

Student and Web-Learning Satisfaction in Henan, China

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Since the 1960s, the web learning has been around. However, its adoption and popularization mainly started after the internet and web's popularization. This study aims to study on web-learning satisfaction among students in Henan, China. The sample in this study refers to those students in Xinyang City, aged between 15-29. This Pearson Correlation Analysis confirmed that learner dimension, instructor dimension, course dimension, technology dimension, design dimension and environmental dimension have positive significant relationship on student web-learning satisfaction in China. Multiple Regression Analysis showed that environmental dimension is the strongest predictor for student web-learning satisfaction in this study. This study has provided an insight of the web learning in China at the same time, it could be referenced or served as guideline for other researchers who are interested to explore student preference in web learning.

1. Introduction

Since the 1960s, the web learning has been around. However, its adoption and popularization mainly started after the internet and web's popularization. Nowadays, web learning has been adopted in many industries such as education, business and also the military (Bezhovski and Poorani, 2016). Especially in education, the technology of the internet becomes more important due to a high standard of education can facilitate the development of a country. Even though most of the people believed that the internet technology brings more disadvantages instead of benefits to teenagers, but some of them found that learning through internet will increase the learning process. Hence, to improve students' thinking skill at a higher level, a suitable approach and an effective learning should be adopted in order to benefit all parties (Hamzah, Ariffin and Hamid, 2017). E-learning (sometimes called web-learning or Web-based learning) is anywhere, any-time instruction delivered over the Internet or a corporate intranet to browser-equipped learners. E-learning is mostly related with activities including computers and also interactive networks. The computer does not need to be the central element of the activity. Nevertheless, the computer and network must hold an important involvement in the learning activity. Moreover, web-based learning is related with learning materials delivered in a web browser, and as well as when the materials are

packaged on CD-ROM or other media (Tsai and Machado, 2002). Another definition provided by Javed Wasim et al. (2014) is mentioned below:

Web based learning is generally called online learning or e-learning due to it contains online course content. For example, discussion forums via email, video conferencing, and live lectures (video streaming) are all possible via the web. Web based courses may provide static pages such as printed course materials as well.

In China, the online education has grown and the market has started to flourish. The size of national online education market in the year 2010 was only 48 million. Three years later, the market began to grow and in 2015, the market reached 148 billion. The market is expected to reach 188 billion by 2016. The growth speed of online education market is not very fast, even though its market capacity is not small. The market spends time for those who has long fixed consumption habits and learning habits to change (Shen, 2017).

Since 2013, the number of online educational user has begun to rise fast and the rate of increase of users in the same year is only 8.6 per cent. In the year 2014, it is predicted that the population of online educational users will over 120 million. With the drive of the development of the Internet, the cover rate of online

educational method will enhance quickly (Shen, 2017). Online education is one of the fastest expanding industries in China. The number of online education users equaled 110 million with a market value of 114 billion RMB in 2015. The number of online learners grew 63 per cent to 179 million meanwhile the market value exceed doubled to 300 billion RMB by 2018. The trend is expected to keep on into the future time estimating which the market will increase to 714 billion RMB by 2025 (Lu, 2019).

This study focuses on the factors towards web learning satisfaction. Given the relative newness of internet-based education, theoretical perspectives of technology adoption seem particularly appropriate for predicting student satisfaction with web-based courses. The Technology Acceptance Model (TAM) suggests that beliefs and attitudes toward a technology are the primary determinants of whether the technology will be adopted (Davis, 1989; Davis et al., 1989). The two prominent variables in this model are the perceived usefulness of a technology and the perceived ease of use of a technology. In the TAM, beliefs that a technology is useful and easy to use influence the users' attitudes toward the technology, and thereby their decision to adopt it. This model has become well accepted in the information technology literature and has been found to be a valid predictor of usage of computer software e-mail and the World Wide Web. In the context of web-based courses, this suggests that perceived usefulness and the ease of use of the delivery medium will enhance students' satisfaction toward their course experience. An emerging perspective within computer-mediated communications (CMC) research suggests that rather than inhibiting interaction and social bonding, the flexibility inherent in CMC vehicles such as internet-based courses may help groups to reach levels of relational intimacy comparable to face-to-face groups albeit over a longer time period (Chidambaram, 1996; Walther, 1992). According to this perspective, flexibility in course delivery comes as a result of the medium being both place and time independent, allowing course conversations to continue over extended time periods (Taylor 1996).

China's rapid digital developments have greatly impacted people's lives in many ways. It has not only changed how people talk, shop, pay, or even date – it has also changed how they learn. The increasing popularity of web learning is bringing about major changes in China's education system. According to The China Online Education Report 2015-2020, the number of people studying online in 2014 was estimated at a staggering 77, 97 million. The coming

decade will therefore be pivotal for China's web-learning business. Previous studies have found that perceived usefulness, perceived ease of use, flexibility are good in explaining an individual towards new technology adoption (Davis, 1989) but not for satisfaction. Previous studies might indicate that lecturer's characteristics, tutor's characteristics, and course content will lead to students' satisfaction. However, these might generate different finding when apply to web-learning. Therefore, this research will identify what types of perceived values will significantly affect student satisfaction of web learning?

2. Literature Review

According to previous research, Arbaugh (2000) stated that instructor' timely response affects student satisfaction in e-learning. The rationale is that when student face issues in their online course, timely assistance from their instructors encourages students to continue their learning. Furthermore, Soon, Sook, found that there was a negative impact on students' learning, if instructors' fail to respond to students' problems in time. Thus, student satisfaction will be increase, if instructors are capable of handling activities of e-learning and also responding to students' needs and problems on time (Stefanovic et al., 2011).The instruction of instructors also plays an important role that affects student satisfaction (Stefanovic et al., 2011).

Due to web-Learning courses' flexibility in time, location, and methods, participation and satisfaction of web- Learning learners are facilitated (Arbaugh, 2002). In addition, elimination of physical barriers enables more dynamic interaction that fosters establishment of constructive learning and opportunities for cooperative learning (Brandon & Hollingshead, 1999; Salmon, 2000). According to previous study, Eom et al. (2006) concluded that the course structure had a correlation between student satisfactions. Sun et al. (2008) stated that flexibility and quality of e-learning course had significant relationship with student satisfaction (Barbera, Clara and Linder-Vanberschot, 2013).

Technology DimensionTo reach successful implementation and satisfaction of learners towards e-learning, the quality of technological attributes have to be excellent. Hence, the higher the quality and reliability in Information and Communications Technology (ICT), the higher the learning effects towards learners will be (Stefanovic et al., 2011). Technology is one of the main factors which have been highlighted in e-learning (Barbera, Clara and Linder-Vanberschot, 2013).Learners have to access to a

reliable equipment and must be familiar with technology used in the course in order to be successful (Martindale and U. Bolliger, 2004).

Perceived ease of use also has a significant impact on student satisfaction. Users' notion of ease of use is an important antecedent to perceptions of satisfaction. Davis, Bagozzi, and Warshaw (1992) stated "the easier a system is to use, the less effort required to carry out a given task". A web-Learning system's ease of use makes it possible for individuals to devote their attention to learning the course materials instead of spending additional effort learning the instrument. Consequently, a higher learning satisfaction should exist. Cakir (2014) concluded that the design dimension such as user friendliness, instructional design and application had a significant effect on student satisfaction in e-learning (Cakir, 2014).

According to the findings of the research, Askar et al. (2005) researched that interaction was determined to be the important factor in online learning environments. Thus, interaction was considered that it influences student satisfaction positively (Cakir, 2014). Using different evaluation method in e-learning systems will causes users to think that a connection is built between them and the instructors, and their learning efforts are properly assessed as well. So, e-learning system offers more assessment features and methods, student satisfaction will be increase due to the feedback from the assessment (Stefanovic et al., 2011).

User satisfaction has been a popular measure of information system effectiveness and has served mostly as a surrogate measure for the other dimensions of system success (Mtebe and Raphael, 2018). Student satisfaction in e-learning can be defined as the student's perception pertaining to the experience and perceived value of the education received while attending the e-learning course. Student satisfaction is vital due to it affect the level of student motivation (Martindale and U. Bolliger, 2004). Perceived student satisfaction is widely used in evaluating effects of learning environments and activities both academically and practically (Wang, 2003). Also, it is used as a key indicator of whether or not learners would continue to adopt a learning system (Arbaugh, 2000).

In this study, the TRA is applied to test the online purchasing intention. According to the theory, there are three constructs proposed to influence the intention of purchasing online. The first two constructs (perceived benefits and perceived risks) are considered as elements of attitudinal component. The third one (perceived website quality) is seen as the subjective

norm. These three constructs are predicted to impact the online purchasing intention directly. However, there are still some limitations of TRA on explaining the mechanisms of actual using towards an innovation and the role of behavioral tendency of a person.

3.0 Research Methodology

This is a positivist study and in terms of its purpose, this is an explanatory study. Most of the studies dealt with a broader age range sample, the generalization of their findings was an issue and identified as another research gap. Therefore, this study focused on a niche age group – student aged between 15-29. Looking into the sampling methodology, the population in this study is those students in Henan Province. They are eighteen cities in Henan Province. The sample in this study refers to those students in Xinyang City. In terms of sampling methodology, this study had used quota sampling methodology. Since, the total student's population in Henan province in year 2019 was approximately 10,000 students (worldpopulationreview.com,2019) which are considered as a large sample group. The results from Raosoft Sample Size Calculator suggested that 385 is the minimum sample size of the survey. (Margin of error = 5%; confident level = 95%). This study used quota sampling to select a sample A total of 100 respondents will be chosen for male and female, respectively, slimly 100 respondents will be chosen for two different age groups. 20 years old or below and 21 years old and above. Learner dimension instrument was adopted by Davis (1989). Instructor dimension instrument was modified from Stefanovic et al., (2011). Menawhile, Course, environmental and Technology dimension was modified from Stefanovic et al., (2011) scale. Design dimension and perceived learner satisfaction was adopt from Arbaugh and Duray (2002) and Mathews and Bhanugopam. (2014) scale respectively.

4.0 Data Analysis

From a total of 628 respondents, the majority of gender group is male, which accounted as 350 (55.7%) while female respondents are accounted 278 (44.3%). 84 of the total respondents who are aged between 15 to 18 and the majority of respondents are aged between 19 to 21, which are 511 of them (81.4%). The rest of the respondents were categorized to another two age groups: 22-25 and 26-29. 19 respondents (3.0%) and 14 respondents (2.2%) are belong to these two group respectively. The age group of 26-29 was considered as the minority age group in this study. Furthermore, 222 respondents have working experience while 406

respondents do not have working experience. In term of student type, exceed half of the respondents are local students, which account for 617 out of 628 (98.2%) while only 11 of the respondents (1.8%) are international students. Lastly, 147 respondents (23.4%) have fixed online learning schedule. Meanwhile, the rest of the respondents, 481 respondents (76.6%) have flexible online learning schedule.

The results of Independent T-test and One Way ANOVA of the respondents' characteristics with selected variables of learner dimension, instructor dimension, course dimension, technology dimension, design dimension, environmental dimension and learner satisfaction. The results showed that respondents who are categorized under learner dimension attained the following mean score. Based on age group, respondents aged between 15 to 18 had a mean of 37.95, aged between 19 to 21 had a mean of 38.77, aged between 22 to 25 had a mean of 39.74 and aged between 26 to 29 had a mean of 37.14. In term of gender, male respondents had a mean of 38.63 while female respondents had a mean of 38.69. Furthermore, respondents who have working experience had a mean of 38.34 while respondents who have not working experience had a mean of 38.83. Next, local students had a mean of 38.75 while international student had a mean of 33.45. Last of all, respondents who have a fixed online learning schedule had a mean of 7.63 and respondents who have a flexible online learning schedule had a mean of 6.14.

The results showed that respondents who are categorized under instructor dimension attained the following mean score. Based on age group, respondents aged between 15 to 18 had a mean of 6.88, aged between 19 to 21 had a mean of 7.17, aged between 22 to 25 had a mean of 6.89 and aged between 26 to 29 had a mean of 6.93. In term of gender, male respondents had a mean of 7.20 while female respondents had a mean of 7.02. Furthermore, respondents who have working experience had a mean of 7.06 while respondents who have not working experience had a mean of 7.15. Next, local students had a mean of 7.16 while international student had a mean of 5.09. Last of all, respondents who have a fixed online learning schedule had a mean of 1.71 and respondents who have a flexible online learning schedule had a mean of 1.66.

The results showed that respondents who are categorized under course dimension attained the following mean score. Based on age group, respondents aged between 15 to 18 had a mean of 26.00, aged between 19 to 21 had a mean of 27.24,

aged between 22 to 25 had a mean of 28.37 and aged between 26 to 29 had a mean of 27.29. In term of gender, male respondents had a mean of 27.39 while female respondents had a mean of 26.76. Furthermore, respondents who have working experience had a mean of 27.03 while respondents who have not working experience had a mean of 27.15. Next, local students had a mean of 27.22 while international student had a mean of 20.82. Last of all, respondents who have a fixed online learning schedule had a mean of 6.41 and respondents who have a flexible online learning schedule had a mean of 6.07.

The results showed that respondents who are categorized under technology dimension attained the following mean score. Based on age group, respondents aged between 15 to 18 had a mean of 26.32, aged between 19 to 21 had a mean of 28.01, aged between 22 to 25 had a mean of 28.11 and aged between 26 to 29 had a mean of 27.29. In term of gender, male respondents had a mean of 27.83 while female respondents had a mean of 27.69. Furthermore, respondents who have working experience had a mean of 27.52 while respondents who have not working experience had a mean of 27.91. Next, local students had a mean of 27.90 while international student had a mean of 20.55. Last of all, respondents who have a fixed online learning schedule had a mean of 5.43 and respondents who have a flexible online learning schedule had a mean of 4.27.

The results showed that respondents who are categorized under design dimension attained the following mean score. Based on age group, respondents aged between 15 to 18 had a mean of 20.52, aged between 19 to 21 had a mean of 21.69, aged between 22 to 25 had a mean of 22.53 and aged between 26 to 29 had a mean of 22.14. In term of gender, male respondents had a mean of 21.83 while female respondents had a mean of 21.24. Furthermore, respondents who have working experience had a mean of 21.64 while respondents who have not working experience had a mean of 21.53. Next, local students had a mean of 21.65 while international student had a mean of 17.00. Last of all, respondents who have a fixed online learning schedule had a mean of 4.65 and respondents who have a flexible online learning schedule had a mean of 4.25.

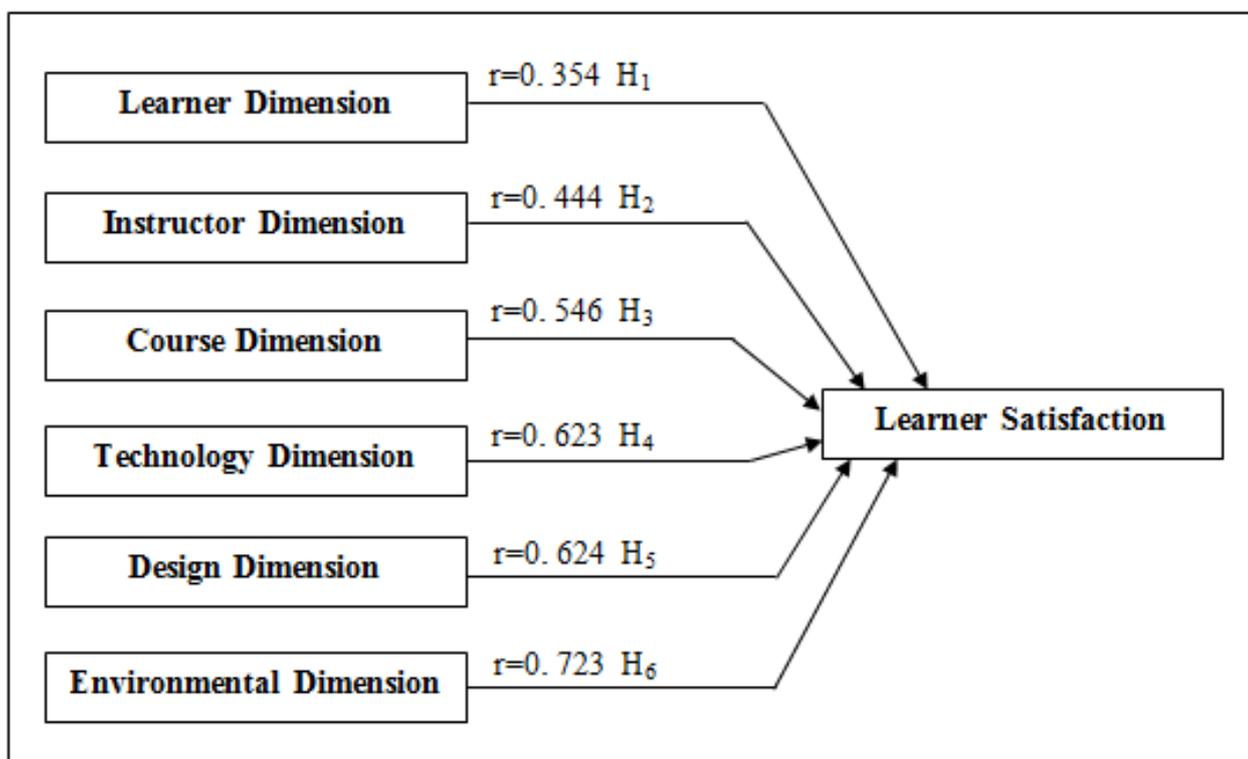
The results showed that respondents who are categorized under environmental dimension attained the following mean score. Based on age group, respondents aged between 15 to 18 had a mean of 19.94, aged between 19 to 21 had a mean of 20.32, aged between 22 to 25 had a mean of 20.84 and aged

between 26 to 29 had a mean of 19.71. In term of gender, male respondents had a mean of 20.59 while female respondents had a mean of 19.87. Furthermore, respondents who have working experience had a mean of 20.21 while respondents who have not working experience had a mean of 20.31. Next, local students had a mean of 20.37 while international student had a mean of 15.00. Last of all, respondents who have a fixed online learning schedule had a mean of 4.70 and respondents who have a flexible online learning schedule had a mean of 4.22.

The results showed that respondents who are categorized under student web-learning satisfaction attained the following mean score. Based on age group, respondents aged between 15 to 18 had a mean of 16.17, aged between 19 to 21 had a mean of 16.54, aged between 22 to 25 had a mean of 16.84 and aged between 26 to 29 had a mean of 14.79. In term of gender, male respondents had a mean of 16.65 while female respondents had a mean of 16.22. Furthermore, respondents who have working experience had a mean of 16.31 while respondents who have not working experience had a mean of 16.54. Next, local students had a mean of 16.55 while international student had a mean of 11.73. Last of all, respondents who have a fixed online learning schedule had a mean of 16.41 and respondents who have a flexible online learning schedule had a mean of 16.48.

Figure below illustrates the relationship between student web-learning satisfaction and all the six independent variables (learner dimension, instructor dimension, course dimension, technology dimension, design dimension and environmental dimension). The result indicates that there is a significant positive relationship between dependent variable and independent variables.

Firstly, environmental dimension has the highest correlation with student web-learning satisfaction ($r = 0.723$, $p > 0.01$), followed by design dimension has a high correlation with student web-learning satisfaction ($r = 0.624$, $p > 0.01$). Besides that, technology dimension has a moderate correlation with student web-learning satisfaction ($r = 0.623$, $p > 0.01$) while course dimension also has a moderate correlation with student web-learning satisfaction ($r = 0.546$, $p > 0.01$). Next, instruction dimension has a moderate correlation with student web-learning satisfaction as well ($r = 0.444$, $p > 0.01$). Lastly, learner dimension has the lowest correlation with student web-learning satisfaction ($r = 0.354$, $p > 0.01$) among all six independent variables. Since, all the independent variables have significant positive relationship with student web-learning satisfaction, hence the hypotheses of this study are accepted.



Based, it shows that 60.1% of total variation (R Square) in student web-learning satisfaction can be explained by all the independent variables (learner dimension, instructor dimension, course dimension, technology dimension, design dimension and environmental dimension). The coefficient of the determination, $R = 0.775$ indicates medium effect size and significant value 0.000 which mean the model is fit to use in the data analysis. In addition, according of the coefficients above, it shows that environmental dimension is the best predictor for student web-learning satisfaction ($\beta = 0.360$, p -value = 0.000), followed by technology dimension ($\beta = 0.173$, p -value = 0.000). Furthermore, learner dimension ($\beta = 0.067$, p -value = 0.000), design dimension ($\beta = 0.065$, p -value = 0.042) and course dimension ($\beta = 0.000$, p -value = 0.983) have low positive Beta. Lastly, instructor dimension has the lowest Beta ($\beta = -0.135$, p -value = 0.045).

Recommendations and Limitation

As recommendation, instructors' attitude is one of the important factors which affect student satisfaction on web-learning. Instructors should shorten their response time on students' questions such as questions on course in order to make students feel that the instructors are paying attentions on them and concentrating on their learning progress. Furthermore, the quality of web-learning courses should be improves by keeping update the content of the course. This offers the latest content and information as well to students. It is not only increase students' knowledge on textbooks, but also general knowledge. Web-learning platform should keep maintaining and updating the server of the platform in order to reduce system error which can influence students' learning progress. In addition, the web-learning platform provider should have to enhance the navigation in order to provide students an easier way to search for the course or feature they need. They can include a platform for student reviews in the website as well. Lastly, web-learning platforms are encouraged to provide discussion room feature. This will be one of the convenient features for students to have their discussion through online. These recommendations will help to increase the level of student web-learning satisfaction.

There are some limitations in this study which should be concerned. Firstly, this present study only focuses on the student in Henan, China. Hence, the result of the study should not be generalized to represent those students who live at any areas than Henan, as well as the students who live in China. This is because they might have different living standard. Next, this study is

limited to six independent variables which are learner dimension, instructor dimension, course dimension, technology dimension, design dimension and environmental dimension. As shown, it presents the R square as 0.601, which means that 60.1% of the total variation in trust on electronic commerce can be explained by all three independent variables of this study. However, there is still 39.9% of the total variation in trust on electronic commerce will be contributed by other factors that are not included in the present study. Moreover, since the data is merely collected once from the students in Henan, China due to time limitation, so the consistency of the result of the data may be doubted and cannot be proven by any other information.

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