

UNIVERSITY OF SOUTHERN QUEENSLAND



Measuring E-Learning Systems Success

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ABSTRACT

The education sector has been radically affected by developments in information technology. In the education arena, substantial funds have been invested in the systematic development of technology infrastructure. E-learning is believed to be the main platform for adopting and using new and more advanced IT in the education sector. However, measuring the success of e-learning systems is one of the key issues facing universities and educational institutions. Although considerable attention has been paid to the information systems success issue, there remain arguments about which factors are the most telling in measuring information system success. The issue of evaluation of the success of information systems generally, and e-learning systems in particular, has become more complicated due to the differing interests and needs of stakeholders. Different groups of stakeholders deal with e-learning systems in different ways - for instance, students, academic staff, ICT staff, management, and software developers. These stakeholders have substantially different objectives and often there are conflicts between their aims. This study proposes an evaluation methodology model to assess e-learning systems success.

The model proposed is one which includes eight constructs: IT infrastructure services; system quality; information quality; service delivery quality; perceived usefulness; user satisfaction; customer value; and organisational value. A range of stakeholders such as students, academic staff, and ICT staff are considered in this model. Three instruments were designed to measure the perceptions of three different stakeholders towards e-learning system success. A quantitative study was conducted at University of Southern Queensland (USQ), with survey responses from 720 students who use the e-learning system, 110 academic staff members, and 22 ICT staff. The results confirm that the study model is valid and reliable to measure the success of e-learning systems from different points of view. Some of the relationships among the constructs in the study model were supported and some were not. The study contributed to the body of knowledge by providing a valid and reliable model to measure the success of e-learning systems. Moreover, this study contributes to the practitioners, recommending universities and educational institutions that develop and support e-learning systems.

Publications

- **Book Chapters**

Alsabawy, Ahmed Younis, Cater-Steel, Aileen and Soar, Jeffrey (2012) *A model to measure e-learning systems success*. In: Belkhamza, Zakariya and Wafa, Syed Azizi, (eds.) *Measuring organisational information systems success: new technologies and practices*. Business Science Reference (IGI Global), Hershey, PA, USA, pp. 293-317.

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- **Conference Proceedings - Refereed**

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Alsabawy, Ahmed Younis, Cater-Steel, Aileen and Soar, Jeffrey (2012) *The effect of service delivery quality on customer value of e-learning systems*. In: Conferencia Ibérica de Sistemas y Tecnologías de la Información (CISTI 2012), 20-23 June 2012, Madrid, Spain.

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- **Report**

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The researcher compiled a report with the results and recommendations of the thesis for the Faculty Deans at USQ, Deputy Vice-Chancellor (Academic Services) and Chief Information Officer, Executive Director of Australian Digital Futures Institute, and Executive Director, ICT Services. The results and recommendations of this report were adopted by the “Integrated StudyDesk” team which is updating the USQ StudyDesk to improve students’ experience, and also to improve some inefficiencies for academic staff.

CERTIFICATION OF DISSERTATION

I certify that the ideas, results, analyses and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged.

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LIST OF ABBREVIATIONS

AGFI	Adjusted Goodness-of-Fit Index
AHP	Analytic hierarchy process
AST	Adaptive Structuration Theory
AVA*	Availability
AVE	Average variance extracted
BELS	Blended E-Learning Systems
C.R.	Critical Ratio
CAS	Computerized Accounting System
CEO	Chief executive officer
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
χ^2	Chi-square
CIO	Chief information officer
CIS	Customer Information Satisfaction
CONT*	Contact
CPQ	Consumer Products Questionnaire
CSE	Computer Self-Efficacy
CSF	Critical Success Factors
CUSV*	Customer value
DDLML	Demand-Driven Learning Model
DP	Data Processing
DSS	Decision Support Systems
EASE	Electronic Assignment Submission Environment
ECM	Expectation-Confirmation Model
EDMS	Electronic document management system
EDT	Expectancy Disconfirmation Theory
EFFI*	Efficiency
eLSE	e-Learning Systematic Evaluation
ERP	Enterprise resource planning
e-SELFQUAL	Online self-service quality
e-SQ	electronic Service Quality
ESS	Enterprise System Success
eTailQ	eTail Quality
ETM	Educational Technology Model
eTransQual	Electronic transaction quality
FULF*	Fulfilment
GFI	Chi-Square, Goodness-of-Fit Index
GoF	Goodness-of-Fit
H^2	Cross-validated communality
HELAM	Hexagonal E-learning Assessment Model
ICE	Integrated Content Environment
ICT	Information and communication technology
IIT	Image Interactivity Technology
IQ*	Information Quality
IS	Information system
ISSDOs	Information System Service Delivery Organisations
IT	Information technology
ITIS	Information technology infrastructure services
KMS	Knowledge Management System
LMSs	Learning management systems
ML	Maximum likelihood
MOOC	Massive Open Online Course
NFI	Normed Fit Index
NNFI	Non-normed Fit Index
OER	Open Education Resource (OER)
OLS	Online Learning System

OMIS	Organisational memory information system
ORGV*	Organisational value
PCLOSE	P of Close Fit
PeSQ	Perceived e-service quality
PGFI	Parsimony Goodness of Fit Index
PIQ	Perceived Information Quality
PIRQ	Perceived Internet Retailing Quality
PLS	Partial Least Squares
PLS-SEM	Partial Least Squares Structural Equation Modeling
PNFI	Parsimony Normed Fit Index
PRATAM	The Perceived Resources and Technology Acceptance Model
PRIV*	Privacy
PSP/IQ	Product and Service Performance Model for Information Quality
PWQ	Perceived web quality
Q ²	predictive relevance
QES	Quality of Electronic Service
QMS	Quality Management System
QUIS	Questionnaire for User Interface Satisfaction
R&D	Research and development
R ²	Coefficient of determination
RESP*	Responsiveness
RFID	Radio Frequency Identification
RMR	Root Mean-square Residual
RMSEA	Root Mean Square Error of Approximation
S.R.W. *	Standardized Regression Weight
SATF*	User satisfaction
SCT	Social Cognitive Theory
SDQ	Service delivery quality
SEM	Structural Equation Modelling
SMC	Squared Multiple Correlation
SOLE	Soft Library Evolution
SQ*	System Quality
SQM	Software Quality Metrics
SQMAT	Software Quality Measurement and Assurance Technology
SRMR	Standardise Root Mean-square Residual
TAM	Technology Acceptance Model
TLI	Tucker-Lewis Index
TPB	Theory of Planned Behaviour
TQM	Total Quality Management
TRA	Theory of Reasoned Action
TRA	Theory of Reasoned Action
TTF	Task-Technology Fit
UDA	User Development computer Applications
UIS	User information satisfaction
USEF*	Perceived usefulness
UTAUT	Unified Theory of Acceptance and Use of Technology
VET	Vocational Education and Training
VLE	Virtual Learning Environments
WBL	Web-Based Learning
WEBCT	Web Course Tools
WebCT CCMS	WebCT course content management system
WebQual	Web site quality
WWW	World Wide Web
ZOT	Zone of Tolerance
(χ^2 /df)	Normed Chi-square

***This abbreviations created by the researchers to use in the statistical analysis**