Modeling e-learner Satisfaction: The Role of Online Customer Experience

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Abstract – This research explores graduate and undergraduate student perceptions of ideal e-learner satisfaction by drawing from the fields of online educational research and online customer experience. While much attention has been paid to ideal online customer experience research in retail environments, little has been done to categorize the features and benefits of ideal student e-learning experience. By understanding the features and benefits most commonly associated with a positive online learning experience, university leadership, learners, and faculty will be better positioned to take advantage of online curriculum delivery. This study developed and empirically tested a model outlining the experience component of key features and benefits of an ideal online learning experience. Findings indicate that several previously unrelated factors describing e-learner satisfaction and online customer experience share statistical significance. The combination of elements from both e-learner and online customer experience domains suggests an opportunity to more fully explain elements of satisfaction for e-learners.

Summary Statement of Contribution

Intersections between previously unconnected theoretical constructs must be explored to help better guide decision making. With regards to e-learning, those in higher education must work towards expand opportunities to engage new students, and provide academic offerings that are relevant, pertinent, and well-designed. The following research explores the intersection between online consumer expectations and e-learning, and the implications of the findings on higher education.

Key Words: e-learning, online customer experience, higher education, student satisfaction

Introduction

Online learning has become a prevalent delivery vehicle for both academic and professional learning opportunities. The sophistication of technology and increasingly common culture of e-learning represent a shift in the ways in which students (customers) expect to interact and engage with higher education institutions and educators. A low birth rate following the global recession in 2008 will further limit the pool of potential incoming freshmen cohorts, as much as a reduction of 15% by 2025 in the United States (Grawe, 2018). Similarly, a global drop in birth rates during the "Great Recession" from 2008-09 (Sobotka, Skirbekk, and Philipov, 2011), which further underscores the need for established higher education institutions to diversify the way in which they deliver educational opportunities to remain competitive. Grawe, (2018) also indicated that because of the dwindling enrollment numbers in the future, college campuses need to be aggressive in their student retention and engagement practices and more formal measurements of all success factors, to include e-learning, are necessary. Ortagus (2017) found that higher education e-learners are not necessarily confined to online education because of flexibility or necessity, but physical attendance constraints like employment and family status do increase the likelihood of online enrollment. Additionally, Ginder, Kelly-Reid, and Mann (2019) found that between 2016 and 2017, growth of at least one percent of students either taking one online course, hybrid, and fully online curriculum. They also found that 1 in 6 students were enrolled in completely online programs, which is indicative of the markets demonstrating where needs must be met.

Marketing as a practice is not simply intended to make individuals feel the need to make a purchase or identify with a product, company, or service. Higher education is a business in which the customer (students) has expectations of the products or services (tangible and intangible)for which they are paying. Durkin, Howcroft, and Fairless (2016) indicated that while university marketers have understood practical marketing (recruitment, alumni, and activities), they have traditionally failed to consider market fit and overall real-world relevance of their degree programs. Lim, Jee, and De Run (2018) also found that factors like program, price, and people were important factors in how programs and institutions manage their e-learning brand. The marketing of higher education, much like organizations providing traditional consumer goods and services, must then adapt marketing and operational strategies to reflect the shifting needs and values of the intended consumer.

Problem Statement

E-learning is a complex platform in which to deliver education. Measures of ideal e-learner satisfaction are poorly understood because of the evolutionary nature of technology, yet these measures are required to better design and deliver higher education to an increasing online population. The current lack of contemporary research and statistical modeling in e-learner satisfaction prevents higher education providers from adequately understanding student needs. This results in a suboptimal online platform experience for e-learners.

Conceptual Framework

Student satisfaction is a goal for e-learning providers (Kember & Ginns, 2012; Moskal, Stein & Golding, 2015; Onwuegbuzie et al., 2007). Satisfaction is also a primary goal for positive online customer experience (Rose, Clark, Samouel and Hair (2012); Bleier, Harmeling, & Palmatier, (2019)). By considering the student as the customer in an e-learning environment, we were able to integrate bodies of literature at the intersection of e-learning and online customer experience. Though we appreciate this approach may not be without some controversy; we believe there are lessons to learn from combing theory from both fields. In this paper we apply multiple linear regression using ordinary least squares (OLS) to quantitatively describe the conceptual model. We found significance in 9 out of 12 hypothesized pathways ($p <= 0.05$) and expect that future research can build upon our additive approach to produce an optimized structural causal model to demonstrate pathways between individual construct variables that maximize e-learner satisfaction.

The research used a new survey instrument, which included findings from the body of literature in learner satisfaction in e-learning as well as online customer experience in e-retail and e-service. The methodological approach is a novel contribution to the body of research in online education because it explicitly considered the experience of e-learners as a process of customer engagement for online students.

Literature Review

Intersections between online customer experience (OCE), customer experience (CE), marketing behavior, and technology acceptance exist because of the nature of the interactions between the variables and fields of study. Rose et al. (2012) empirically demonstrated the relationships between connectedness, customization, and ease-of-use, with the latter demonstrating the greatest impact on how consumers feel about empowerment as it related to their online retail experience(s). Additionally, having built on the work a decade previously by Novak, Hoffman, and Yung (2000), they found that skill and technical user capabilities were not sufficient factors to describe end user judgement of satisfaction. Rose, et al. (2012) demonstrated that unnecessarily complicated navigation and information overload causes users to lack empowerment, and sites that simply communicate their service, drive consumer confidence. The link between e-learning and OCE is therefore the confluence of technology acceptance, experience, and the experiential nature of the learning platform. Therefore, including these factors in the exploration of any measure of e-learner satisfaction is critical.

Significant research has revolved around the way individuals adopt and interact with technology. The Technology Acceptance Model (TAM) is used to describe general determinants of computer and information technology acceptance, which include the external factors that influence attitudes and intentions as they relate to information technology use (Davis, Bagozzi, & Warshaw, 1989). This theory is built on the Theory of Reasoned Action (TRA), which Davis, Bagozzi, and Warshaw (1989) noted does not include operative beliefs for individual behaviors. Gefen (2003) found that while continued research of the determinant factors of the TAM (usefulness and ease of use), habit, something that is necessarily beyond measure, formulates contextual adoption of technology. Incorporating the TAM (and several other models) is the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Venkatesh, Morris, Davis, and Davis (2003) indicated that performance expectancy, effort expectancy, social influence, and facilitating conditions were direct determinants of end user acceptance and use of technology. Additionally, Venkatesh et al., (2003) found that performance expectancy was the predominant motivating factor regarding technology adoption and use, and that moderating factors including age and gender were present in effort expectancy. One key factor noted in the UTAUT research was the need for additional contextual analysis regarding the direct determinants of the model to better understand the complex nature of human computer interaction (HCI). Contextual understanding of how determining factors underscore development and use of online/e-learning is therefore of key importance to our field of study, because contextual insights on those determining factors help better focus efforts and ultimately drive learner satisfaction. Abdullah and Ward (2016) proposed that a general extended technology acceptance model (GETAM) be instituted to better reflect technology acceptance and e-learning. The relation between technology acceptance, marketing behavior, and perceived student satisfaction should explored by an empirical model explaining e-learner satisfaction.

Targeted application of the theoretical framework builds on the efficacy of the model. Juaneda-Ayensa, Mosquera, and Murillo (2016) found that while the fundamental principles of the UTAUT were valid, they also found that personal innovativeness and perceived security were instrumental as they relate to consumer (e-learner) adoption in the online space. The UTAUT established the groundwork for how the application of the theory can and should be expanded into various areas to build on the constructs in order to better describe domain-specific

application. In our research, the foundational constructs are then further described (with additions) as it explores how adoption constructs are based on seminal theories.

Higher education is comprised of the tools, processes, and technologies that students must navigate successfully to complete a course or degree program. Online offerings within higher education are additionally representative of the growing need for increased availability of educational offerings for an increasing student population. Regardless of the perceived organizational need to offer e-learning for university students, there are caveats to implementation. McPherson and Bacow (2015) indicate that because of the inherent cost of implementing sophisticated e-learning courses, investments in anything beyond traditionally introductory level courses may not be financially feasible for many institutions. Furthermore, Deming, Goldin, Katz, and Yuchtman, (2015) found that e-learning could also be a tool institutions employ to raise, rather than lower cost. E-learning can be a tool for higher education administrators to have a broader base in which to expand their academic offerings to previously hard to reach populations.

Online learning within higher education is becoming increasingly prevalent, both for traditional institutions with a physical presence, as well as online-only (both for profit and non-profit) institutions. Alves (2011) found that online learning was a noted priority related to strategic plans for 65.5% of universities. Kilburn, Kilburn, and Hammond (2017) found that university leadership should develop methodologies to better measure e-learning outcomes. Considering that online learning is a major part of institutional strategy for a majority of colleges and universities, more domain specific satisfaction pathways should be measured in order to fulfill the strategic plans of senior university leadership, faculty, and students. As online learning has more commonly become a part of traditional brick and mortar institutions, the premise of click and mortar, or those institutions that offer both, have profound consequences on colleges that offer more flexible learning opportunities. The measurements of satisfaction for e-learners have become pertinent and important as more non-traditional students engage in online learning. Sun, Tsai, Finger, Chen, and Yeh (2008) provided a foundational study in which constructs and pathways as they relate to e-learner satisfaction. They found that course quality was the prevailing factor relating to perceptions of satisfaction, and that faculty and administration alike would benefit from a multi-faceted set of assessment criteria and methods to effectively measure those factors. While the authors noted that all of their constructs were of importance, the basic quality of the offering proved to be of the most important. Measuring perception, both positive and negative provides a method in which to guide decision making. However, Sun et al. (2008) also noted that additional research was need to build on and expand necessary construct pathways and connections. Additionally, Al-Samarraie, Teng, Alzahrani, and Alalwan (2018) found that continued adoption of e-learning (by both learners and educators) is predicated on their continued satisfaction of the e-learning itself.

Further empirical evidence has been gathered regarding the efficacy of elements of online learner success. Alshare, Freeze, Lane, and Wen (2011) and Eom and Ashill (2016) found that educators should focus their efforts on system and information quality in order to derive student satisfaction with their e-learning experience. The authors also found that information quality played an integral role in perceived student success. While the constructs were similar in both

studies, they again note the importance of expansion of constructs to better enable faculty and administration to make appropriate decisions for their students.

E-learning requires a fundamentally different type of student engagement. Dumford and Miller (2018) found that first-year students reported feeling less engaged (with other students, faculty), as well as indicating feeling less engagement with diverse discussions and a lower quality of general interactions. However, they noted that online learning did have a positive effect on quantitative reasoning activities; there was also statistical significance to their model for seniors, but not to the extent of the freshmen cohort. Dumford and Miller (2018) also found that for those seniors in their study, the more online courses they were taking, the less collaborative they felt in the course room. Simply put, face-to-face interactions resulted in better collaborative outcomes. There are positive and negative outcomes associated with online learning, and developing ways to both better measure the outcomes, as well as the design of the course offerings themselves, represents opportunities for academic leadership. As universities continue to use online learning to either augment, supplement, or provide full curriculums in online learning environments, distinguishing how the design of the class impacts multiple student outcomes becomes of increasing importance. These items are directly related to e-learning constructs explored in the empirical model.

Consumer behavior, consumption patterns and perceptions are important mitigating factors as they relate to perceived satisfaction. Havlena and Holbrook (1986) found that from a consumer perspective, the emotional character of the experience was a useful contextual device for examining experiential value. Interestingly, Novak, Hoffman, and Yung (2000) found that greater challenges (perceived challenge) with respect to using the technology typically resulted in greater consumer focus. The ramifications as they relate to e-learning therefore underscore the need to better understand the framework (which could mean either ease of use for the course itself or the materials of the course itself) and student satisfaction. Additional consumer expectation analysis is also important to better describe how consumer interaction with technology will define user satisfaction.

Sun et al. (2008) found that course quality was the predominant factor in determining e-learner satisfaction. Eom and Ashill (2016) defined course quality using the Quality Matters framework, in which items like learning objectives, assessment and measurement, course technology, and usability (adapted from Quality Matters) are combined into an ecosystem that benefits the learner. Flexibility was also described as a leading factor used to describe satisfaction. Additionally, Sun et al. (2008) found that anxiety related to use (HCI) was a leading factor for e-learner dissatisfaction. From an implementation and adoption perspective, it is critical for academic leadership to have a fundamental understanding of how the different factors related to satisfaction (both from OCE and e-learning) are intertwined and how those pathway intersections create benefit for the learners.

Understanding the fundamentals of e-learner satisfaction is a prime component to driving students to successfully adopt e-learning in higher education. Sun et al. (2008) determined statistical significance of seven of their proposed pathways for determining e-learning satisfaction, which included computer anxiety, instructor attitude toward e-learning, e-learning course flexibility, course quality, perceived usefulness, perceived ease of use, and diversity in

assessment. These constructs were adapted and combined from other researchers in order to determine efficacy of their model. Interestingly, Sun et al. (2008), in determining the constructs for their models, indicated that their proposed framework integration (learner, instruction, course, technology, design, and environmental dimensions) had not been considered previously researched to determine the relationship between the elements, which leaves open the importance of further construct evaluation as technology, learner, institution, and instructor become more sophisticated.

The field of research specific to e-learning outcomes has grown as technology and learner expectations have evolved. Eom and Ashill (2016) found a statistically significant relationship between well-defined course designed and positive e-learner outcomes. Building on their previous research, Eom and Ashill (2018), confirmed their results that self-regulatory learning strategies (SRL) behavior and their own perceived learning outcomes, as well as that student motivation and the SRL are interdependent variables. They also found that learning outcomes are directly associated with the level of student satisfaction. Importantly, their research demonstrated that there are numerous constructs are essential considerations for course designers, faculty, and academic leadership to consider when determining how an e-learner will be successful. Understanding e-learner satisfaction is predicated on the combination of constructs from multiple disciplines.

Rose et al. (2012) considered multiple constructs in the creation of their nineteen hypotheses. These ranged from traditional to e-retailing models, which were necessary to more broadly evaluate online consumer experiences. Like Sun et al. (2008), Rose et al. (2012) contributed a significant amount of knowledge to the base of research by incorporating previously unrelated data points in order to build a more holistic model that better views individuals from a design thinking perspective. The difference between the two pieces of research could effectively be viewed as a domain specific view of the intended audiences, which allows for an efficient method in which to derive a fundamentally new construct.

Similarly to e-learning, the field of OCE has also grown over time. Kranzbühler, Kleijnen, Morgan, and Teerling (2018) noted that research over the past decade had fragmented OCE, as the intent of OCE is at its base, a holistic view. They also noted that research from the perspective of the consumer, and not just that of organizational views can greatly enhance how the different constructs impact successful touch points. Lastly, they also noted that a bilateral view of OCE, or how both the consumer and organization perceive interactions is necessary for future research and consideration. The combination of constructs from two distinct, yet interconnected perspectives and bodies of research is essential to convey how positive consumer (e-learner) outcomes can be created and lead to beneficial outcomes for both consumer (e-learner) and organization.

Aesthetic is also an important aspect of how individuals interact with online environments. Bleier, Harmeling, and Palmatier, (2019) found that design elements of webpages are also drivers of behavior. These include elements of consumer interaction in ways that demonstrate a social connection with the websites, as well as ways for the consumers reveal a personal association with the brand elements themselves, are all factors of a potential successful interaction with a website. Additionally, they found that trustworthiness of a brand was also a

factor in a consumer's willingness to interact with a website. Lastly, Bleier, Harmeling, and Palmatier, (2019) found that regardless of what design elements are adopted by the organization, the technology and infrastructure required to maintain all of the elements of a cohesive and efficient website were also of importance from a consumer perspective. The interactions consumers have with websites are driven by many different factors that must be accounted for to ensure that each experience matches the expectations held by the consumer. Understanding what the consumer expects in different online scenarios is also of importance to organizational leadership to ensure long term use and adoption.

Relationship marketing is also an integral aspect of perceived satisfaction. Steinhoff, Weaven and Kozlenkova, (2019) found that seamless interactions, networked relationships (interactions with different types of entities or sources online), omnichannel relationships, personalized relationships, and anthropomorphized relationships were all integral parts of how an organization delivered virtual interactions with consumers. These in turn were the factors that helped create a holistic environment in which the consumer interacted with the company. Technology, as well as consumer expectations have evolved over time because of how both have become more sophisticated; i.e. the technology has become far more adept at how it delivers content, and how the consumer has certain expectations in what will be delivered to them as they interact online.

Methodology

Our literature review revealed several potentials for cross-domain satisfaction pathways between online customer experience and e-learning constructs. We built these hypothesized pathways (Table 1) into a hypothesized model. The selected survey items from Sun et al. (2008) account for 6 out of the 7 critical independent variables that demonstrate significant effects on the dependent variable through stepwise multiple regression (R_2 = 66.1%, F-value = 82.96, p<.001). Each of these survey items was adapted to include forward looking language suitable for the first survey in a longitudinal analysis of e-learning program satisfaction, as well as a broadening of focus from the individual online course to examination of the online program. Three of these survey items—e-Learning program flexibility, e-Learning program quality, and learner perceived interaction with others (Perceived Interaction)—have been expanded to include explicit comparison with brick-and-mortar program options.

Table 1. Previously confirmed and hypothesized new pathways to satisfaction.

Hypothesis Number	Construct Pathway	Previously significant @ p >=	Ref
	Telepresence -> Cognitive Experiential***	0.01	Rose et al (2012)
	Challenge -> Cognitive Experiential*	0.05	Rose et al (2012)
H(1)	Assessment Diversity -> Cognitive Experiential (new)		N/A - new pathway
	Ease-of-use -> Control***	0.01	Rose et al (2012)
H(2)	Flexibility -> Control (new)		N/A - new pathway
	Customization -> Control***	0.01	Rose et al (2012)
	Connectedness -> Control*	0.05	Rose et al (2012)
H(3)	Anxiety -> Control (new)		N/A - new pathway
H(4)	Connectedness-> Perceived Interaction (new)		N/A - new pathway
	Control -> Affective Experiential***	0.01	Rose et al (2012)
H(5)	Anxiety -> Affective Experiential (new)		N/A - new pathway
	Aesthetic -> Affective Experiential (insignificant)	Insigniicant	Rose et al (2012)
H(6)	Anxiety-> Perceived Usefulness (new)		N/A - new pathway
H(7)	Aesthetic -> Quality (new)		N/A - new pathway
H(8)	Institutional Reputation -> Quality (new)		N/A - new pathway
H(9)	Perceived Usefulness -> Quality (new)		N/A - new pathway
H(10)	Perceived Interaction -> Quality (new)		N/A - new pathway
H(11)	Quality -> Affective Experiential (new)		N/A - new pathway
	Affective Experiential -> Satisfaction***	0.01	Rose et al (2012)
	Cognitive Experiential -> Satisfaction*	0.05	Rose et al (2012)
H(12)	Conectedness -> Quality (new)		N/A - new pathway

The selected survey items from Rose et al. (2012) account for all of the statistically significant construct pathways leading to Satisfaction (at p <.01). Additionally, they include those pathways that are less statistically significant (at p <.05), but are most likely to result in strong path coefficients leading to e-learning satisfaction: Connectedness to Control, Challenge to Cognitive Experiential, and Cognitive Experiential to Satisfaction.

Also, the inclusion of survey items from Sun et al. (2008) and Nguyen and LeBlank (2001) were intended to improve upon the statistically weak pathways found by Rose et al. (2012) in mapping Aesthetic to Affective Experiential by introducing Aesthetic, Institutional Reputation, and Perceived Usefulness as potential pathways to Quality.

To test these construct pathways, we applied previously validated survey items from the body of literature in online customer experience and e-learning. We presented the aggregated survey (Appendix A) and scientific merit to the Institutional Review Board as the authors university and received approval to proceed under Exemption 2 (the information must be recorded anonymously with or without placing the subject at risk).

We distributed a series of e-mail invitations and obtained 613 survey responses through Qualtrics, with a response rate of 86.30%. Within that sample, 197 survey responses were at least 95% complete (SUBSAMPLE 1) and 332 responses were at least 90% complete (SUBSAMPLE 2). Descriptive statistics reveal paranormality across both subsets, with the exception of one

construct, Learner Computer Anxiety, which demonstrates significant skewness (Pearson's first standardized moment coefficient $\gamma_1 >= |2|$) and kurtosis (Pearson's fourth standardized moment coefficient $\kappa >= |2|$). The non-normality within the Learner Computer Anxiety construct suggests that our sample of online learners will not meaningfully reveal insight to pathways through anxiety associated with computer use. We interpret these findings to correspond to the likelihood that our sample—and possibly the entire population of online learners--self-selects high-confidence computer users. This weakness within criterion validity demonstrates a deviation from the findings by Barbeite and Wiess (2004) and Sun et al. (2008), who demonstrated significant content validity within the Learner Computer Anxiety construct. There were no other threats to the validity of the results within SUBSAMPLE 1 or 2.

In the next section, we present our statistical findings and offer a refined model.

Findings

We applied multivariate linear regression to calculate results using the ordinary least squares (OLS) method within Minitab. The large sample size and the confirmation of normality despite some missing responses ameliorate the stability concerns observed by Farahani et al. (2010). Our investigation of satisfaction pathways through the constructs previously described in prior online customer experience and e-learning research yielded statistical significance for 9 out of 12 of our originally hypothesized new pathways.

Table 2. Pathways Synopsis

#	Construct and origin	Key supporting literature	Pathway interconnectedness
1	Cognitive Experiential (customer experience)	Rose et al. (2012)	Statistical correlation confirmed from assessment diversity (correlation between customer experience and e-learning, confirmed new pathway).
2	Affective Experiential (customer experience)	Rose et al. (2012) Nguyen and LeBlank (2001)	Statistical correlation confirmed to aesthetic and control (customer experience), the latter being a confirmed new pathway.
3	Quality (e-learning)	Sun et al. (2008) Alshare, Freeze, Lane, and Wen (2011) Eom and Ashill (2016)	Statistical correlation confirmed to affective experiential (customer experience); confirmed new pathway.
4	Assessment Diversity (e-learning)	Sun et al. (2008)	Statistical correlation confirmed to cognitive experiential (customer experience); confirmed new pathway.
5	Aesthetic (customer experience)	Rose et al. (2012) Bleier, Harmeling, and Palmatier, (2019)	Statistical correlation confirmed to quality (e-learning); confirmed new pathway.
6	Institutional Reputation (e-learning)	Sun et al. (2008) Nguyen and LeBlank (2001)	Statistical correlation confirmed to quality (e-learning); confirmed new pathway.
7	Control (customer experience)	Rose et al. (2012)	Confirmed statistically significant correlation to affective experiential.

#	Construct and origin	Key supporting literature	Pathway interconnectedness
8	Anxiety (e-learning)	Sun et al. (2008)	No statistically significant correlation found
9	Perceived Usefulness (e-learning)	Sun et al. (2008) Nguyen and LeBlank (2001)	Confirmed statistically significant correlation to quality, previously not connected in e-learning literature.
10	Telepresence (customer experience)	Rose et al. (2012)	No statistically significant correlation found
11	Challenge (customer experience)	Rose et al. (2012)	No statistically significant correlation found
12	Perceived Interaction (Customer Experience)	Sun et al. (2008)	Confirmed statistically significant correlation and new pathway to quality, not previously connected in the literature.
13	Ease of Use (customer experience)	Rose et al. (2012)	Confirmed statistically significant correlation to control
14	Flexibility (e-learning)	Sun et al. (2008) Juaneda-Ayensa, Mosquera, and Murillo (2016)	Confirmed statistically significant correlation and new pathway to quality, not previously connected in the literature.
15	Customization (customer experience)	Rose et al. (2012)	Confirmed statistically significant correlation to control.
16	Connectedness (customer experience)	Rose et al. (2012)	Confirmed statistically significant correlation to control and new pathway to quality, not previously connected in the literature.

Within those pathways, we also found statistical significance through 37 construct-variable mappings and 52 factor-to-variable mappings. This suggested potential for elimination of some factors and construct variables from an optimized survey instrument seeking to incorporate online customer experience constructs in pathways to e-learner satisfaction. In tables 3 through 9, we depict the OLS regression results to yield additive insight to the hypothesized construct pathways for each dependent variable within the construct. A worthwhile follow-on inquiry could apply structural equation modeling to determine the optimal coefficients for individual factors and construct components across the model aggregate. We expect extending the research in this manner will reduce multicollinearity, improve the internal validity of the survey instrument, and encourage overall model stability for our findings.

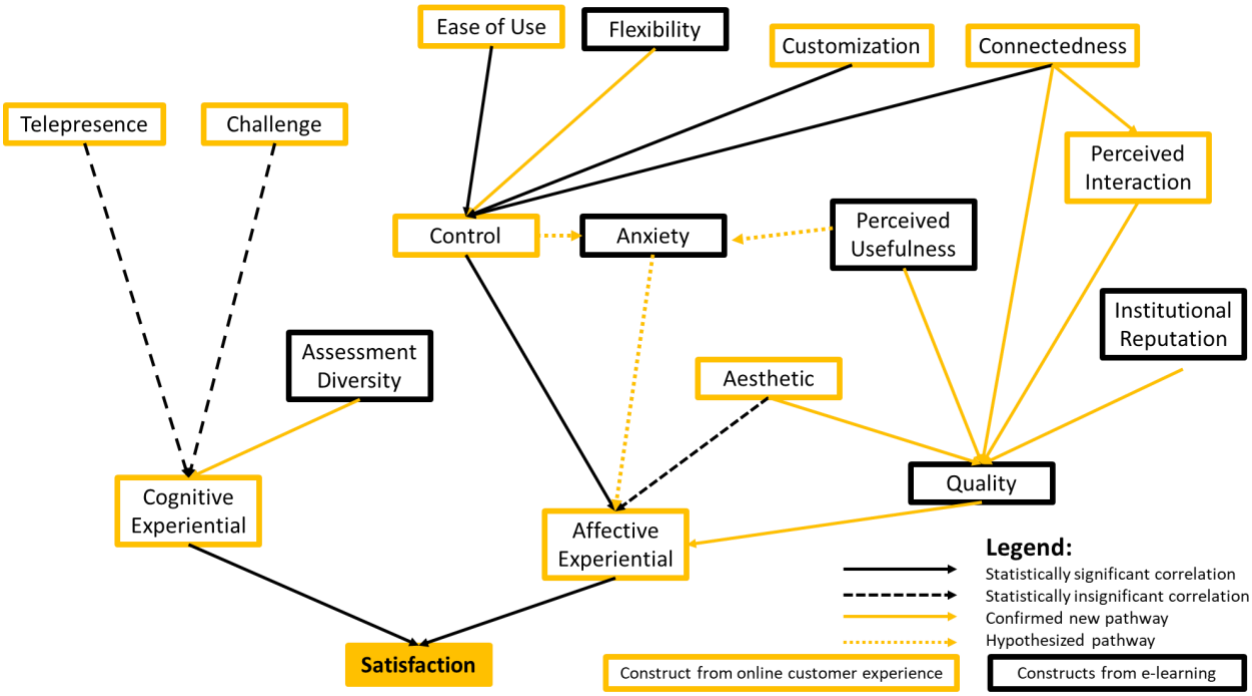

Figure 1. Conceptual model of e-learner satisfaction

Table 3. Pathway Component Results (Hypotheses 1-3)

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Assessment Diversity -> Cognitive Experiential (New)									
Diversity -> Cognitive Experiential_1	5.6186	14.49	**<0.0001**	7.48%	24.36	**<0.0001**	-4.94000	-4.94	**<0.0001**
Diversity -> Cognitive Experiential_2	1.6867	4.50	**<0.0001**	15.26%	53.41	**<0.0001**	0.50031	7.31	**<0.0001**
Flexibility -> Control (New)									
Flexibility -> Control_1	1.6935	5.33	**<0.0001**	34.65%	22.89	**<0.0001**			
Flexibility_1 -> Control_1							0.30240	5.06	**<0.0001**
Flexibility_2 -> Control_1							0.00835	0.15	0.8789
Flexibility_3 -> Control_1							0.10699	2.04	**0.0425**
Flexibility_4 -> Control_1							0.24730	3.51	**0.0005**
Flexibility_5 -> Control_1							-0.00870	-0.14	0.8918
Flexibility_6 -> Control_1							-0.00388	-0.07	0.9421
Flexibility_7 -> Control_1							0.02646	0.51	0.6129
Flexibility -> Control_2	1.7058	4.83	**<0.0001**	28.04%	17.09	**<0.0001**			
Flexibility_1 -> Control_2							0.20916	4.83	**<0.0001**
Flexibility_2 -> Control_2							-0.01730	3.15	**0.0018**
Flexibility_3 -> Control_2							0.22249	3.81	**0.0002**
Flexibility_4 -> Control_2							0.20173	2.64	**0.0087**
Flexibility_5 -> Control_2							-0.07234	-1.02	0.3097
Flexibility_6 -> Control_2							0.00451	0.08	0.9394
Flexibility_7 -> Control_2							0.08513	1.46	0.1440
Flexibility -> Control_3	2.6894	7.81	**<0.0001**	17.60%	9.79	**<0.0001**			
Flexibility_1 -> Control_3							0.16642	2.58	**0.0105**
Flexibility_2 -> Control_3							0.01507	0.25	0.7993
Flexibility_3 -> Control_3							0.12812	2.26	**0.0248**
Flexibility_4 -> Control_3							0.04818	0.63	0.5279
Flexibility_5 -> Control_3							-0.05872	-0.85	0.3959
Flexibility_6 -> Control_3							0.03178	0.55	0.5816
Flexibility_7 -> Control_3							0.14167	2.51	**0.0127**
Flexibility -> Control_4	1.3158	4.15	**<0.0001**	38.86%	27.15	**<0.0001**			
Flexibility_1 -> Control_4							0.23674	3.97	**<0.0001**
Flexibility_2 -> Control_4							-0.04794	-0.88	0.3805
Flexibility_3 -> Control_4							0.23626	4.51	**<0.0001**
Flexibility_4 -> Control_5							0.16501	2.35	**0.0197**
Flexibility_5 -> Control_6							0.05210	0.82	0.4141
Flexibility_6 -> Control_7							-0.03785	-0.71	0.4779
Flexibility_7 -> Control_8							0.12541	2.40	**0.0170**

Table 4. Pathway Component Results (Hypotheses 4-6)

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Connectedness-> Perceived Interaction (New)									
Connectedness -> Perceived Interaction_1	5.3392	11.44	**<0.0001**	2.16%	3.21	**0.0236**			
Connectedness_1 -> Perceived Interaction_1							0.18950	2.09	**0.0379**
Connectedness_2 -> Perceived Interaction_1							-0.17302	-1.76	0.0803
Connectedness_3 -> Perceived Interaction_1							-0.09780	-0.95	0.3450
Connectedness -> Perceived Interaction_2	3.2733	7.44	**<0.0001**	0.00%	0.70	0.5529			
Connectedness_1 -> Perceived Interaction_2							-0.07347	-0.86	0.3917
Connectedness_2 -> Perceived Interaction_2							0.11866	1.28	0.2026
Connectedness_3 -> Perceived Interaction_2							-0.02381	-0.24	0.8072
Connectedness -> Perceived Interaction_3	4.0474	8.75	**<0.0001**	0.00%	0.76	0.5174			
Connectedness_1 -> Perceived Interaction_3							0.07694	0.86	0.3928
Connectedness_2 -> Perceived Interaction_3							0.03833	0.39	0.6936
Connectedness_3 -> Perceived Interaction_3							-0.13800	-1.35	0.1773
Connectedness -> Perceived Interaction_4	2.9184	6.75	**<0.0001**	1.21%	2.22	0.0857			
Connectedness_1 -> Perceived Interaction_4							0.05905	-0.70	0.4833
Connectedness_2 -> Perceived Interaction_4							0.14750	1.62	0.1071
Connectedness_3 -> Perceived Interaction_4							0.04734	0.49	0.6214

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Connectedness -> Perceived Interaction_5	2.9753	7.22	**<0.0001**	8.17%	9.87	**<0.0001**			
Connectedness_1 -> Perceived Interaction_5							-0.01525	-0.19	0.8492
Connectedness_2 -> Perceived Interaction_5							0.16584	1.91	0.0571
Connectedness_3 -> Perceived Interaction_5							0.20240	2.22	**0.0270**
Connectedness -> Perceived Interaction_6	2.0467	4.74	**<0.0001**	10.31%	12.41	**<0.0001**			
Connectedness_1 -> Perceived Interaction_6							0.02607	0.31	0.7561
Connectedness_2 -> Perceived Interaction_6							0.24796	2.73	**0.0067**
Connectedness_3 -> Perceived Interaction_6							0.15124	1.59	0.1136
Connectedness -> Perceived Interaction_7	3.0922	6.91	**<0.0001**	4.75%	5.95	**0.0006**			
Connectedness_1 -> Perceived Interaction_7							0.02086	0.24	0.8106
Connectedness_2 -> Perceived Interaction_7							0.18730	1.99	**0.0478**
Connectedness_3 -> Perceived Interaction_7							0.09607	0.97	0.3320
Connectedness -> Perceived Interaction_8	2.6395	5.64	**<0.0001**	3.94%	5.06	**0.0020**			
Connectedness_1 -> Perceived Interaction_8							-0.14982	-1.65	0.0999
Connectedness_2 -> Perceived Interaction_8							0.16892	1.72	0.0873
Connectedness_3 -> Perceived Interaction_8							0.17800	1.72	0.0857
Connectedness -> Perceived Interaction_9	2.9898	7.06	**<0.0001**	3.52%	4.63	**0.0035**			
Connectedness_1 -> Perceived Interaction_9							0.04508	0.55	0.5841
Connectedness_2 -> Perceived Interaction_9							0.13815	1.55	0.1224
Connectedness_3 -> Perceived Interaction_9							0.08245	0.88	0.3788
Anxiety -> Affective Experiential (New)	**ANXIETY CONSTRUCT SCREENED**								
Anxiety-> Perceived Usefulness (New)	**ANXIETY CONSTRUCT SCREENED**								

Table 5. Pathway Component Results (Hypotheses 7-8)

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Aesthetic -> Quality (New)									
Aesthetic -> Quality _1	2.1860	4.95	**<0.0001**	19.69%	25.35	**<0.0001**			
Aesthetic_1 -> Quality _1							0.52051	6.87	**<0.0001**
Aesthetic_2 -> Quality _1							-0.08040	-0.79	0.4297
Aesthetic_3 -> Quality _1							0.12207	1.32	0.1874
Aesthetic -> Quality _2	2.6270	6.70	**<0.0001**	15.11%	18.62	**<0.0001**			
Aesthetic_1 -> Quality _2							0.35870	5.33	**<0.0001**
Aesthetic_2 -> Quality _2							0.02623	0.29	0.7717
Aesthetic_3 -> Quality _2							0.07632	0.93	0.3531
Aesthetic -> Quality _3	2.5631	7.18	**<0.0001**	19.20%	24.53	**<0.0001**			
Aesthetic_1 -> Quality _3							0.36066	5.92	**<0.0001**
Aesthetic_2 -> Quality _3							0.09779	1.19	0.2334
Aesthetic_3 -> Quality _3							0.02336	0.31	0.7534
Aesthetic -> Quality _4	2.5100	6.86	**<0.0001**	17.62%	22.24	**<0.0001**			
Aesthetic_1 -> Quality _4							0.35097	5.59	**<0.0001**
Aesthetic_2 -> Quality _4							0.06015	0.71	0.4760
Aesthetic_3 -> Quality _4							0.06774	0.88	0.3771

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Institutional Reputation -> Quality (New)									
Reputation -> Quality_1	1.0230	2.95	**0.0035**	39.36%	39.16	**<0.0001**			
Reputation_1 -> Quality_1							0.13150	1.30	0.1939
Reputation_2 -> Quality_1							0.25440	2.40	**0.0170**
Reputation_3 -> Quality_1							0.45087	6.10	**<0.0001**
Reputation_4 -> Quality_1							-0.01231	-0.14	0.8881
Reputation_5 -> Quality_1							-0.01450	-0.16	0.8721
Reputation -> Quality_2	1.9519	5.81	**<0.0001**	24.93%	20.46	**<0.0001**			
Reputation_1 -> Quality_2							0.07270	0.75	0.4563
Reputation_2 -> Quality_2							0.20000	1.95	0.0517
Reputation_3 -> Quality_2							0.16169	2.26	**0.0244**
Reputation_4 -> Quality_2							0.19387	2.29	**0.0229**
Reputation_5 -> Quality_2							-0.01587	-0.18	0.8522
Reputation -> Quality_3	1.9218	6.28	**<0.0001**	29.25%	25.23	**<0.0001**			
Reputation_1 -> Quality_3							0.20653	2.33	**0.0207**
Reputation_2 -> Quality_3							0.24109	2.59	**0.0102**
Reputation_3 -> Quality_3							0.07319	1.13	0.2608
Reputation_4 -> Quality_3							0.13416	1.75	0.0820
Reputation_5 -> Quality_3							-0.04139	-0.52	0.6012
Reputation -> Quality_4	1.8498	6.07	**<0.0001**	32.60%	29.45	**<0.0001**			
Reputation_1 -> Quality_4							0.17756	2.00	**0.0462**
Reputation_2 -> Quality_4							0.25248	2.71	**0.0071**
Reputation_3 -> Quality_4							0.24340	3.75	**0.0002**
Reputation_4 -> Quality_4							0.00862	0.11	0.9107
Reputation_5 -> Quality_4							-0.05618	-0.71	0.4777

Table 6. Pathway Component Results (Hypothesis 9)

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Perceived Usefulness -> Quality (New)									
Perceived Usefullness -> Quality_1	1.8166	6.41	**<0.0001**	32.13%	35.80	**<0.0001**			
Perceived Usefullness_1 -> Quality_1							0.21410	1.77	0.0771
Perceived Usefullness_2 -> Quality_1							0.09040	0.79	0.4280
Perceived Usefullness_3 -> Quality_1							0.28600	2.64	**0.0087**
Perceived Usefullness_4 -> Quality_1							0.08073	0.83	0.4079
Perceived Usefullness -> Quality_2	2.6968	10.50	**<0.0001**	22.74	22.57	**<0.0001**			
Perceived Usefullness_1 -> Quality_1							0.14550	1.33	0.1836
Perceived Usefullness_2 -> Quality_1							0.13750	1.33	0.1833
Perceived Usefullness_3 -> Quality_1							0.22914	2.34	**0.0201**
Perceived Usefullness_4 -> Quality_1							-0.03247	-0.37	0.7128
Perceived Usefullness -> Quality_3	2.8283	11.61	**<0.0001**	22.88%	22.73	**<0.0001**			
Perceived Usefullness_1 -> Quality_1							0.03320	0.32	0.7485
Perceived Usefullness_2 -> Quality_1							0.13025	1.33	0.1839
Perceived Usefullness_3 -> Quality_1							0.29836	3.21	**0.0015**
Perceived Usefullness_4 -> Quality_1							-0.00310	-0.04	0.9704
Perceived Usefullness -> Quality_4	2.6473	11.10	**<0.0001**	26.70%	27.78	**<0.0001**			
Perceived Usefullness_1 -> Quality_1							0.17630	1.74	0.0836
Perceived Usefullness_2 -> Quality_1							0.00960	0.10	0.9204
Perceived Usefullness_3 -> Quality_1							0.16409	1.80	0.0729
Perceived Usefullness_4 -> Quality_1							0.14326	1.75	0.0815

Table 7. Pathway Component Results (Hypothesis 10)

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Perceived Interaction -> Quality (New)									
Perceived Interaction -> Quality _1	1.5179	3.14	**0.0019**	38.94%	21.90	**<0.0001**			
Perceived Interaction_1 -> Quality _1							0.03753	0.71	0.4753
Perceived Interaction_2 -> Quality _1							0.02298	0.37	0.7139
Perceived Interaction_3 -> Quality _1							-0.09394	-1.78	0.0764
Perceived Interaction_4 -> Quality _1							0.12359	1.82	0.0699
Perceived Interaction_5 -> Quality _1							0.15114	2.18	**0.0302**
Perceived Interaction_6 -> Quality _1							0.25782	3.32	**0.0010**
Perceived Interaction_7 -> Quality _1							0.12761	1.75	0.0812
Perceived Interaction_8 -> Quality _1							-0.08772	-1.31	0.1897
Perceived Interaction_9 -> Quality _1							0.26127	3.79	**0.0002**
Perceived Interaction -> Quality _2	2.5920	5.16	**<0.0001**	14.51%	6.55	**<0.0001**			
Perceived Interaction_1 -> Quality _2							0.07938	1.46	0.1450
Perceived Interaction_2 -> Quality _2							-0.01654	-0.25	0.7991
Perceived Interaction_3 -> Quality _2							-0.04463	-0.81	0.4169
Perceived Interaction_4 -> Quality _2							0.09036	1.28	0.2003
Perceived Interaction_5 -> Quality _2							0.09072	1.26	0.2073
Perceived Interaction_6 -> Quality _2							0.10104	1.26	0.2098
Perceived Interaction_7 -> Quality _2							0.12499	1.66	0.0987
Perceived Interaction_8 -> Quality _2							0.01755	0.25	0.7996

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Perceived Interaction_9 -> Quality _2							0.10013	1.40	0.1620
Perceived Interaction -> Quality _3	2.2325	4.93	**<0.0001**	17.92%	8.13	**<0.0001**			
Perceived Interaction_1 -> Quality _3							0.11780	2.40	**0.0170**
Perceived Interaction_2 -> Quality _3							-0.00024	0.00	0.9968
Perceived Interaction_3 -> Quality _3							-0.01420	-0.29	0.7723
Perceived Interaction_4 -> Quality _3							0.03530	0.55	0.5803
Perceived Interaction_5 -> Quality _3							0.13526	2.09	**0.0378**
Perceived Interaction_6 -> Quality _3							0.11334	1.56	0.1203
Perceived Interaction_7 -> Quality _3							0.09820	1.43	0.1539
Perceived Interaction_8 -> Quality _3							0.04085	0.66	0.5127
Perceived Interaction_9 -> Quality _3							0.10187	1.58	0.1151
Perceived Interaction -> Quality _4	2.4138	5.41	**<0.0001**	22.86%	10.72	**<0.0001**			
Perceived Interaction_1 -> Quality _4							0.07060	1.46	0.1459
Perceived Interaction_2 -> Quality _4							-0.01950	-0.34	0.7358
Perceived Interaction_3 -> Quality _4							-0.04384	-0.90	0.3689
Perceived Interaction_4 -> Quality _4							0.00539	0.09	0.9315
Perceived Interaction_5 -> Quality _4							0.18172	2.84	**0.0048**
Perceived Interaction_6 -> Quality _4							0.13169	1.84	0.0669
Perceived Interaction_7 -> Quality _4							0.00230	0.03	0.9728
Perceived Interaction_8 -> Quality _4							0.14011	2.28	**0.0235**
Perceived Interaction_9 -> Quality _4							0.11700	1.85	0.0654

Table 8. Pathway Component Results (Hypothesis 11)

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Quality -> Affective Experiential (New)									
Quality -> Affective Experiential_1	0.5304	1.79	0.0751	52.11%	80.44	**<0.0001**			
Quality_1 -> Affective Experiential_1							0.65316	10.66	**<0.0001**
Quality_2 -> Affective Experiential_1							-0.02870	-0.31	0.7554
Quality_3 -> Affective Experiential_1							0.11860	1.12	0.2624
Quality_4 -> Affective Experiential_1							0.12479	1.41	0.1606
Quality -> Affective Experiential_2	1.3047	4.95	**<0.0001**	48.36%	69.36	**<0.0001**			
Quality_1 -> Affective Experiential_2							0.48974	9.00	**<0.0001**
Quality_2 -> Affective Experiential_2							-0.07324	-0.90	0.3711
Quality_3 -> Affective Experiential_2							0.06681	0.71	0.4769
Quality_4 -> Affective Experiential_2							0.24160	3.23	**0.0014**
Quality -> Affective Experiential_3	0.0246	0.07	0.9440	45.02%	60.78	**<0.0001**			
Quality_1 -> Affective Experiential_3							0.66770	9.24	**<0.0001**
Quality_2 -> Affective Experiential_3							-0.08020	-0.74	0.4609
Quality_3 -> Affective Experiential_3							0.12760	1.02	0.3065
Quality_4 -> Affective Experiential_3							0.17640	1.69	0.0928
Quality -> Affective Experiential_4	2.5276	7.75	**<0.0001**	14.14%	12.98	**<0.0001**			
Quality_1 -> Affective Experiential_4							0.29412	4.37	**<0.0001**
Quality_2 -> Affective Experiential_4							-0.00880	-0.09	0.9312
Quality_3 -> Affective Experiential_4							0.02510	0.21	0.8308
Quality_4 -> Affective Experiential_4							0.06632	0.68	0.4979

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Quality -> Affective Experiential_5	3.0958	9.12	**<0.0001**	8.05%	7.34	**<0.0001**			
Quality_1 -> Affective Experiential_5							0.28034	3.97	**<0.0001**
Quality_2 -> Affective Experiential_5							0.12460	1.18	0.2376
Quality_3 -> Affective Experiential_5							-0.10340	-0.86	0.3911
Quality_4 -> Affective Experiential_5							-0.08450	0.83	0.4062
Quality -> Affective Experiential_6	3.3607	9.33	**<0.0001**	6.21%	5.81	**0.0002**			
Quality_1 -> Affective Experiential_6							0.27429	3.68	**0.0003**
Quality_2 -> Affective Experiential_6							0.07920	0.70	0.4856
Quality_3 -> Affective Experiential_6							-0.07710	-0.60	0.5510
Quality_4 -> Affective Experiential_6							-0.06530	-0.61	0.5454
Quality -> Affective Experiential_7	4.5789	11.56	**<0.0001**	1.60%	2.19	0.0706			
Quality_1 -> Affective Experiential_7							-0.06256	-0.77	0.4446
Quality_2 -> Affective Experiential_7							0.17720	-1.44	0.1499
Quality_3 -> Affective Experiential_7							-0.09300	-0.66	0.5094
Quality_4 -> Affective Experiential_7							0.29730	2.51	**0.0125**
Quality -> Affective Experiential_8	3.5259	11.43	**<0.0001**	4.18%	4.17	**0.0027**			
Quality_1 -> Affective Experiential_8							0.22562	3.51	**0.0005**
Quality_2 -> Affective Experiential_8							-0.09680	-1.01	0.3123
Quality_3 -> Affective Experiential_8							-0.03540	-0.32	0.7471
Quality_4 -> Affective Experiential_8							0.03283	0.36	0.7221

Table 9. Pathway Component Results (Hypothesis 12)

Construct Pathway	Const.	T_const	*p* _const	Model R-sq(adj)	Model F Value	*p* _Model	Coef.	T_coef	*p* _coef
Conectedness -> Quality (New)									
Connectedness -> Quality_1	3.1314	6.52	**<0.0001**	6.09%	7.51	**<0.0001**			
Connectedness_1 -> Quality_1							0.05930	0.63	0.5269
Connectedness_2 -> Quality_1							0.23820	2.37	**0.0184**
Connectedness_3 -> Quality_1							0.07500	0.71	0.4756
Connectedness -> Quality_2	3.5847	8.44	**<0.0001**	4.15%	5.33	**0.0014**			
Connectedness_1 -> Quality_2							0.02190	0.26	0.7914
Connectedness_2 -> Quality_2							0.17088	1.93	0.0552
Connectedness_3 -> Quality_2							0.08066	0.87	0.3855
Connectedness -> Quality_3	3.2082	8.22	**<0.0001**	6.87%	8.37	**<0.0001**			
Connectedness_1 -> Quality_3							0.09837	1.29	0.1970
Connectedness_2 -> Quality_3							0.12417	1.52	0.1308
Connectedness_3 -> Quality_3							0.12468	1.46	0.1465
Connectedness -> Quality_4	3.0156	7.79	**<0.0001**	9.20%	11.16	**<0.0001**			
Connectedness_1 -> Quality_4							0.03160	0.42	0.6755
Connectedness_2 -> Quality_4							0.14924	1.84	0.0662
Connectedness_3 -> Quality_4							0.19292	2.28	**0.0234**

Discussion and Directions for Future Work

The findings suggest that an intersection of factors exists between OCE and e-learning satisfaction literature, which include customer experience, online learning, and technology and acceptance research. The findings additionally suggest that because of the confirmation of new pathways from the survey and statistical model, institutions need to account for several factors related to e-learner satisfaction not previously considered or explored in other models.

Our findings suggest that anxiety over technology use may be an ineffective metric, which is reasonable assuming high computer anxiety would prevent e-learners from taking online classes. This may corroborate the lack of findings in previous models in this field (Barbeite and Weiss, 2004; Sun et al., 2008). In clarifying this construct ambiguity, we caution that our dataset may be skewed toward responses because of our institutional type (not-for-profit private technical university). We suggest continued research in order to collaborate with other institutes to develop a more representative sample of the overall population of online learner; we have a special interest in developing a sample among community colleges and a diverse set of institutional classes, as well as domain or population specific targeting of the survey instrument to develop more granularity as the constructs and pathways relate to diverse student populations, by college, major, or geographic area. Ongoing inquiry in these areas will almost certainly result in a more parsimonious instrument for those researchers seeking to measure the features and benefits that contribute to e-learner satisfaction.

The UTAUT theoretical model also indicated that contextual analysis enhances our understanding of technology adoption. This study explored the intersection of technology interaction and adoption and factors associated with online learning satisfaction and others more closely associated with online shopper satisfaction and customer experience. The findings strongly suggested that both context and factor analysis provide enhanced visibility on what drives online learner satisfaction. Gathering data from one university certainly limits external validity of the newly discovered variables, and the new survey instrument and subsequent construct variables should be further tested to better develop the model.

This research combined qualitative analysis and literature from online consumer expectation and e-learner literature; we found statistical significance through 37 construct-variable mappings and 52 factor-to-variable mappings, which is noteworthy because of the implication is more broadly applicable to nearly any type of organization in which a need exists to measure some degree of satisfaction. Furthermore, from a general marketing perspective, there exists significant opportunity to explore construct creation and validity with other fields in order to continue building on foundational and emerging research.

Follow-on investigation should consider mappings to Student Engagement as an alternative goal of e-learning providers. Also, further research should investigate factorial validity of the Anxiety construct in light of likely changes to the wider population's acceptance of computer-based learning.

Conclusions

In this paper we utilized an additive statistical modeling approach to examine the individual relationships between construct variables, which provides important insight toward a stable structural equation that incorporates only necessary construct variables. The combination of items from the measurements across these two domains, presented here, has allowed for root components analysis of relative item significance in construct pathways leading to student satisfaction in e-learning. The authors recommend continued research using the Partial Least Squares method to measure model loadings and discriminant validity for the conceptual model proposed here.

There are several theoretical and managerial implications associated with this research. First, we found statistical significance among intersections between e-learning and online customer experience (OCE). We have demonstrated empirical evidence that e-learning is the combination of multiple different fields of practice/study and our proposed model incorporates these environments to more accurately describe satisfaction. Our findings statistically demonstrated that the intersections between OCE and e-learning exist, and that an understanding of these intersections is necessary to better describe and design e-learning environments. The newly linked pathways indicate that items like aesthetics, assessment diversity, and institutional reputation matter to e-learners, which demonstrates that faculty and staff must be aware of a multitude of factors associated with the delivery of education.

Second, the theoretical implication of the holistic perspective on the construction of models further implicates the necessity of expanding valid instruments into related, yet previously not statistically linked constructs to better understand the factors that lead to successful interactions with a variety of technology. The foundational technology adoption instruments have been tested in a variety of academic areas of interest, and there is a continued need to research the intersections of areas like e-learning and OCE to determine if statistical significance exists between previously unconnected research studies/domains. The implication is that in order to better understand interaction with technology, targeted investigation will yield the required answers in order to draw the necessary actionable data.

From a managerial perspective, the findings strongly suggest that it is simply not enough to build what is believed to be a good online learning environment. We believe that online students have become increasingly agile and discerning consumers; they subsequently demand a superior customer experience. Our confirmation of new pathways that link OCE and e-learning represents a significant opportunity for institutional leaders and faculty to better implement and manage their e-learning environments to optimise beneficial student outcomes. Because of the cost factors associated with creating, staffing, and updating online material for e-learners, the return-on-investment as an underlying motivational factor for universities cannot be disassociated from the presented findings.

Declaration of Interests

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Appendix A

Website Experience Survey

The following anonymous survey will be used to collect data from students about their perceptions of an ideal online learning experience. As you complete the survey, please think about your personal experience with online classes. This survey will assist leadership in designing more impactful online learning opportunities for students and faculty. Your contributions will greatly help lead efforts to enhance the online learning experience and we want to thank you for participating.

Which of the following best describes you?

- Online Learner Only
- Both Online and In Person Learner

Please select your gender:

- Female
- Male
- Other
- Prefer not to answer

Please select your age group

- 18-24 (1)
- 25-29 (2)
- 30-34 (3)
- 35-39 (4)
- 40-44 (5)
- 45-49 (6)
- 50-54 (7)
- 55-59 (8)
- 60-64 (9)
- 65-69 (10)
- 70-74 (11)
- 75-79 (12)
- Prefer not to answer (13)

Please select your current degree status

- Undergraduate/Part Time (1)
- Graduate/Part Time (2)
- Undergraduate/Full Time (4)
- Graduate/Full Time (5)
- Non-matriculated (3)

Approximately how many online courses have you taken that were credit bearing?

- 1
- 2-5
- 6-9
- 10-14
- 15-20
- 21-25
- 26-30
- 30+
- My entire program(s) is online

Learner computer anxiety - this section will ask you to think about how you feel when working with a computer or any other device used to access an online classroom. (7 point Likert Scale, strongly disagree to strongly agree)

Working with a computer makes me very nervous
I get a sinking feeling when I think of trying to use a computer
Computers make me feel uncomfortable
Computers make me feel uneasy and confused

E-learning Program Flexibility - these questions will ask you to think about why you have taken online courses (7 point Likert Scale strongly disagree to strongly agree)

The advantages of taking this course via the Internet outweigh any disadvantages
Taking this course via the Internet allows me to spend more time on non-related activities (2)
There are no serious disadvantages to taking this course via the Internet (3)
Taking this course via the Internet allows me to arrange my work schedule more effectively (4)
Taking this course via the Internet saves me a lot of time commuting to class (5)
Taking this course via the Internet allows me to take a course I would otherwise have to miss (6)
Taking this course via the Internet should allow me to finish my degree more quickly (7)

E-learning Course Quality - these questions is asking you to reflect on your ideal online course experience (7 point Linkert Scale, strongly disagree to strongly agree)

Conducting the course via the Internet improves the quality of the course compared to other courses (1)
The quality of the course compares favorably to other online course opportunities (2)
The quality of the course compares favorably to brick-and-mortar courses (3)

I feel the quality of the course I am taking is largely unaffected by conducting it via the Internet (4)

Perceived Usefulness - these questions will ask you to think about how useful a web-based learning system (like myCourses/Blackboard) is in facilitating an ideal learning experience. (7 point Likert Scale strongly disagree to strongly agree)

Using a web-based learning system will enhance my effectiveness in the course (1)
Using a web-based learning system will improve my performance in the course (2)
I find web-based learning systems useful in courses (3)
Using a web-based learning system in the course will enhance my productivity (4)

The ideal e-Learning course offers a variety of ways of assessing my learning (quizzes, written work, oral presentation, etc.) (7 point Likert Scale, strongly disagree to strongly agree)

Learner Perceived Interaction With Others - these questions will ask you to think about your perceived interactions in an ideal web-based course versus a brick-and-mortar course. (7 point Likert Scale, strongly disagree to strongly agree)

Student-to-student interaction will be more difficult in online courses (1)
Student-to-student interaction will be more difficult in brick-and-mortar courses (2)
Class discussions will be more difficult to participate in than other online courses (3)
I will learn more from my fellow students in these courses than in brick-and-mortar courses (6)
Interacting with other students and the instructor using a web-based learning system will become more natural as the courses progress (7)
I feel that the quality of class discussions will be high throughout the course (8)
It will be easy to follow class discussions (9)
Classroom dynamics will not be much different than in other courses (10)
Once we become familiar with the web-based courses, it will have very little impact on the class (11)

Perceived e-Learner Satisfaction - these questions will ask you to think about how satisfied you have been with courses you've taken in the past (7 point Likert Scale, strongly disagree to strongly agree)

I am satisfied with my decision of taking these courses via the Internet (1)
If I had an opportunity to take another course via the Internet, I would gladly do so (2)
My choice to take courses via the Internet was a wise one (3)
I am very satisfied with the online courses I have taken (4)
I feel that these courses served my needs well (5)
If I decide on further education, I will take as many courses via the internet as I can (6)
I am disappointed with the way the courses have worked out (7)
If I had to do it over, I would not have taken these courses via the Internet (8)
Taken these courses via the Internet made it more difficult than other courses I have taken (9)

Perceived e-Learning Quality - these questions will ask you to think about your satisfaction regarding your decision to enroll in online courses (7 point Likert Scale, strongly disagree to strongly agree)

I am satisfied with my overall experience of selecting e-learning courses/programs (1)
I am satisfied with the pre-enrollment experience of e-learning courses (e.g., consumer education, program search, quality of information about programs, program comparison) (2)
I am satisfied with the enrollment experience of e-learning courses (e.g., ordering, financial aid application(s), payment procedure) (3)
I am satisfied with the post-enrollment experience of e-learning courses (e.g., customer support and after sales support, handling of course/program changes, content delivery) (4)

Telepresence - these questions seek to understand how you feel about the world around you while working in online courses. (7 point Likert Scale, strongly disagree to strongly agree)

When I'm actively engaged in an online course, it creates a new world for me, and this world suddenly disappears when I exit the course (1)
I forget about my immediate surroundings when I am actively engaged in an online course (2)
When I am actively engaged in an online course, I often forget where I am (3)
When I am actively engaged in an online course, I feel like I come back to the “real world” after a journey when I exit the course (4)

Challenge - these questions will ask you to think about whether or not you have felt challenged in an online course. (7 point Likert Scale strongly disagree to strongly agree)

Taking e-learning course challenges me to perform to the best of my ability (1)
I find that taking e-learning courses stretches my capabilities (2)
Taking e-learning courses challenges me (3)
Taking e-learning courses provides a good test of my skills (4)

The word "flow" is used to describe a state of mind sometimes experienced by people who are deeply involved in some activity. One example of flow is the case where a professional athlete is playing exceptionally well and achieves a state of mind where nothing else matters but the game; he or she is completely and totally immersed in it. The experience is not exclusive to athletics; many people report this state of mind when playing games, engaging in hobbies, or working. Activities that lead to flow completely captivate a person for some period of time. When one is in flow, time may seem to stand still and nothing else seems to matter. Flow may not last for a long time on any particular occasion, but it may come and go over time. Flow has been described as an intrinsically enjoyable experience. Thinking about a recent e-learning experience, respond to the following (7 point Likert Scale strongly disagree to strongly agree):

When in an online course, I have experienced flow (1)
When in an online course, I have never experienced flow (2)

Ease-of-Use - these questions will ask you to think about your past online course and course navigation experience (7 point Likert Scale, strongly disagree to strongly agree)

Navigation was quick and easy when I was taking an online course (1)
E-Learning allows me to easily learn what I want (2)
It is easy to become confident using e-learning websites (3)
E-learning websites are easy to use (4)
Learning how to navigate e-learning websites does not take too long for me (5)

Customisation - these questions will ask you to think about what your ideal online learning experience would feel like (7 point Likert Scale, strongly disagree to strongly agree)

E-Learning courses should feel like they are talking to me personally as a student (1)
The requirement to log into an e-learning website makes me feel recognised as a student (2)
It is important to me that an e-learning website feels like my personal space when I use it (3)
I like it when I am able to customise the e-learning web pages to my own liking (4)

Connectedness - these questions will ask you about how feeling connected to other learners impacts your online learning experience (7 point Likert Scale, strongly disagree to strongly agree)

It is an advantage when the content of the course is partly influenced by the students (1)
Being able to connect with other students who share similar interests in the same courses/topics is a positive feature of e-learning (2)
Viewing the thoughts and recommendations of other students who take online courses is helpful (3)

Perceived Control - these questions will ask you to think about your level of control in e-learning websites (7 point Likert Scale, strongly disagree to strongly agree)

I feel in control of what I am doing when I use an e-learning website (1)
I can easily control the information that is provided on e-learning websites (2)
I feel I can control the disclosure of my personal information on e-learning websites (3)
The level of information provided by e-learning websites helps me to feel in control of my learning experience (4)

Aesthetics - these questions will ask you to think about the importance of the visual qualities of an ideal online learning experience (7 point Likert Scale, strongly disagree to strongly agree)

The aesthetics of e-learning websites promote a perception of quality (1)
The branding of e-learning websites should be consistent with my current perceptions of the institution (2)
The look and feel of the e-learning website is important (3)

Institutional Reputation - these questions will ask for you impression of the quality of the institution compared to your e-learning experience (7 point Likert Scale, strongly disagree to strongly agree)

I have always had a good impression of the academic institution offering the online course (1)
In my opinion, the academic institution offering the online courses has a good image in the minds of other students (2)
In general, I believe that the academic institution offering the online course always fulfills the promises it makes to its students (3)
The academic institution offering the online course has a good reputation (4)
I believe that the reputation of the academic institution offering the online courses is better than other schools (5)

Using the rating scale below, indicate the feelings you had following your most recent e-learning experience:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Unhappy	○	○	○	○	○	○	○	Happy
Melancholic	○	○	○	○	○	○	○	Contented
Annoyed	○	○	○	○	○	○	○	Pleased
Sluggish	○	○	○	○	○	○	○	Frenzied
Calm	○	○	○	○	○	○	○	Excited
Relaxed	○	○	○	○	○	○	○	Stimulated
Guided	○	○	○	○	○	○	○	Autonomous
Influenced	○	○	○	○	○	○	○	Influential