Relevant Correlations among Reputation, WOM and e-WOM with Satisfaction of Distance Education

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Abstract

This paper aimed to test the relevant correlations among Word-Of-Mouth, electronic-Word-Of-Mouth e-WOM, reputation and satisfaction of distance education. Also, the study explored a set of key elements of the service with regard to satisfaction of distance education, including: curricula, instructors, procedures, customer value and equipment.Finally, the paper analyzed the differences of satisfaction extent according togender, age and nationality. The findings indicated significant factors influence satisfaction and reputation, and estimated the weight of each factor. The study presented a proposed modelto assist practitioners and researchers who are interested in activities that combine computer work with education performance and stakeholder satisfaction. The proposed model was applied on Saudi Arabia, and the sample was collected from the distance education students of Dammam University. More generalizations could be developed, based on these findings, when conducting further research on other universities, countries and cultures.

Keywords: Marketing, Distance Education, Customer Satisfaction, Reputation, WOM, e-WOM

1. Introduction

Increasingly, world universities are depending on distance education. A basic key success of any technology is the satisfaction extent of its users. The valuation of education service does not depend on technical quality alone. One way or another, humans are affected by Word-Of-Mouth WOM from others and reputation, when they valuate any service. Therefore, Distance Education (DE) has become a common way to present education programs as opposed to traditionalprograms (Bower et al, 2015;

MalganovaandRahkimova, 2015). DE is becoming a major mode of teaching and learning (Latypovand Sabirova, 2016). The tools of DE offer new interactivealternatives for students to learn, which may alleviate the drop-out rate problem (Berberoğlu, 2015). An assessment of this learning mode is important to evaluate the quality of learning and to provide useful directions for effective management of online education(Hone et al, 2016). The success of DE efforts requires three main pillars; technology, curricula and satisfaction of targeted audience.Therefore, relationships among quality dimensions in higher education should be studied and the effect of each quality dimension on satisfactionlevels should be assessed (Yılmaz et al., 2013; Ardi et al., 2012). Effective DE requires not only quality computer systems, but also high satisfaction and acceptable reputation among stakeholders (Poellhuber et al., 2013; Sandmaung and Khang, 2013; Sultan and Wong, 2012).The human aspect of DE is still in a relatively early stage of researchwith regard toexploring the extent to which students' wants and needs arebeing satisfied (Celikand Uzunboylu, 2015; O'Cass, and Ngo, 2011). IF user satisfaction is not taken into consideration, all efforts of DE may be useless. Therefore, this study focuses on explore factors influence student satisfaction about DE programs.

2. Literature Review

2.1 Distance Education DE

Today, hundreds of world universities present their programs by distance or a mix of distance learning with face-to-face, learning. Thousands of people find DE to be suitable way to gain knowledge or improve their job situations (Berberoğlu, 2015). DE has a great importance in meeting the needs of professionals and practitioners in various fields (Latypovand Sabirova, 2016; Bower et al, 2015;Brinson, 2015; Koper, 2015; Yılmaz et al., 2013). Enrollment of DE is increasing rapidly in different countries to various types of institutions offeringa variety of scientific degrees (Korving et al, 2016) with a high level of academic achievements (Joksimović et al, 2015). A lot of channels, devicesand methods are used in DE (Sung et al, 2016; Bower et al, 2015; Van Rooyen, 2015) by tens of languages (York et al, 2016). DE is the future of education in all over the world (Malganovaand Rahkimova, 2015; Berberoğlu, 2015; Celikand Uzunboylu, 2015). However, the real challenge lies in determining the satisfaction level of DE users (Barak and Levenberg, 2016). Also, the responsibilities of teachers and administrators who implement DE exceed those of traditional education (Semradovaand Hubackova, 2016).

1.2 Satisfaction

Satisfaction is defined as an effective state resulting from a judgment of performance compared to expectations (Mysen et al., 2011).ServicesOrganizations should take steps to determine satisfaction levels among their customers (Edward and Sahadev, 2011). The study of Barak and Levenberg, (2016) confirmed significant differences among people with reared to their acceptance of technologies. Literature of Merhi, (2015)refers to various factors which influence satisfaction: equipment (Mbati and Minnaar, 2015), service quality (Kaur, 2013) and customer value(Wu, 2011). Some of these previous studies indicated significant differences in satisfaction of DE according to age (Hone et al, 2016; San-Martín et al, 2015) and gender (Celikand Uzunboylu, 2015; Poellhuber et al., 2013).Present literature includes studies applied on manynationals: Canada (Poellhuber et al., 2013), India (Ganguli, and Roy, 2011), Egypt (Ali, 2010), Jordan (Oda, 2012), Philippine (Lorenzo-Molo, 2007), Turkey (Yılmaz et al., 2013), South Africa (de Hart et al, 2015), Iraq (Aldulimi, 2014).

Research Question #1 (RQ1): Do gender, age and nationality have a significant effect on student satisfaction of DE services? The answer ofthis question was covered in this study by three hypotheses as follows:

H_1: There are significant differences in satisfaction levels, according to gender

H_2: There are significant differences in satisfaction levels, according to age

H_3: Thereare significant differences in satisfaction levels, according to nationality

RQ2: What are the significant key elements of a DE service? This question was answered through the analysis of the following hypothesis:

H_4: There are significant correlations between reputation, curricula, instructors, equipment, customer value and procedures with satisfaction of DE service.

The study depended on three items to measure student satisfaction as follows:

X_1. How well needs are met (Kaur, 2013; Ganguli, and Roy, 2011)

X_2. Feeling happy with the decision they had made (Kaur, 2013; Liang and Zhang, 2012; Ganguli, and Roy, 2011; Edward and Sahadev, 2011)

X_3. Overall Satisfaction (Liang and Zhang, 2012; Ganguli, and Roy, 2011; Edward and Sahadev, 2011)

The following items were used in this study to measure thekey elements of DE service, which were suggested by Sandmaung and Khang, (2013); Yılmaz et al., (2013) and Ardi et al., (2012):

Curricula Items:

X_4. Acceptable level of ease

X_5.Compatibility with scientific development

X_6.Compatibility with labor market needs

X_7.Compatibility with personalneeds

X_8. Diversity of specialties

Teachers Items:

X_9. Teaching methods

X_{10}. Ethics of dealing with students

Procedures Items:

X_{11}. Admission

X_{12}. Registration

X_{13}. Cancelation ofregistration

X_{14}. Formal communications with officers & employees

Customer Values Items:

X_{15}. Comparison between the cost of the study & its value

X_{16}. Comparison to similar programs of other universities

Equipment Items:

X_{17}. Website design

X_{18}. Website contents

X_{19}. Interactive lectures

X_{20}. Communication with instructors

X_{21}. Technical support

1.3 Reputation

Reputation is defined as the collective total of all previous transactions of a retailer over an extended period of time (Kim, and Lennon, 2013). It refers to common opinion and social evaluation that people have about someone or something. Good reputation may reduce buyers' price sensitivity (Biong, 2013) and enhance customer loyalty (Amin et al., 2013). Some studies pointed out positive relations between reputationand purchasing decision (Shim and Yang, 2015). Management of reputation is necessary for business (Men, 2012), for DE service or anyanother field. The public opinion about the reputation of any DE program or institute which presents it, may be different among people(Barak and Levenberg, 2016). Oda, (2012)indicated that the design of university-website influences its reputation. In the higher education context, a group of studies support that satisfaction positively

affects university reputation(Saeidi et al, 2015; Tournois, 2015; Sultan and Wong, 2012), and many other studies confirmed a significant relation between them (Su et al, 2016; Shin et al, 2015; Saeidi et al, 2015; Argan, 2016; Sengupta et al, 2015; Mulki, and Jaramillo, 2011).Reputation influences satisfaction indirectly through the impact of perceived value (Cretu and Brodie, 2007).

RQ3: Is the significant relation between a university's reputation and students' satisfaction of the DE program, it offers? The answer of this question is covered by the following hypothesis:

H_5: Reputation significantly influences satisfaction.

This study depended on two items to measure reputation as follows:

X_{22}. University is well-known (Kimand Lennon, 2013)

X_{23}. University has good reputation (Kimand Lennon, 2013)

1.4 Word-Of-Mouth WOM

WOM is informal advice (Huang et al., 2011) and oral communication(Abrantes et al., 2013) among people about something (e.g. services, products or any social issue). The findings ofLo´pez and Sicilia, (2013),Yang et al., (2012) and Huang et al., (2011) suggested that there are significant relations between WOM and product sales.There remain many unanswered questions with regard WOM which need to be further eresearched (Lang and Lawson, 2013). According to the Word of Mouth Marketing Association (2007), WOM Marketing is defined as giving people a reason to talk about your products and services, and making it easier for that conversation to take place. The effects of WOM may exceed those of promotion activities, therefore, it should be managed by individuals or organizations(Yang, 2016;Lo´pez and Sicilia, 2013;Ali, 2010). Usually, when people are satisfied, itpositively influences their WOM(Su et al, 2016;Su et al, 2015).Thus, satisfaction influences positive WOM of customers (Liang and Zhang, 2012; Wu, 2011; Mulki, and Jaramillo, 2011). A set of studies confirmed the relation between WOM and reputation (Argan, 2016; Tournois, 2015; Casidyand Wymer, 2015). There is a need in the theory literature of WOM for contributions from researchers to cover a set of contemporary issues (Aldulimi, 2014; Abdelhameed and Alqasaby, 2012; Yang et al., 2012).

RQ4: Are the relations between WOM and reputation and satisfaction significant?The answer to this question is covered by the following hypotheses:

H_6: Satisfaction significantly influences WOM.

H_7: WOM significantly influences reputation.
The following items were used in this study to measure WOM:

X_{24}. Talking to others about the program (Liang and Zhang, 2012; Mulki, and Jaramillo, 2011).

X_{25}. Providing information about the program (Abrantes et al., 2013).

1.5 Electronic Word-Of-Mouthe-WOM

There is a wide difference of opinion regarding technology uses (Barak and Levenberg, 2016). E-WOM refers to any statement consumers share via virtual community about a service or organization or any another thing (Bachledaand Berrada-Fathi, 2016; Abrantes et al., 2013).The internet media has shown to be more influential thanWOM (Sung et al, 2016; Bower et al, 2015). There are various shapes of e-WOM: one-to-one, many-to-many or one-to-many (Huang et al., 2011). Some literature refersto significantdifferences in the spread of e-WOM according togender (Kulmala et al., 2013), content (Aldulimi, 2014) and nationality (Christodoulides et al., 2012).Marketers should have enough knowledge about professional uses of internet to manage e-WOM successfully on various social media (Chen et al, 2016; Guraˇu, 2013; Lin, et al., 2012). The study of Changand Wu, (2014)confirmed that e-WOM has a positive impact on the success of corporations offering a service, and indicated that poor management for e-WOM may lead to negative effects on brand commitment. Credibility, quality and usefulness of information may influence e-WOM,according to the conclusions of Erkanand Evans,(2016). Massive open online courses are affected by factors such as; age or level of study(Hone et al, 2016).People have two circles of e-WOMstrong ties and weak ties (Abrantes et al., 2013), and marketers should analyze both for among their targeted audience. DE administrators should differamong the sites of e-commerce and social media of design quality (Yan et al, 2016) or DE services (Van Rooyen, 2015), due to the importance(Kim, and Lennon, 2013).Marketers and managers of any human projectshould understand how to manage e-WOM (Kietzmann and Canhoto, 2013) to enhance their reputation of product, service or organization. Literature confirms that e-WOM influencespurchase decisions, product evaluations (Christodoulides et al., 2012), satisfaction and reputation (Chen et al, 2016). In the context of strong reputation building, satisfied customers spread positive words about a corporation and its employees or products (Su et al, 2016;Su et al, 2015;Saeidi et al, 2015).

RQ5: Are the relations between e-WOM and reputation and satisfaction, significant?The answer of this question is covered by the following hypotheses:

H_8: Satisfaction significantly influences e-WOM.

H_9: e-WOM significantly influences reputation.

The following items were used in this study to measure e-WOM:

X_{26}. Talking to others through social media about the program (Liang and Zhang, 2012; Mulki, and Jaramillo, 2011).

X_{27}. Providing people with information through social media about the program (Abrantes et al., 2013).

In the context of such previous literature, this study aimed to investigate the significance of the relationships among WOM, e-WOMand Reputation with satisfaction about DE service, and to explore the significant differences of satisfaction levelsamong students of DE programs,based on their gender, age and nationality. These purposes should be considered by practitioners and researchers who are interested in computer works oreducation by distance.

2. Method

2.1Instrument Building procedures

This study was designed as a mixed-approach where qualitative and quantitative methods were used. A group of pilot interviews with experts and primary groups of participants were administered, acting as a qualitative approachin order to generate the indicators, while consideringthe literature review. The quantitative approach includes Confirmatory Factors Analysis CFA, Structural Equation Modeling SEM, Multi Regression Analysis MRA, and some statistical indices of model fit. The instrument of this research was represented in an "e-questionnaire" through "Google Drive"based on a five-point Likert-scale. It was built on a qualitative review approach.A multi-resources approach was followed to test the validity and reliability of the instrument. This approach includes three groups of studies and tests to ensure that the instrument was valid and reliable, as follows:

*2.1.1*First, a group of pilot studies focused on generating the most important factors and items of the questionnaire. It contains three studies; (A) Literature review for related studies which was presented through the previous part of this paper. (B) Open discussion interviews were organized with seven experts in the field of DE, includingthree faculties, two administrators and two technical supporters. (C) A semi-structured interview was managed with 32 participants of the population based on open brainstorming(a large sample should be at least32 participants). The sample was collected to represent all

ofthe eight levels of study in DE programs - two participates from each level, 16 females and 16 males.

*2.1.2*Second, two testsfocused on validity: (A) A review of a questionnaire byeight experts and academics, includingthe main fields:methodology, DE, statistical analysis and businessadministration. They suggested a set of modifications to be more valid. (B) An in-depth semi-structured interview was conducted with 48participants from the population to ensure that the questionnaire was clear, six-participants from each level, 24 females and 24 males. Some modifications were done to the questionnaire to enhance clarity.The questionnaire after validity test contained 9 factors including 27 items.

*2.1.3*Third, a group of post-tests focused on testing reliability,containing; Cronbach's Alpha, CFA, Kaiser-Meyer-Olki KMO (to ensure the efficiency of the sample size), Bartilett-of-Sphericity (to ensure the significance of correlations among variables of each factor) and Confidence Interval CI,Average Variances Extracted AVE, Composite Reliability CR and power of study.

2.2Population and Sampling

There are 36 universities in Saudi Arabia(http://www.moe.gov.sa). Business administration programs are the most common DE programs in Saudi Arabia universities.Dammam university is one of institutions offering DE programs in Saudi Arabia, presentingjust a DE program of business administration. The population of this research consisted of the enrolled students in theDE programoffered at Dammam university by distance. The e-questionnaire was distributed randomly to 640 students. The collected responses were 595 valid cases, that represented 92.97% of the sample. Table 1 shows the description of the sample as follows:

Table 1
Demographic information and characteristics of respondents

Measure	Items	Frequency	Percentage
Gender	Male	140	23.5
	Female	455	76.5
Nationality	Saudi	556	93.4
	Non-Saudi	39	6.6
Age	18-24	368	61.8
	24-30	101	17
	30-36	65	10.9
	36-42	46	7.7
	>42	15	2.5

4. Results

4.1 Validity and Reliability

Statistical Package for Social Sciences, SPSS V_{20} was used in the statistical analysis of this study. Table 2 shows the estimated values of reliability; Factor Loading, Cronbach's α, IC, CR and AVE. The overall valueof Cronbach's α was 0.942. The sub-scales values of Cronbach's α for each factor of questionnaire were from 0.851 to 0.914, which means all exceeded the 0.70 level. The result of KMO test was acceptable as the KMO measure of sampling adequacy is 0.925, which is higher than the critical value 0.50. Results of Bartilett-of-Sphericity test confirmed a significant correlation among variables of each factor (p < 0.001). The estimated range of CR based on actual construct loadings was from 0.798 up to 0.907, all values above the 0.70 level. AVE values were higher than the cut-off level 0.50 is 0.644 up to 0.904; the satisfaction level of DE aspects was 0.775, curricula 0.663, instructor 0.747, procedure 0.651, customer value 0.904, equipment 0.609, reputation 0.644, WOM 0.806 and e-WOM 0.805. Finally, all these estimated values indicated that reliability is acceptable.

Table 2

Descriptive statistic, validity and reliability estimates

Constructs and Items	Mean	SD	Factors Loading	CI on .05 level	α	AVE	CR
Satisfaction					0.883	0.775	0.912
X1	3.81	1.141	0.872	3.718 ≤ 3.902			
X2	3.99	1.146	0.888	3.898 ≤ 4.082			
X3	4.02	1.048	0.887	3.949 ≤ 4.091			
Curricula (C)					0.851	0.663	0.907
X4	4.02	1.048	0.864	3.949 ≤ 4.091			
X5	3.91	0.866	0.853	3.840 ≤ 3.980			
X6	3.90	0.934	0.852	3.825 ≤ 3.975			
X7	3.79	0.961	0.755	3.713 ≤ 3.867			
X8	3.17	1.340	0.734	3.062 ≤ 3.278			
Instructors (I)					0.852	0.747	0.855
X9	3.79	1.063	0.883	3.704 ≤			

X10	4.23	0.814	0.845	3.876 4.165 ≤ 4.296			
Procedures (P)					0.829	0.651	0.882
X11	3.96	1.009	0.843	3.874 ≤ 4.046			
X12	3.85	1.058	0.824	3.765 ≤ 3.935			
X13	3.87	0.976	0.786	3.791 ≤ 3.949			
X14	3.39	1.300	0.772	3.285 ≤ 3.495			
Customer Value (V)					0.914	0.904	0.950
X15	3.74	1.027	0.951	3.667 ≤ 3.813			
X16	3.45	1.241	0.951	3.350 ≤ 3.550			
Equipment (E)					0.854	0.609	0.886
X17	4.02	0.909	0.868	3.947 ≤ 4.093			
X18	3.99	0.889	0.791	3.918 ≤ 4.062			
X19	3.64	1.112	0.776	3.551 ≤ 3.730			
X20	3.67	1.077	0.741	3.583 ≤ 3.757			
X21	3.49	1.223	0.716	3.392 ≤ 3.559			
Reputation:					0.881	0.644	0.782
X22	4.02	1.048	0.889	3.936 ≤ 4.104			
X23	4.10	0.962	0.706	4.023 ≤ 4.178			
WOM:					0.852	0.806	0.892
X24	4.12	0.914	0.911	4.046 ≤ 4.194			
X25	4.21	0.844	0.884	4.143 ≤ 4.278			
e-WOM:					0.851	0.805	0.892
X26	3.78	1.096	0.910	3.692 ≤ 3.868			
X27	3.78	1.070	0.884	3.708 ≤			

3.852

4.2 Hypotheses Test Results:

Fig. 1 shows the results of the hypotheses test of model variables, which including the following:

- *H_1 Test: Gender → Satisfaction*

Tests of Mann-Whitney and Wilcoxon showed significant differences in satisfaction among cases according to their gender, ($p < 0.001$), the mean rank of males being more than females. The effect that gender has on satisfaction was measured by Glass-Rank-Biserial-Correlation 0.27, showing a weak effect but significant.

- *H_2 Test: Age → Satisfaction*

Test of Kruskal-Willis showed significant differences in satisfaction among cases according to their age, ($p < 0.001$), the mean rank of older cases being more satisfied than the younger. The effect that gender had on satisfaction was($\theta = 0.10$), showing a weak but significant effect.

- *H_3 Test: Nationality → Satisfaction*

Tests of Mann-Whitney and Wilcoxon showed non-significant differences in satisfaction among cases according to their nationality, ($p > 0.05$).

- *H4 Test: Key elements of service (5 Items) + Reputation → Satisfaction*

Multi Regression Analysis showed significant correlations with satisfaction and reputation, customer value, curricula and equipment ($R = 0.712$, $R^2 = 0.507$ and Adjusted $R^2 = 0.503$, $p < 0.001$). No significant correlations were indicated for the other elements, instructors and procedures.

- *H_5 Test: Reputation → Satisfaction*

Tests of Kendall's tau-b (V= 0.563, $p < 0.001$), Kendall's tau-c (V= 0.481, P < 0.001) and Gamma (V= 687, $p < 0.001$) showed a significant correlation (average) between reputation and satisfaction.

- *H6 Test: Satisfaction → WOM*

Tests of Kendall's tau-b (0.588, $p < 0.001$), Kendall's tau-c (V= 0.481, P < 0.001) and Gamma (V= 739, $p < 0.001$) showed a significant correlation between satisfaction and WOM.

- *H_7 Test: WOM → Reputation*

Tests of Kendall's tau-b (V= 0.533, $p < 0.001$), Kendall's tau-c (V= 0.410, P < 0.001) and Gamma (V= 706, $p < 0.001$) showed a significant correlation between WOM and reputation.

- *H_8 Test: Satisfaction → e-WOM*

Tests of Kendall's tau-b (V= 0.408, p < 0.001), Kendall's tau-c (V= 0.341, P < 0.001) and Gamma (V= 515, p < 0.001) showed a significant correlation between satisfaction and e-WOM.

- *H_9 Test: e-WOM → Reputation*

Tests of Kendall's tau-b (V= 0.400, p < 0.001), Kendall's tau-c (V= 0.315, P < 0.001) and Gamma (V= 541, p < 0.001) showed a significant correlation between e-WOM and reputation.
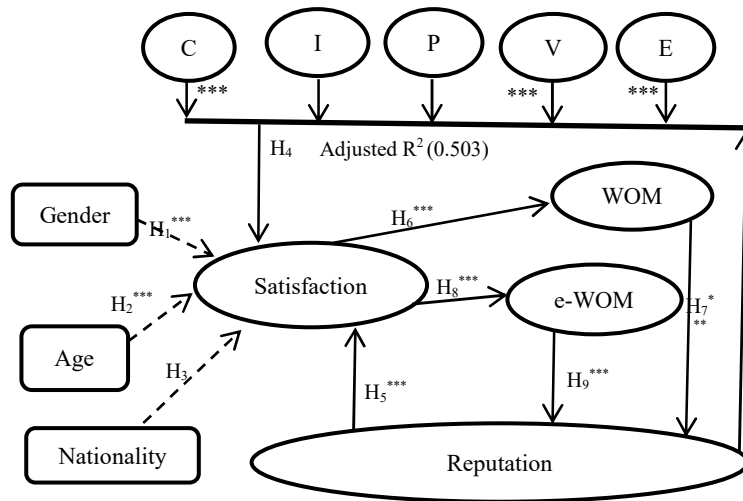

Fig. 1. Hypotheses Structure Results of Model

5. Discussion and Conclusion:

This study aimed to present a proposed model for academics and practitioners to support them in building better understand the preferences of DE students. Table 4 summarizes the hypotheses results, which are grouped as follows:

First, the study indicated that males are significantly more satisfiedthan females. Theseresults are consistent with the findings of Poellhuber et al., (2013), Oda, (2012), Anthony, (2012), Mulki, and Jaramillo, (2011) and Tu, (2011), but it is not consistent with (Cho and Kim, 2013). Also, older students are significantly more satisfied than younger ones. These findings of Poellhuber et al., (2013), Mulki, and Jaramillo, (2011) and Oda, (2012) were supported in this research, but it is not consistent with (Oda, 2012). These

findings suggest that institutions using DE should take into consideration the possibility of lower satisfaction among users who are female or young.There are no significant differences in satisfaction according to nationality between Saudis and other Arabian nationalities, which is not consistent with many previousliterature indicating significant differences according to cross-culture. An explanationfor this difference in finding could be the fact that Saudis and the other 22 Arabian nationalities share the same culture and language. However, administrators of DE programs should be careful when they aim to teach students from other cultures.

Second, thereare significant correlations between satisfaction and reputation. This result is consistent with the results of Saeidi et al, (2015), Sengupta et al, (2015), Sultan and Wong, (2012), Mulki, and Jaramillo, (2011) and Cretu and Brodie, (2007).The study indicated asignificant influence ofWOM and e-WOMon satisfaction and reputation. As similar findings were supported by Wu, 2011; Liang and Zhang, (2012), Mulki, and Jaramillo, (2011), Ganguli, and Roy, (2011), Abdelhameed and Alqasaby, (2012). The presented model indicated the significant influences of reputation, curricula, equipment and customer value on satisfaction.Reputation has the most effect. There was no significantinfluence of instructors and process.

Table 4: Results of Hypotheses Test

The Variables of Hypotheses	Supported?
H_1: *Gender → Satisfaction*	Yes***
H_2: *Age → Satisfaction*	Yes ***
H_3: *Nationality → Satisfaction*	No
H_4: Curricula, instructors, procedures, customer value, equipment and reputation with satisfaction	Yes ***a
H_5: *Reputation → Satisfaction*	Yes ***
H_6: *Satisfaction → WOM*	Yes ***
H_7: *WOM → Reputation*	Yes ***
H_8: *Satisfaction → e-WOM*	Yes ***
H_9: *e-WOM → Reputation*	Yes ***

*** $p < 0.001$, (a) The correlations of instructors and procedures were non-significant.

Finally, the findings of this study leadpractitioners of DE programs to give special interest to the significant factors that affect student satisfaction. The effect size and explaining ability of this model could be maximized through future research. Further, these findings could be taken into consideration by other universities, countries and cultures while offering DE programs.

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