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Using SmartPls in Online Loyalty Assessment

Ali Dehghan, Wesleyan College

John Dugger, Eastern Michigan University

ABSTRACT

Because of the low cost, fast expansion of the Internet and increasing demand for innovative educational systems, online learning is becoming popular and attractive (Zhang, Zhao, Zhou, and Jr, 2004). As of 2009, almost 12 million out of 20.4 million post-secondary students, within the United States, took at least one online course and this number will reach 22 million by 2014 (Nagel, 2009). The explosion of the use of online learning systems in higher education, allows students to leave the online programs quite easily (Tham and Werner, 2005). Therefore, educational institutions should try to retain their existing students. Thus, student satisfaction and student loyalty with online learning systems, become crucial concerns for educational institutions (Tham and Werner, 2005). The purpose of this descriptive research is to investigate the relationships between factors that may lead to customer loyalty in online educational organizations .

INTRODUCTION

Relationship Marketing (RM) is a marketing theory which focuses on retaining customers by developing a network paradigm, rather than concentrating on sales (Morgan and Hunt, 1994). Strengthening the relationship and converting different customers into loyal ones, are the goals of relationship marketing. Relationship marketing theory has other major elements such as satisfaction and loyalty. Satisfaction occurs when someone successfully achieves his/her goals (Johnson, Aragon, Shaik, and Palma-Rivas, 2000). Customers may be loyal if they are satisfied and intend to keep the relationship (Mokhtar, Maiyaki and Mohd Noor, 2011). There is a positive correlation between customer satisfaction and loyalty (Anderson and Sullivan, 1993; Mokhtar et al., 2011). The success of a service firm is often measured by the loyalty of its customers. This is a widely accepted practice to determine long-term success (Hennig-Thurau, Langer and Hansen, 2001). A loyal customer is a valuable asset for any business (Rower, 2010). Educational programs and services, like those of other retail businesses depend highly on the repeated purchases of their loyal customers (Hoyt and Howell, 2011). This means repeat purchases of credit hours to complete a degree over a time.

Student Loyalty

Running an educational institution and a business are similar and can profit by applying similar techniques (Hoyt and Howell, 2011). In some accepted models, students are considered as customers and educational institutions as service providers (Hennig-Thurau, Langer and Hansen, 2001). It is an undeniable fact that student loyalty has become a significant theme for educational institutions because:

- a) The financial foundation of all universities is based on tuition fees and retaining the students may be of a great help in this regard;
- b) Retaining existing students is less costly than gaining new students;
- c) Loyal students help the university raise the teaching quality by their contribution and commitment; and
- d) Loyal students likely recommend their schools before and after graduation (Hennig-Thurau, Langer and Hansen, 2001).

Student (customer) loyalty, student (customer) satisfaction and the success of an educational institution are supposed to be positively related (Kotler and Fox, 1995; Zeithaml, 2000; Helgesen, 2006). Researchers believe that student satisfaction is positively related to student loyalty (Helgesen and Nettet, 2007b).

Over the past decade, electronic learning (e-learning) has become a critical construct for colleges. Online education institutions provide a wide variety of programs which let students easily leave their schools and switch to another service provider (Helgesen and Nettet, 2007a). Therefore, profitable growth of educational institutions is dependent on an in-depth understanding of the loyalty intention in online learning programs (Reichheld, 2003). Understanding the factors that drive students' interests are imperative to managers of higher educational institutions. Having a clear understanding of these criteria that students use, will assist them in attracting and retaining students (Helgesen and Nettet, 2007a). Teaching professionals are faced with their performance being measured through their professional degrees, performance in publications and research as well as student performance. Therefore, loyalty is vital and carries significant strategic importance. Relationship marketing theory helps to explain mutually beneficial relationships between service providers and customers. This research assessed customer loyalty intentions by examining the service quality, technology, trust, commitment, satisfaction and reputation of online students in Master's level online programs.

In general, students obtaining Master's degrees have a clear understanding that they are going into more intensive programs than when they earned their bachelor's degrees. Traditionally, higher education requires a student start with a bachelor's degree and then move onto the Master's degree before even considering a Ph.D. Normally, a student must commit to a course of study that involves committing to one to six years of study in a specific field of his choosing. However, when choosing an on-line option, a student can earn his own Master's degree quickly and easily. Working business professionals can earn their Master's degrees at their own pace as well as furthering their educational and career goals. This research contributes to prior research by investigating whether trust, commitment, satisfaction and new elements like reputation, service quality and technology influence the loyalty intentions of online Master's students. If loyalty increases, growth and profitability of universities will be influenced, proving enhancement of satisfaction, reputation, service quality, commitment, trust, and technology is a desired goal for any educational institution (Reichheld, 2003; Akarapnich, 2006).

The outcomes of this study help service providers (educational institutions) improve their marketing strategies to ensure that online students (customers) remain with their desired online programs. The mutual benefits to service providers and customers ensure the future success of online programs and specifically Master's ones. Additionally, student value offered may be increased if resources are allocated to activities which are important for the students (Helgesen and Nettet, 2007a). The outcomes of this research (key success factors) may increase student

retention which leads to increases in future tuition revenues. Helgesen and Nettet, (2007a), argued that technology, service quality and reputation are associated with student loyalty. This study implemented Helgesen and Nettet's (2007a) model in an online environment; however the role of trust was tested as well because of its importance in relationship marketing theory. This study suggested that the same results may be true for online Master's students and their academic institutions.

DISCUSSION

The population for this research was all Master's students enrolled in online programs within the US. Despite the fact that the Internet is being used nearly in all face-to-face programs as a teaching tool, this study targeted those students who have solely registered for online Master's programs. Finally, only online Master's students enrolled at this regional Midwestern university were being considered for this research.

Table 1
Questionnaire

No	Service quality
1	Within my program, student exercises are relevant to topics
2	Instructors are accessible
3	Instructors provide students with timely and appropriate feedback
4	My program contains some synchronous elements, such as live chat, Elluminate, etc
5	I am required to interact with my classmates by using online discussions, peer reviews ,etc
	Technology
6	I am satisfied with the services provided by the Library in support of my program
7	I am satisfied with www.----online.edu
8	The courses within the program can be displayed on a smartphone
9	I have found the supplemental materials (including online texts, links, graphics, videos, online simulations and so on) useful
	Trust
10	I trust this university completely
11	Faculty members in my program kept their promises to me
12	I have a great confidence in faculty members
	Commitment
13	I am committed to those faculty in my program
14	My relationship with faculty is very important to me
15	I am committed to this program
	(Student) Satisfaction
16	I am satisfied with this university
17	I did the right thing of entering this program
18	I talk positively about this program to others
19	I am satisfied with the university comparing with an ideal one
	Reputation
20	This university has a good reputation
21	My program of study has a good reputation

	(Student) loyalty
22	I would recommend this university to my friends
23	I would choose to attend this university if starting if given the opportunity to start again
24	I would consider enrolling in more programs at this university

DATA ANALYSIS

In order to assess the construct validity, confirmatory factor analysis was performed using SmartPLS. A wide range of unmeasured sources of variability in a data set can be modeled by using Factor Analysis (Hoyle, 2000). Hoyle (2000) states “Confirmatory factor analysis (CFA), otherwise referred to as restricted factor analysis, structural factor analysis, or the measurement model, typically is used in a deductive mode to test hypotheses regarding unmeasured sources of variability responsible for the commonality among a set of scores” (p. 466). Factor analysis can also identify the sources of errors in the original model (Paatero, 1994).

Factor loadings are important criteria in assessing the factors’ significance. Partial Least Square (PLS) was used to analyze the data and specifically, assessing the construct validity. The measurement model is assessed based on the items loadings. Factor loadings of less than 0.30 are considered insignificant, those greater than 0.4 are more important and any loadings over 0.50 are considered significant, however in confirmatory factor analysis , loadings greater than 0.7 are considered very significant (Costello & Osborne, 2005). The figure 7 shows that factor loadings for each construct and its indicators are greater than 0.5. which validates the model.

The last stage in the data analysis was testing the hypotheses using a Structural Equation Modeling (SEM) procedure with SmartPLS (Partial Least Squares) software. Casual relations and qualitative assumptions can be tested and estimated by using SEM. The major strength of SEM is constructing latent variables (Gefen, Straub and Boudreau, 2000). SmartPLS has strong graphical capability which is used for path modeling and visualizing the latent variables (LVP). This software follows the Partial Least Squares (PLS) method for latent variables analysis. Interestingly, PLS software can be used effectively when the sample size is small for any type of distribution (Nijssen and Douglas, 2008). Chin and Newsted (1999) argued that the structural part in a PLS model consists of several elements such as the relationship between latent variables, measurement of the components and path coefficients which are used for estimating the latent variables values. SmartPLS tests the hypothesis using a Student t-test. Gefen, Straub and Boudreau (2000) express "SEM has become *de rigueur* in validating instruments and testing linkages between constructs" (p. 6). For any score greater than +2 or -2, the hypothesis is accepted (Weaver, 2011). SmartPLS generates various reports such as a latent variable correlation table for each of the seven constructs and path coefficient table including t-test values which clearly depict whether the hypothesis are rejected or not. The Figure 7 displays the relationships between 7 constructs (Service Quality, Technology, Trust, Commitment, Satisfaction, Reputation and Loyalty) and the relationships between each construct (latent variable) and its indicators. Additionally, this graph contains path coefficients and factor loadings.

Figure 1
Structural Equation Modeling

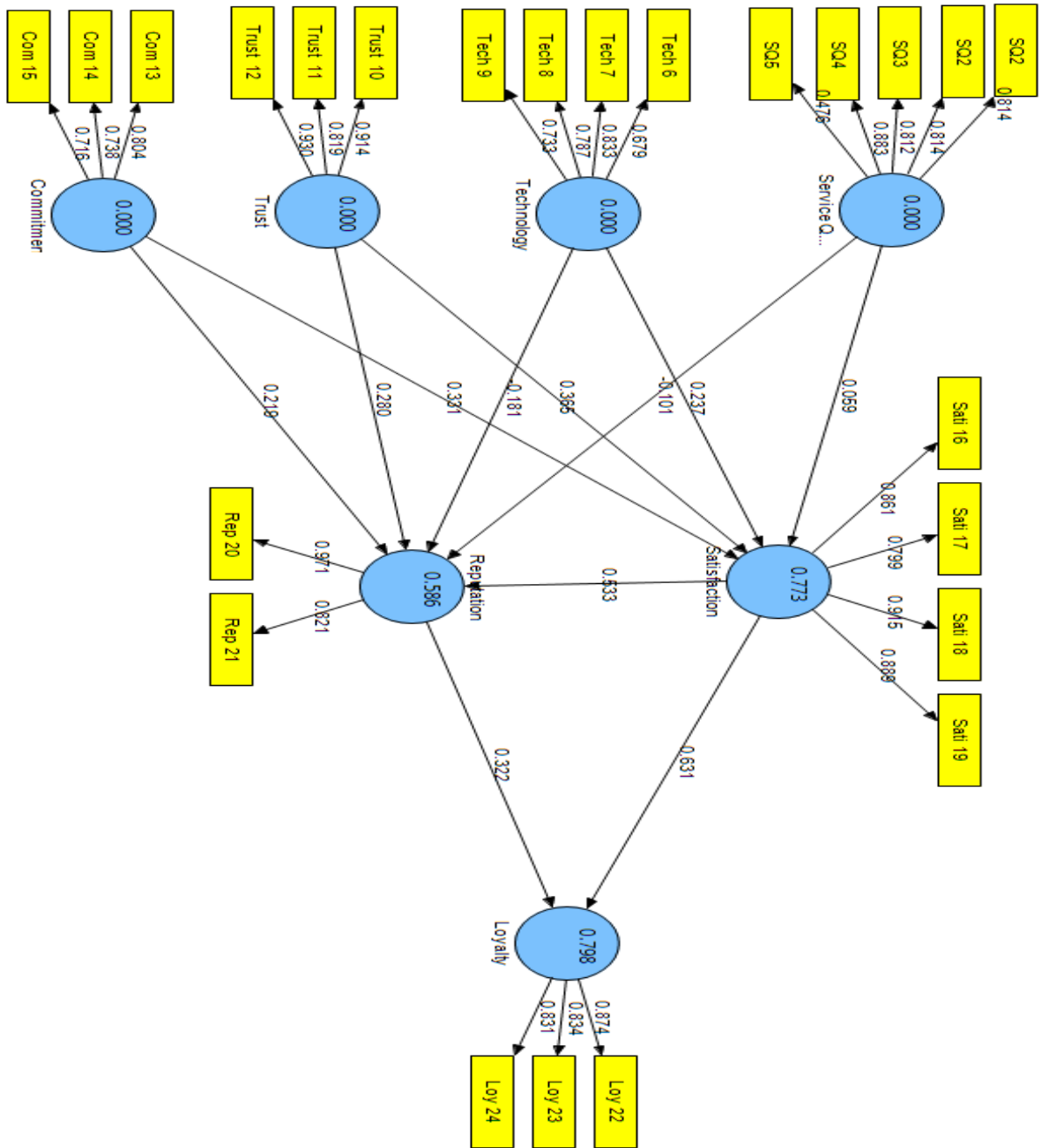


Table 2**Hypothesis Testing**

Path	Hypothesis	Path Coefficient	t-Value	Result
Service Quality →Satisfaction	H ₁	0.071	1.1242	Rejected
Service Quality →Reputation	H ₂	-0.101	1.0533	Rejected
Technology →Satisfaction	H ₃	0.237	3.6218	Accepted
Technology →Reputation	H ₄	-0.181	1.4418	Rejected
Trust →Satisfaction	H ₅	0.365	3.6976	Accepted
Trust →Reputation	H ₆	0.280	1.7327	Rejected
Commitment →Satisfaction	H ₇	0.331	4.0715	Accepted
Commitment →Reputation	H ₈	0.219	1.9531~2	Accepted
Satisfaction →Reputation	H ₉	0.533	3.2196	Accepted
Satisfaction →Loyalty	H ₁₀	0.631	7.4883	Accepted
Reputation →Loyalty	H ₁₁	0.322	3.3225	Accepted

RESULTS

In this study, eleven hypotheses that applied to constructs which may relate to online educational program loyalty, were tested. The findings reveal that seven hypotheses were accepted, and four were rejected. Although, service quality as it relates to the program had a direct effect on student loyalty to the program in face to face (F2F) educational systems (Hennig-Thurau *et al.*, 2001), the results obtained from this study suggest that program service quality is the least important factor among all constructs investigated regarding perceived student loyalty to the program. Analyzing the items related to program service quality in this study revealed that students put more weight on tangible services. Therefore, program service quality becomes more important in F2F settings because more tangible services involving various methods of interaction likely occur in F2F programs. Additionally, there are no significant relationships between service quality and satisfaction or reputation of the program respectively. Moreover, it contradicts two well-known previous studies by Hennig-Thurau *et al.* (2001) and Helgesen and Nettet (2007a). Service quality is not significantly related to satisfaction with 0.071 path coefficient, and interestingly it affects reputation negatively with -0.101 path coefficient, although not significantly. Surprisingly, the technology construct had a significant relationship with satisfaction. However, it did not have a significant relationship with the university reputation, and this supports the findings obtained by Helgesen and Nettet (2007b). Technology affects satisfaction and reputation with 0.237 and -0.181 path coefficients indicating that technology and reputation appear to be more independent with a slight reverse relationship.

Trust and satisfaction are highly correlated based on the conclusions reported by Morgan and Hunt (1994). This was validated by this study. Trust and reputation do not have a significant relationship in this study, which contradicts the results found in two previous studies by Bennett and Gabriel (2001) and Jøsang *et al.*, (2007). According to Jøsang *et al.*, (2007), there is a relationship between trust and reputation in two ways: (1) Someone trusts another because of a good reputation and (2) Someone trusts another regardless of the bad reputation. Commitment and satisfaction have a significant relationship with 0.331 direct effects. This given path coefficient is greater than what was found by Helgesen and Nettet (2007b). The relationship between commitment and satisfaction was stronger in online educational systems. But, commitment and reputation are weakly related these online programs, which affirms the results

obtained by Helgesen and Nettet (2007b) when studying F2F programs. The authors argued that, although there is not a significant relationship between commitment and reputation, educational institutions should focus on this factor which helps attract faculty and researchers. An analysis of the results of this study demonstrates that satisfaction and reputation are significantly correlated. Moreover, both have significant relationships with loyalty, however, satisfaction and loyalty has the highest correlation with the highest t-value indicating program satisfaction has the greatest impact in terms of loyalty in online Master's programs. The obtained results support the research by Helgesen and Nettet (2007a) in F2F settings as they found that "student satisfaction has the highest degree of association with student loyalty" (p. 37).

CONCLUSION

In this study, four research questions were addressed. These questions and the obtained results are discussed as follows:

Research Question 1: *"What is the relationship between student satisfaction and student loyalty in online educational systems?"*

Findings from the test of hypothesis 10 confirm the results given by Hennig-Thurau *et al.* (2001) Akarapanich (2006) and Helgesen and Nettet (2007a). The results from this study reveal that the strongest determinant of student loyalty is student satisfaction with the program.

Research Question 2: *"What is the relationship between the university's reputation and student loyalty in online educational systems?"*

Results from the testing of hypothesis 11 supports the findings of Hennig-Thurau *et al.* (2001) and Helgesen and Nettet (2007b). As was expected, the results show that program reputation affects program loyalty. The findings demonstrate that the relationship between program reputation and program loyalty in graduate online educational systems is more significant compared to traditional ones.

Research Question 3: *"What is the relationship between student satisfaction and the university's reputation in online educational systems?"*

Findings from the test of hypothesis 9 confirm the perception that student satisfaction with the program depends to a large degree on the university's reputation. These results support those found in the research of Helgesen and Nettet (2007b).

Research Question 4: *"Which of the antecedents have the highest degree of association with student loyalty?"*

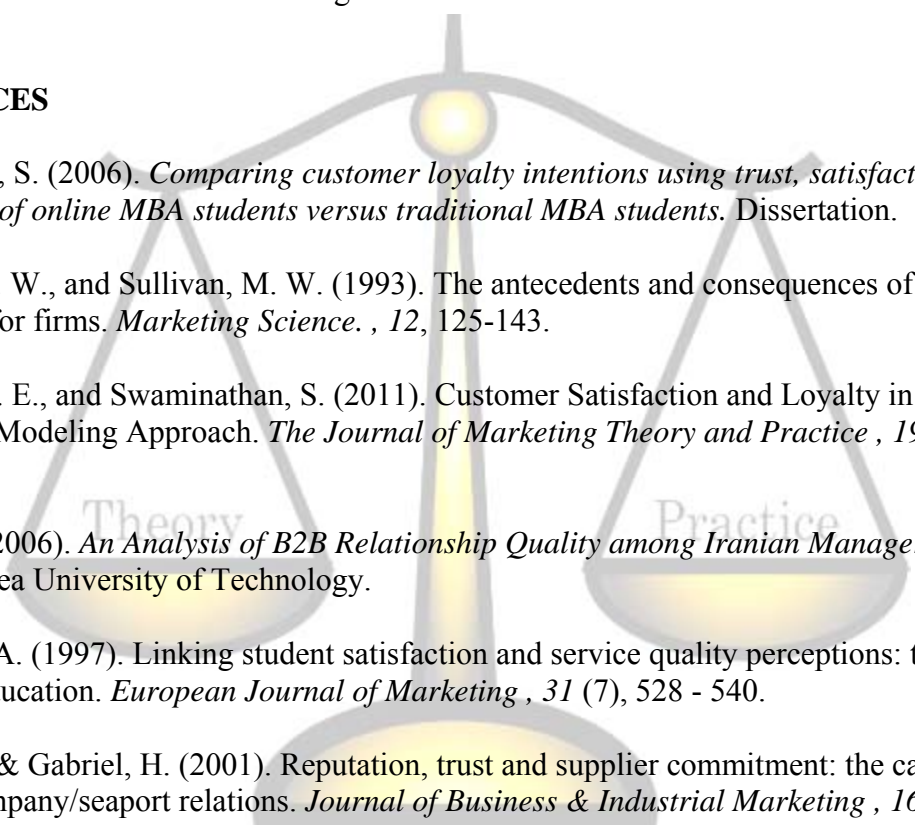
As was expected and based on several studies, program satisfaction plays a leading role in program loyalty and the higher the level of program satisfaction, the greater the program loyalty (e.g., Zeithaml, Berry and Parasuraman, 1996; Bloemer, Ruyter and Peeters, 1998). These results support previous research by Garbarino & Johnson (1999), Hennig-Thurau *et al.* (2001; 2002), Akarapanich (2006); Helgesen and Nettet (2007a) which confirms that student satisfaction with the program is the most important determinant of student loyalty in online Master's programs.

ABOUT THE AUTHORS

Dr. Ali Dehghan has received his PhD from Eastern Michigan University in 2012 and currently serves as an Assistant Professor at Wesleyan College at the Business & Economics Dept. He has had several publications in voluminous marketing journals. He also, has an outstanding work experience in several international companies in the whole world in the marketing field.

Dr. John Dugger is a professor in the School of Technology Studies at Eastern Michigan University. Dr. Dugger has secured more than \$950,000 in grants and has authored more than 40 publications in juried journals. His scholarly interests include assessing the impacts of training interventions in manufacturing organizations. He has more than 20 years of experience as a faculty member and administrator in higher education.

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