

The Empirical Study of Online English Learning Based on the Extension of Expectation-Confirmation Model

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Abstract:

Online English Learning allows users to choose the time period for online study at their own time, and can choose the depth and breadth of the course according to individual needs. However, because online learning is more flexible in terms of time and space, researchers should have a deeper understanding of the relevant research factors that influence Online English Learning. This study uses the Expectation-Confirmation Model as the basis, plus the user's habit, to form an integrated model to predict and understand the user's influence on the continued use of Online English Learning. The results indicated that habit and confirmation has the positive influence on continuance intention towards online English learning service. And, perceived usefulness has the impact on continuance intention through habit. Finally, this study proposed the research findings managerial implications for practical online learning industries.

Keywords: Online English Learning; Expectation-Confirmation Model; Habit; Partial Least Square

1. Introduction

In the past, the construction of the teaching platform was expensive due to the time and input cost. Therefore, there were more self-built and more users in the education unit. For the online learning related research, the evaluation of the satisfaction of the teaching platform and the design of the teaching materials were emphasized. It is in line with the evaluation of teaching theory and learning outcomes. In addition, online learning can be seen as part of adult education or continuing education. Adult education or continuing education can also be considered as part of business conduct, but since online learning is an emerging application of education in recent years, it is for online learning and adults. There is also a lack of relevant literature on the relevance of the education or continuing education market. The research reports made by related companies only mention the potential consumers' perceptions and influences on online learning, and less comprehensive research on model theory, market function and potential consumers' personal and environmental factors.

Past research on online learning has focused on the assessment of system quality and learning outcomes after learners use (e.g. Arbaugh, 2000; Yang et al., 2014; Lin, 2007). These emphasize the improvement of the system platform to make it more humane and more in line with learning theories to improve the learning outcomes of online learning. However, because the users of online English learning contain potential users who are autonomous or passive, the factors that affect these target consumers are quite complex. In addition to the influence of its own market function, important factors such as the cognition and ability of potential users themselves to online learning products will also affect the use intentions of online users of online learning products, and even the final decision-making behavior.

This study attempts to integrate the user's habits with the Expectation-Confirmation Model as the infrastructure to understand the continuation intention that affects potential users' online English learning. Therefore, the purpose of this study is shown as follows:

- (1) There is a diversified supply of online learning products in the online learning market. Academic research also focuses on system development for online learning. The continuing education field is less engaged in online learning research. Therefore, the empirical data of this research establishes influence on online English learning. Relevant assessment factors of intention.
- (2) For the online learning institutions, the ultimate goal is to accurately understand the potential users' intentions for online learning so that resources can be effectively utilized to grasp the consumer base. Therefore, this study will use Partial Least Square to analyze the relationship between the important factors of potential users' use of online English learning and the impact of interaction.

2. Literature Review

2.1 Expectation-Confirmation Model

The Expectation-confirmation model has been widely used to discuss the topic of continuous use of information systems. Bhattacharjee (2001) takes the online banking system as an example and proposes the Expectation-Confirmation Model. Bhattacharjee (2001) believes that the successful marketing of information systems must first attract users to accept new information systems; in order to be sustainable, operators need to continue to use users in addition to the users who use the system for the first time. In the literature on consumer behavior, the Expectation-Confirmation Model is often used to assess and measure consumer satisfaction with products or services and the infrastructure of post-purchase behavior.

Bhattacharjee (2001) argues that ECT theory is somewhat controversial in some parts. For example, customers will accept new information at any time, so they will continue to adjust their perceptions, making expectations before purchase different from those after purchase. Therefore, Bhattacharjee (2001) added the perceptive usefulness of the technology acceptance model and defined this concept as "after-the-fact expectations" to eliminate the time variability of prior expectations. In the marketing literature, "perceived usefulness" refers to the extent to which consumers feel they can improve their performance in the face of innovative products (Davis, 1989), which affects users' attitudes, behavioral intentions and actual behavior.

Past studies also indicated that the user's post-use satisfaction and perceived usefulness would affect the user's intention to continue to use the information system, especially the ability to predict continuity intention with satisfaction (Chen et al., 2013). Moreover, the user's use of the confirmation and the perceived usefulness of the system will positively affect the user's satisfaction, and the degree of confirmation by the user after the system is used will also affect the user's perceived usefulness. Therefore, this study uses the Expectation-Confirmation Model proposed by Bhattacharjee (2001), which not only avoids the difficulty of measuring expectations, but also the satisfaction and after-the-fact expectations of the users will affect the user's intention to continue to use, so the ECT can be used reasonably. To predict continuous use behavior.

Figure 1 showed the conceptual model of Expectation-Confirmation Model, and Table 1 listed the relevant studies in the recent years.

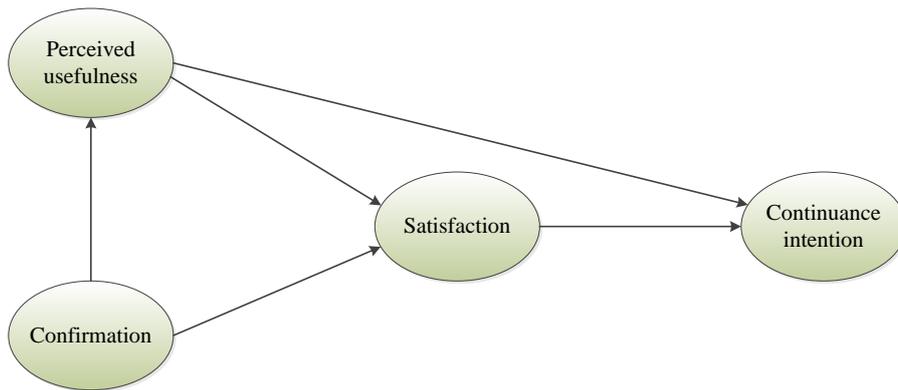


Figure 1: Expectation-Confirmation Model

Table 1: Relevant research of Expectation-Confirmation Model in recent years

Author	Research topic	Source
Bhattacharjee, A., Perols, J., & Sanford, C. (2008)	Information technology continuance: A theoretic extension and empirical test	Journal of Computer Information Systems, 49(1), 17-26
Jin, X. L., Cheung, C. M., Lee, M. K., & Chen, H. P. (2009)	How to keep members using the information in a computer-supported social network	Computers in Human Behavior, 25(5), 1172-1181
Sørøbø, Ø., Halvari, H., Gulli, V. F., & Kristiansen, R. (2009)	The role of self-determination theory in explaining teachers' motivation to continue to use e-learning technology	Computers & Education, 53(4), 1177-1187
Tao, Y. H., Cheng, C. J., & Sun, S. Y. (2009)	What influences college students to continue using business simulation games? The Taiwan experience	Computers & Education, 53(3), 929-939
Recker, J. (2010)	Explaining usage of process modeling grammars: Comparing three theoretical models in the study of two grammars	Information & management, 47(5), 316-324
Bhattacharjee, A., & Barfar, A. (2011)	Information technology continuance research: current state and future directions	Asia Pacific Journal of Information Systems, 21(2), 1-18
Shin, D. H., Shin, Y. J., Choo, H., & Beom, K. (2011)	Smartphones as smart pedagogical tools: Implications for smartphones as u-learning devices	Computers in Human Behavior, 27(6), 2207-2214

Author	Research topic	Source
Coursaris, C. K., Hassanein, K., Head, M. M., & Bontis, N. (2012)	The impact of distractions on the usability and intention to use mobile devices for wireless data services	Computers in Human Behavior, 28(4), 1439-1449
Chen, S. C., Liu, M. L., & Lin, C. P. (2013)	Integrating technology readiness into the expectation–confirmation model: An empirical study of mobile services	Cyberpsychology, Behavior, and Social Networking, 16(8), 604-612
Hsu, C. L., & Lin, J. C. C. (2015)	What drives purchase intention for paid mobile apps?–An expectation confirmation model with perceived value	Electronic Commerce Research and Applications, 14(1), 46-57
Zhang, H., Lu, Y., Gupta, S., & Gao, P. (2015)	Understanding group-buying websites continuance: An extension of expectation confirmation model	Internet Research, 25(5), 767-793
Oghuma, A. P., Libaque-Saenz, C. F., Wong, S. F., & Chang, Y. (2016)	An expectation-confirmation model of continuance intention to use mobile instant messaging	Telematics and Informatics, 33(1), 34-47
Susanto, A., Chang, Y., & Ha, Y. (2016)	Determinants of continuance intention to use the smartphone banking services: an extension to the expectation-confirmation model	Industrial Management & Data Systems, 116(3), 508-525
Tam, C., Santos, D., & Oliveira, T. (2018)	Exploring the influential factors of continuance intention to use mobile Apps: Extending the expectation confirmation model	Information Systems Frontiers, 1-15

2.2 Habit

Prior research points out the importance of habits and manages our daily routine, and shows that habits are a behavioral tendency in certain situations, and this behavior repeats the reaction to give a steady rest (Ouellette&Wood, 1998). In Wood (2002), a study was conducted to illustrate the different thoughts and emotions and habitual and non-habitual behaviors. The experimenter studied the hourly report through the diary life. When experimenters engage in habitual behavior, defined as behaviors that have been performed almost daily in a stable environment, they may think of behavioral problems that are not related to them, presumably because they did not consciously guide their actions. When

engaging in non-habitual behaviors or actions that are less carried out or transferred, the idea of attending tends to be in their own behavior, which suggests that the idea is to lead. In addition, the advantage of this customary self-discipline is that stress and habit are significantly less than non-habitual behavior. Lankton (2010) explores the predisposing factors that influence the behavioral habits of using IT. The study found that the model is more prominent in four specific uses, and the results show that the behavior of previous IT use is subject to satisfaction and importance. Impact, which significantly affects the use habits of IT, thus proving that habits affect the relationship between willingness to use and use, and that propositional factors influence the determination of previous and future behavior.

Raman & Don (2013) believes that habits can be divided into two different ways. The first is to regard habits as previous behaviors, and the second is to predict people's behaviors automatically after learning (Tomás & Elena, 2013; Venkatesh et al., 2012). Xu (2014) argued that habit is the driving force of sustained intentions and explains the influence of habits on behavioral intentions from the point of view of immediate initiation. This study mainly uses the concept of habit to interpret the habits and frequency of users using the online learning system to learn English.

3. Research Method

Based on the literature review in the second chapter, the research structure proposed in this study is shown in Figure 2. The proposed model of this research mainly depended on Expectation-confirmation model with the additional construct named habit. Our model included one endogenous variable (continuance intention), one exogenous variables (confirmation) and three mediators (perceived usefulness, users' habit and satisfaction) to evaluate the users' perception regarding inline English learning. The proposed model is shown in Figure 2, and the research hypotheses are shown in Table 2.

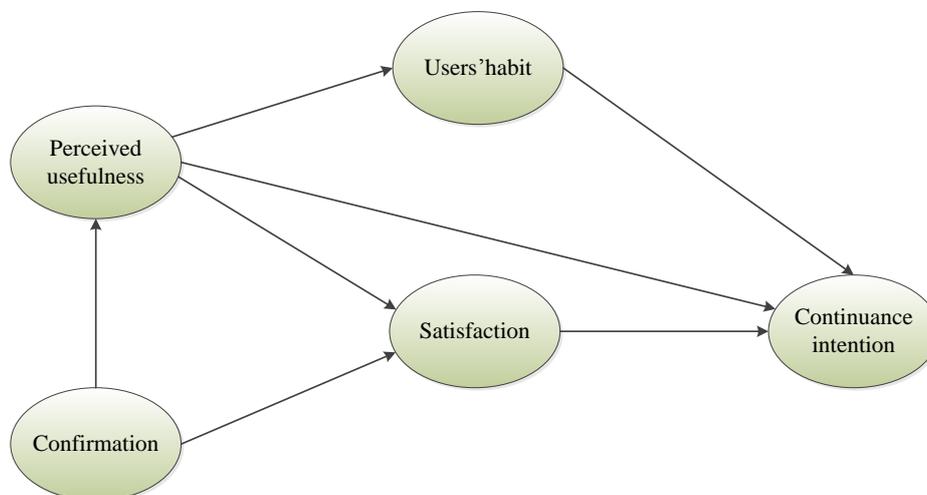


Figure 2: Research Model

Table 2: Research hypotheses

Hypothesis	Path
H1: Confirmation has the positive effect on perceived usefulness	CON→PU
H2: Confirmation has the positive effect on satisfaction	CON→SAT
H3: Users' habit has the positive effect on continuance intention	HAB→CI
H4: Perceived usefulness has the positive effect on continuance intention	PU→CI
H5: Perceived usefulness has the positive effect on users' habit	PU→HAB
H6: Perceived usefulness has the positive effect on satisfaction	PU→SAT
H7: Satisfaction has the positive effect on continuance intention	SAT→CI

Note: PU= Perceived Usefulness; CON= Confirmation; HAB= Users' Habit; SAT= Satisfaction; CI= Continuance Intention

The research constructs in this study had five constructs including confirmation, perceived usefulness, satisfaction, habit and continuance intention. The operational definition of 5 constructs is shown in Table 3.

Table 3: Operational definition

Construct	Definition	Source
Perceived Usefulness	The user's subjective use of the online English Learning service will help the user to complete the English learning task.	Bhattacharjee, A. (2001); Chen et al. (2013)
Confirmation	After using the online English Learning service, the user feels the degree of consistency between the previous expectations of the online English Learning service and the performance obtained after the experience.	Bhattacharjee, A. (2001)
Habit	Whether users use the online English Learning service to develop a dependency on the system or part of the habit.	Limayem et al. (2007), Limayem & Cheung (2008), Lankton et al. (2010)
Satisfaction	The positive or negative psychological state of the user after using the online English Learning service.	Bhattacharjee, A. (2001); Chen et al. (2013)
IS Continuance Intention	The user intends to continue to use the online English Learning service in the future.	Bhattacharjee, A. (2001); Chen et al. (2013)

4. Data Analysis

This study uses SMARTPLS 3.2.7 as the main analytical tool. In order to explore the relationship between the various facets, partial least square was used for data analysis. The analysis in this paper consists of two phases: Outer Model Analysis and Inner Model Analysis. The external model mainly analyzes the reliability and construction validity of each facet of the study; the internal mode analysis is mainly used to test the test results of the research hypothesis proposed in this study.

A scale for inductive cost studies is defined in accordance with the research objectives, research architecture and operational definitions set forth above. In addition, in order to achieve content validity, it has been discussed and revised several times with professors in the field of online learning. The research subjects are mainly based on users who have used online English learning. This study used the online questionnaire distribution method to collect data by anonymous network questionnaire.

After the study deleted the questionnaire without complete answers, there were 212 valid samples. Table 4 showed the values of descriptive statistics for each measurement items.

Table 4: Descriptive statistics

Measurement Items	Mean	Median	Standard Deviation
HAB1	6.189	6	0.958
HAB2	6.057	6	1.246
HAB3	6.17	6	0.906
HAB4	6.259	7	0.997
CI1	6.434	7	0.864
CI2	5.811	6	1.096
CI3	6.236	7	0.996
CI4	6.33	7	1.021
SAT1	5.816	6	0.868
SAT2	5.797	6	0.766
SAT3	5.967	6	0.803
CON1	5.844	6	0.941
CON2	5.797	6	0.896
CON3	6.061	6	0.778
PU1	6.458	6	0.535
PU2	6.335	6	0.588
PU3	6.241	6	0.682

Note: PU= Perceived Usefulness; CON= Confirmation; HAB= Users' Habit;
SAT= Satisfaction; CI= Continuance Intention

According to the analysis results shown in Table 5, the composite reliability of the five facets of the study is higher than 0.6, and the analysis results showing that the reliability is acceptable. In addition, all facets of Average Variance Extracted were above 0.5, indicating that the convergent validity of this study was well accepted (Fornell & Larcker, 1981; Hair et al., 2010).

Table 5: Convergent validity

Construct	Composite Reliability	Average Variance Extracted (AVE)
CI	0.888	0.673
CON	0.893	0.737
HAB	0.894	0.68
PU	0.822	0.609
SAT	0.680	0.554

Note: PU= Perceived Usefulness; CON= Confirmation; HAB= Users' Habit; SAT= Satisfaction; CI= Continuance Intention

According to the result of Table 6, the standardized factor loadings for each construct are larger than the cross loadings. This result showed the empirical data of this study had the adequate discriminant validity.

Table 6: Discriminant validity

Measurement item	CI	CON	HAB	PU	SAT
CI1	0.875	0.123	0.777	0.085	0.093
CI2	0.514	0.066	0.314	0.067	0.110
CI3	0.933	0.145	0.801	0.091	0.152
CI4	0.890	0.124	0.769	0.079	0.138
CON1	0.131	0.915	0.177	0.412	0.620
CON2	0.138	0.901	0.145	0.331	0.687
CON3	0.100	0.751	0.197	0.451	0.379
HAB1	0.697	0.171	0.802	0.145	0.184
HAB2	0.583	0.176	0.721	0.103	0.132
HAB3	0.722	0.135	0.900	0.116	0.126
HAB4	0.788	0.173	0.865	0.134	0.128
PU1	0.085	0.364	0.106	0.741	0.222
PU2	0.126	0.400	0.188	0.876	0.276
PU3	0.011	0.297	0.052	0.714	0.381
SAT2	0.183	0.144	0.146	0.121	0.409
SAT3	0.110	0.683	0.146	0.373	0.970

Note: PU= Perceived Usefulness; CON= Confirmation; HAB= Users' Habit; SAT= Satisfaction; CI= Continuance Intention

Based on the index values generated by the research model, the model path analysis is tested, and the research framework is verified by the data of the analysis results. This section mainly analyzed the path of the research model proposed in this study, and used the SmartPLS software to perform the Inner Model analysis. Therefore, the main purpose of this section is to verify whether the path coefficients between the various facets have achieved statistically significant effects and to verify the influence and effect between the various facets.

Table 7 is the internal model estimation result of this study, and Figure 3 is the analysis result of the internal mode graphically. According to Table 6, the T-value of each path coefficient is greater than 2, which shows that under the confidence level of 95%, one of the five research hypotheses proposed in this study does not hold.

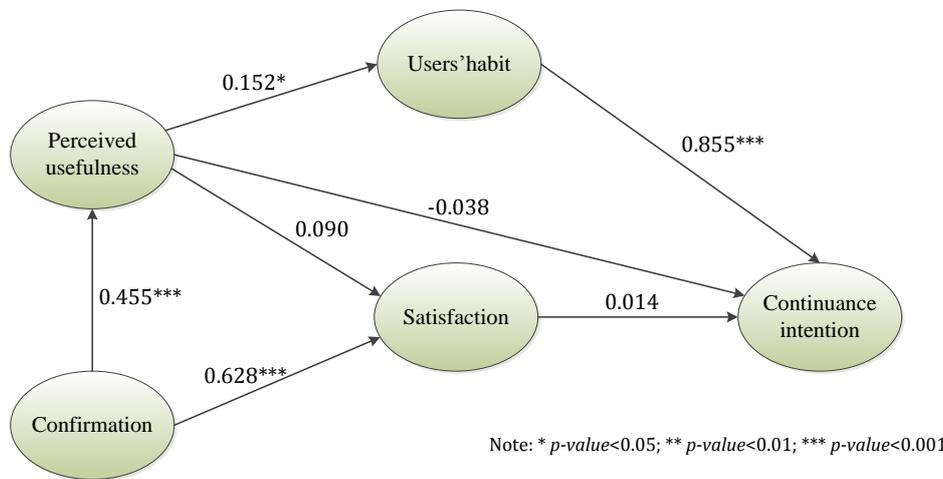


Figure 3: Inner model analysis result

Table 7: Path analysis and hypotheses testing

Path	Original Sample (O)	Standard Deviation (STDEV)	T-value	P-Value
H1: CON -> PU	0.455***	0.054	8.351	0.000
H2: CON -> SAT	0.628***	0.045	13.879	0.000
H3: HAB -> CI	0.855***	0.023	36.433	0.000
H4: PU -> CI	-0.038	0.040	0.954	0.340
H5: PU -> HAB	0.152*	0.065	2.351	0.019
H6: PU -> SAT	0.090	0.064	1.403	0.161
H7: SAT -> CI	0.014	0.038	0.372	0.710

Note 1: * p-value< 0.05; ** p-value< 0.01; *** p-value< 0.001

Note 2: PU= Perceived Usefulness; CON= Confirmation; HAB= Users' Habit; SAT= Satisfaction; CI= Continuance Intention

5. Discussion and Conclusion

The results of the study hypothesis H1, H2, H3 and H5 show that the user's habits and confirmation have a positive and significant impact on the continued use intention. According to the user's usage habits of online English learning, such as at work or in leisure, the industry should think about how to make online English learning an indispensable part of the user's life. Therefore, while improving the quality of the online English learning service, the industry must also think about how to make users feel dependent. The function of a single online English learning, combined with a variety of different functions combined with today's smart phones, allows users to rely on and drink like the usual habits, and then continue to use the online English learning, resulting in the use of the user Habits do have a positive impact on the continued use of online English learning.

The study hypothesis H4, H6 and H7 results show that the perceived usefulness has no positive and significant impact on continuance intention and satisfaction. This result means that the user's satisfaction with the cloud service is not entirely due to the perceived usefulness and the intent to continue to use the user. Online English learning, which has developed a single function in today's Internet services, is no longer sufficient for users to use continuously. For example, online English learning should provide more interesting and easy to learn features to increase the user's stickiness.

With the rapid development of information technology and the trend of networking, it brings global service opportunities, which not only include business-to-business (B2B), business-to-person (B2C) services, but also meet the service needs of enterprises or individuals. Due to the advancement of technology, users use software services, which are no longer limited to servers in personal offices or enterprises; service providers will be able to provide users with more convenience, intimacy and time, across time, space and place constraints. Instant service; through the aid of technology, the mode of multiplex processing will not be the trend, but will become the norm. Users will be able to use the service software anytime, anywhere to enjoy the service in a faster and more convenient way, and to reduce costs and profits. Online English learning is becoming more popular through the development of information and communication technologies.

This study explores the quality of information systems, and respondents have used online English learning as a survey object in the past. In order to obtain the convenience of sample sampling, we use the network to facilitate sampling. Although this study strives to be rigorous, it is still limited by time and manpower, which may make the data source narrow and cause insufficient data representation. Combined with the above description, this study suggests that if the follow-up researchers can expand the scope of research to other countries using online English learning in the future, the questionnaire will be more perfect. In addition, since all the items in the single questionnaire of this study are filled in by the same subject, there may be a phenomenon of common method bias. In addition, this study only uses

the Expectation-Confirmation Model) and Habit as the main variables. It is suggested that related research can add different variables in the future, which can make the research topic more in-depth and perfect.

Reference

1. Arbaugh, J. B. (2000). Virtual classroom characteristics and student satisfaction with internet-based MBA courses. *Journal of Management Education*, 24(1), 32-54.
2. Bhattacharjee, A. (2001). Understanding information systems continuance: an expectation-confirmation model. *MIS Quarterly*, 25, 351-370.
3. Bhattacharjee, A., & Barfar, A. (2011). Information technology continuance research: current state and future directions. *Asia Pacific Journal of Information Systems*, 21(2), 1-18.
4. Bhattacharjee, A., Perols, J., & Sanford, C. (2008). Information technology continuance: A theoretic extension and empirical test. *Journal of Computer Information Systems*, 49(1), 17-26.
5. Chen, S. C., Liu, M. L., & Lin, C. P. (2013). Integrating technology readiness into the expectation-confirmation model: An empirical study of mobile services. *Cyberpsychology, Behavior, and Social Networking*, 16(8), 604-612.
6. Coursaris, C. K., Hassanein, K., Head, M. M., & Bontis, N. (2012). The impact of distractions on the usability and intention to use mobile devices for wireless data services. *Computers in Human Behavior*, 28(4), 1439-1449.
7. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13, 319-340.
8. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.
9. Hair, JF, Black, WC, Babin, BJ, Anderson, RE. (2010) *Multivariate Data Analysis: A Global Perspective* (7th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

10. Hsu, C. L., & Lin, J. C. C. (2015). What drives purchase intention for paid mobile apps?—An expectation confirmation model with perceived value. *Electronic Commerce Research and Applications*, 14(1), 46-57.
11. Jin, X. L., Cheung, C. M., Lee, M. K., & Chen, H. P. (2009). How to keep members using the information in a computer-supported social network. *Computers in Human Behavior*, 25(5), 1172-1181.
12. Lankton, N. K., Wilson, E. V., & Mao, E. (2010). Antecedents and determinants of information technology habit. *Information & Management*, 47(5), 300-307.
13. Limayem, M., & Cheung, C. M. (2008). Understanding information systems continuance: The case of Internet-based learning technologies. *Information & Management*, 45(4), 227-232.
14. Limayem, M., Hirt, S. G., & Cheung, C. M. (2007). How habit limits the predictive power of intention: the case of information systems continuance. *MIS Quarterly*, 31(4), 705-737.
15. Lin, H. F. (2007). Measuring online learning systems success: Applying the updated DeLone and McLean model. *Cyberpsychology & behavior*, 10(6), 817-820.
16. Oghuma, A. P., Libaque-Saenz, C. F., Wong, S. F., & Chang, Y. (2016). An expectation-confirmation model of continuance intention to use mobile instant messaging. *Telematics and Informatics*, 33(1), 34-47.
17. Raman, A., & Don, Y. (2013). Preservice Teachers' Acceptance of Learning Management Software: An Application of the UTAUT2 Model. *International Education Studies*, 6(7), 157-164.
18. Recker, J. (2010). Explaining usage of process modeling grammars: Comparing three theoretical models in the study of two grammars. *Information & Management*, 47(5), 316-324.
19. Shin, D. H., Shin, Y. J., Choo, H., & Beom, K. (2011). Smartphones as smart pedagogical tools: Implications for smartphones as u-learning devices. *Computers in Human Behavior*, 27(6), 2207-2214.

20. Sørensen, Ø., Halvari, H., Gulli, V. F., & Kristiansen, R. (2009). The role of self-determination theory in explaining teachers' motivation to continue to use e-learning technology. *Computers & Education, 53*(4), 1177-1187.
21. Susanto, A., Chang, Y., & Ha, Y. (2016). Determinants of continuance intention to use the smartphone banking services: an extension to the expectation-confirmation model. *Industrial Management & Data Systems, 116*(3), 508-525.
22. Tam, C., Santos, D., & Oliveira, T. (2018). Exploring the influential factors of continuance intention to use mobile Apps: Extending the expectation confirmation model. *Information Systems Frontiers, 1-15*.
23. Tao, Y. H., Cheng, C. J., & Sun, S. Y. (2009). What influences college students to continue using business simulation games? The Taiwan experience. *Computers & Education, 53*(3), 929-939.
24. Tomás, E. R., & Elena, C. T. (2013). Online drivers of consumer purchase of website airline tickets. *Journal of Air Transport Management, 32*, 58-64.
25. Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly, 36*(1), 157-178.
26. Wood, W., Quinn, J. M., & Kashy, D. A. (2002). Habits in everyday life: Thought, emotion, and action. *Journal of Personality and Social Psychology, 83*(6), 1281-1297.
27. Xu, X. (2014). Understanding Users' Continued Use of Online Games: An Application of UTAUT2 in Social Network Games. Paper presented at the MMEDIA 2014, The Sixth International Conferences on Advances in Multimedia.
28. Yang, Z., Jun, M., & Peterson, R. T. (2004). Measuring customer perceived online service quality: scale development and managerial implications. *International Journal of Operations & Production Management, 24*(11), 1149-1174.
29. Zhang, H., Lu, Y., Gupta, S., & Gao, P. (2015). Understanding group-buying websites continuance: An extension of expectation confirmation model. *Internet Research, 25*(5), 767-793.