations, Limitations, and Future Research

1. Conclusions

This study aims to study the influencing factors of experience teaching in the labor education program and its promoting influence on students' comprehensive vocational ability development.

The researchers proposed nine hypotheses based on eight variables in the conceptual framework; this paper discussed the variables that impact behavior intention and whether experiential labor education may boost students' comprehensive vocational ability development. After getting the questionnaire and evaluation reliability, it is sent online via WJX software to students from two professional colleges in Guangzhou with expertise-based labor studies. CFA confirms and tests the conceptual model's validity and reliability using the sample data collected. SEM is also used to examine the factors that impact the intention to employ experiential teaching methods in labor education curricula. All nine hypotheses stated in the framework are supported and shown to be able to achieve the research objectives. The study can be summarized as follows:

Firstly, the effect of labor education on improving student performance is considerable. By Venkatesh et al. (2003), user behavior has a major effect on students' performance. In the survey, this study discovered that learners who believe that taking part in practical labor education has a major effect on their education. Also, the behavior intention and implementation condition significantly impact whether teachers and students use the experiential teaching technique during labor education. Therefore, we need to emphasize the ease and utility of applying experiential labor education.

Secondly, perceived usefulness and attitude are the two important variables in experiential teaching methods. The study found that perceived ease of use has a major impact on attitude and an indirect impact on intention to use. Work experience in life is more prevalent in labor education, and creating and simulating teaching expertise needs to be developed more. Also, students hope for the labor education classes that might be given virtual simulation technology. Therefore, training is needed to boost the literacy and management skills of colleges and universities' curriculum developers, administrators, and staff.

2. Recommendations

First, we should focus on the direct or indirect elements that impact the experiential teaching approach used in the labor education curriculum. The curriculum of practical labor education may be affected directly or indirectly by factors such as perceived utility, perceived ease of use, attitude, social impact, convenience, and behavioral intention. Schools should focus on these key elements to use the experiential learning method during labor education.

Secondly, we must emphasize the ease and worth of applying experiential labor education. The results of this study proved that convenience and behavioral intent were the most useful factors of behavioral implementation. Therefore, to increase the desire of learners to participate in practical education in jobs, high-quality technical help, adequate training for teachers and service managers, and access to new educational technology tools should be strengthened.

Finally, vocational colleges ought to develop elite courses in labor education. The use of the experiential teaching approach in school needs to receive more focus in colleges. Then, we should enhance convenience, improve the utility of practical instruction in the context of labor education, reinforce teachers' and students' intent to use the method, and raise the standard of the course.

3. Limitations and Future Research

We need to pay more attention to the limitations of this study. Firstly, we created a tiny study with a small sample size, analyzing only 500 students from two professional colleges. In order to further improve the study's validity and reliability, we could expand the survey's scope and raise the sample size in future research. Secondly, the research is aimed at the students. The use and effect of active learning in the labor education curriculum may be viewed differently by teachers and students. Therefore, educators could be added to the survey to enhance the output and quality of future research.

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