

INTEGRATING SERVICE QUALITY WITH SYSTEM AND INFORMATION QUALITY: AN EMPIRICAL TEST IN THE E-SERVICE CONTEXT

Jingjun (David) Xu

W. Frank Barton School of Business, Wichita State University,
1845 Fairmount Street, Wichita, KS 67260 U.S.A. {david.xu@wichita.edu}

Izak Benbasat and Ronald T. Cenfetelli

Sauder School of Business, The University of British Columbia, 2053 Main Mall,
Vancouver, BC V6T 1Z2 CANADA {benbasat@sauder.ubc.ca} {cenfetelli@sauder.ubc.ca}

Appendix A

Measurement Items for the Constructs

Item No.	Construct	Items	CM	S	H	SH	Mean	SD
Instructions: Questions 1 to 18 ask about the informational aspects of the website. "Information" refers to information regarding company, product, and/or advice, if any.								
1	Currency	The website provided me with the most recent information for the laptop selection task.	-0.06	0.41	1.06	0.81	0.55	1.27
2		The website produced the most current information for the laptop selection task.	0.16	0.41	1.06	0.97	0.65	1.23
3		The information from the website was always up to date for the laptop selection task.	0.03	0.41	0.88	1.06	0.59	1.23
4	Completeness	The website provided me with a complete set of information for the laptop selection task.	0.03	0.75	1.38	1.22	0.82	1.54
5		The website produced comprehensive information for the laptop selection task.	-0.03	1.47	1.78	1.84	1.27	1.72
6		The website provided me with all the information I needed for the laptop selection task.	0.00	1.19	1.63	2.31	1.28	1.70
7	Format	The information provided by the website was well formatted for the laptop selection task.	0.16	1.69	0.97	1.69	1.13	1.62
8		The information provided by the website was well laid out for the laptop selection task.	0.19	1.38	0.63	1.13	0.83	1.40
9		The information provided by the website was clearly presented on the screen for the laptop selection task.	0.13	1.00	0.66	1.13	0.73	1.53

Item No.	Construct	Items	CM	S	H	SH	Mean	SD
10	Accuracy	The website produced correct information for the laptop selection task.	0.22	0.84	0.75	0.19	0.50	1.09
11		The information I obtained from the website for the laptop selection task was error-free.	0.06	0.31	0.34	0.25	0.24	1.14
12		The information provided by the website was accurate for the laptop selection task.	0.09	0.41	0.88	0.88	0.56	1.21
13	Information quality	Overall, I would give the information from the website high marks for the laptop selection task.	0.16	1.41	1.84	2.22	1.41	1.55
14		Overall, I would give the information provided by the website a high rating in terms of quality for the laptop selection task.	0.19	1.69	2.03	2.31	1.55	1.60
15		In general, the website provided me with high-quality information for the laptop selection task.	0.13	1.41	1.72	1.94	1.30	1.60
16	Information satisfaction	Overall, the information I got from the website was very satisfying to select a laptop.	0.13	1.47	1.72	1.81	1.28	1.61
17		I am very satisfied with the information I received from the website to select a laptop.	0.13	1.81	1.81	2.28	1.51	1.66
18		The website provided very satisfactory information for me to select a laptop.	0.22	1.47	1.81	2.09	1.40	1.51
Instructions: Questions 19 to 36 ask about the system aspects of the website. "System" refers to the website system and is independent of the information that the website presented and generated.								
19	Reliability	The website system operated reliably for the laptop selection task.	0.03	1.16	0.47	0.91	0.64	1.28
20		The website system performed reliably for the laptop selection task.	0.09	1.41	0.56	0.94	0.75	1.37
21		The operation of the website system was dependable for the laptop selection task.	0.00	0.88	0.69	0.97	0.63	1.36
22	Accessibility	The website system was readily accessible to me in the laptop selection task.	0.09	1.41	1.00	1.38	0.97	1.41
23		The website system was very accessible during the laptop selection task.	0.00	1.44	1.31	1.47	1.05	1.55
24		The website system was easy to access during the laptop selection task.	0.06	1.75	1.53	0.91	1.06	1.61
25	Flexibility	The website system was able to be adapted to meet a variety of needs during the laptop selection task.	0.06	2.50	2.44	2.88	1.97	1.77
26		The website system was able to flexibly adjust to new demands or conditions during the laptop selection task.	0.06	2.16	2.44	2.53	1.80	1.83
27		The website system was flexible in addressing needs as they arise during the laptop selection task.	0.06	2.31	2.84	3.00	2.05	1.84
28	Timeliness	It took too long for the website system to respond to my requests during the laptop selection task. (dropped)	-0.13	-1.06	-0.16	-0.28	-0.41	1.58
29		The website system responded in a timely fashion during the laptop selection task.	0.09	1.06	1.44	1.00	0.90	1.68
30		The website system answered my requests quickly during the laptop selection task.	0.09	1.72	2.09	1.41	1.33	1.78
31	System quality	In terms of system quality, I would rate the website highly for the laptop selection task.	0.16	2.16	2.25	2.00	1.64	1.58
32		Overall, the website system that I used was of high quality for the laptop selection task.	0.06	2.22	2.13	2.19	1.65	1.53
33		Overall, I would give the quality of the website system a high rating for the laptop selection task.	0.09	2.25	2.22	2.41	1.74	1.53

Item No.	Construct	Items	CM	S	H	SH	Mean	SD
34	System satisfaction	All things considered, I am very satisfied with the website system to select a laptop.	0.06	2.25	2.06	2.03	1.60	1.58
35		Overall, my interaction with the website system to select a laptop was very satisfying.	0.00	2.16	2.16	2.41	1.68	1.61
36		The website system was very satisfying for me to select a laptop.	-0.03	2.34	1.91	2.16	1.59	1.57
Instructions: Questions 37 to 60 ask about the service aspects of the website. "Service" refers to the process where the website provided support for your laptop selection task.								
37	Empathy	The website gave me individual attention during the laptop selection task.	0.00	2.66	3.47	3.94	2.52	1.99
38		The website had my best interests in mind during the laptop selection task.	0.06	2.69	2.75	3.22	2.18	1.83
39		The website had mechanisms that gave me personal attention during the laptop selection task.	0.03	3.03	3.41	3.72	2.55	1.89
40		The website understood my specific needs during the laptop selection task.	0.09	3.06	3.38	3.72	2.56	1.83
41	Service reliability	When the website promised to do something by a certain time, it did so during the laptop selection task (dropped).	0.03	1.97	2.09	2.56	1.66	1.71
42		I believe that what I asked for was what I got during the laptop selection task in the website.	-0.03	2.25	1.84	2.22	1.57	1.75
43		The website performed the service right during the laptop selection task.	0.00	2.09	2.38	2.63	1.77	1.74
44		The website provided its service at the time it promised to do so during the laptop selection task.	0.00	1.84	2.16	2.38	1.59	1.72
45	Tangible	The website was up to date.	-0.03	0.28	1.03	0.78	0.52	1.20
46		The website was visually appealing.	0.13	0.47	0.84	0.59	0.45	0.99
47		The website was neat in appearance.	-0.09	0.44	0.53	0.50	0.34	1.18
48		The appearance of the website was in keeping with the services it provides.	0.00	0.53	0.97	0.69	0.55	1.10
49	Assurance	I felt confident about the online laptop selection decision in the website.	0.06	1.50	1.44	1.53	1.13	1.55
50		I felt safe in my interaction with the website during the laptop selection task.	0.13	0.97	0.72	1.72	0.88	1.62
51		The website had answers to all my questions about the laptop during the laptop selection task (dropped).	0.06	1.47	2.72	3.25	1.88	1.80
52	Responsive-ness	I believe the website was responsive to my needs during the laptop selection task.	-0.03	2.09	2.84	3.34	2.06	1.80
53		In the case of any problem, I think the website would give me prompt service during the laptop selection task.	0.06	1.69	2.91	3.41	1.98	1.78
54		The website addressed any concerns that I had during the laptop selection task.	-0.03	1.72	2.91	3.53	2.03	1.85
55	Service quality	Overall, the level of service quality I received from the website during the laptop selection task was good.	0.06	2.00	2.63	2.84	1.88	1.58
56		Overall, the level of service quality I received from the website during the laptop selection task was excellent.	0.09	1.69	2.47	2.66	1.73	1.52
57		Overall, the level of service quality I received from the website during the laptop selection task was high.	0.06	2.00	2.47	2.78	1.83	1.52
58	Service satisfaction	Overall, the service I received from the website was very satisfying to select a laptop.	-0.06	2.28	2.28	3.06	1.89	1.64
59		I am very satisfied with the service I received from the website to select a laptop.	0.03	2.19	2.22	3.03	1.87	1.60
60		In terms of selecting a laptop, the service provided by the website was very satisfying.	0.06	2.16	2.56	3.22	2.00	1.64

Item No.	Construct	Items	CM	S	H	SH	Mean	SD
61	Perceived enjoyment	Using the website to select a laptop was enjoyable.	0.06	1.94	1.72	2.13	1.46	1.47
62		Using the website to select a laptop was exciting.	0.06	1.25	1.38	1.88	1.14	1.33
63		Using the website to select a laptop was interesting.	0.00	1.72	1.69	2.03	1.36	1.47
64		Using the website to select a laptop was fun.	-0.03	1.97	1.94	2.25	1.53	1.57
65		Using the website to select a laptop was pleasant.	0.00	1.66	1.78	2.13	1.39	1.63
66	Perceived ease of use	It was easy to get the website to do what I wanted it to do.	0.00	1.53	2.03	2.00	1.39	1.78
67		Overall, I found that the website was easy to use to select a laptop.	0.16	2.41	2.09	2.09	1.69	1.72
68		It was easy for me to select a laptop using the website.	-0.06	2.41	1.69	1.63	1.41	1.82
69		Learning to use the website to select a laptop was easy.	-0.09	1.84	1.47	1.44	1.16	1.76
70		My interaction with the website to select a laptop was clear and understandable.	0.09	1.91	1.66	1.69	1.34	1.74
71	Perceived usefulness	Using the website to choose a laptop increased my productivity in choosing a laptop.	0.00	1.16	1.38	1.91	1.11	1.58
72		I found the website useful in choosing a laptop.	0.00	2.03	1.75	2.41	1.55	1.58
73		Using the website enhanced the effectiveness in choosing a laptop.	0.09	1.97	1.69	2.44	1.55	1.53
74		Using the website improved the performance in choosing a laptop.	0.16	1.69	1.72	2.38	1.48	1.48
75	Attitude	All things considered, using the website to select a laptop will be a good idea.	0.13	2.13	2.03	2.91	1.80	1.65
76		All things considered, using the website to select a laptop will be a wise move.	0.03	2.09	2.13	2.47	1.68	1.69
77		All things considered, using the website to select a laptop will be a positive step.	0.13	2.13	2.25	2.53	1.76	1.66
78		All things considered, using the website to select a laptop will be an effective idea.	0.03	2.34	2.19	2.75	1.83	1.77
79	Intention	Next time I need to shop for a laptop, I would like to use this kind of website.	0.16	2.00	2.09	2.63	1.72	1.93
80		Assuming I had access to the website, I intend to use it to select a laptop in the future.	0.09	1.81	2.19	2.16	1.56	1.76
81		Given that I had access to the website, I predict that I would use it to select a laptop in the future.	0.19	2.09	2.34	2.50	1.78	1.77

Notation: CM = Comparison Matrix; S = Software; H = Human; SH = Software and Human service; M = Mean; SD = Standard Deviation.

Note: As mentioned in the subsection “Measurement Scales” in the paper, subjects were asked to evaluate the respective website (matrix, software, human, or hybrid) as compared to the website with matrix only. Thus, the mean values are comparative values. If the evaluated shopping website was not perceived to differ from the baseline condition-matrix, the mean will be close to 0, as shown in the case of the matrix column.¹ For another example, the software condition was perceived to have 1.9 points (out of 5 possible points) higher than matrix in terms of perceived SQ, while the human website was perceived to have 2.52 points higher than the matrix in terms of perceived SQ.

¹Due to possible learning effects, it is important to include the matrix condition as a control to evaluate the true impact of the other conditions (e.g., software, and human).

Appendix B

Loading and Cross Loading of Measures

	REL	ACE	FLE	TIM	SYSQ	COM	FOR	ACU	CUR	IQ	EMP	SER	TAN	ASS	RES	SQ	SYS	INS	SES	PEU	PU	EN	ATT	INT
REL1	0.95	0.51	0.27	0.10	0.30	0.18	0.33	0.34	0.02	0.19	0.24	0.30	0.21	0.38	0.25	0.30	0.25	0.24	0.22	0.30	0.34	0.29	0.35	0.26
REL2	0.93	0.45	0.25	0.11	0.29	0.17	0.35	0.31	0.08	0.19	0.21	0.28	0.18	0.33	0.22	0.27	0.25	0.22	0.17	0.30	0.33	0.29	0.32	0.25
REL3	0.86	0.40	0.36	0.10	0.30	0.17	0.28	0.38	0.13	0.23	0.29	0.26	0.26	0.39	0.30	0.39	0.31	0.30	0.29	0.30	0.38	0.30	0.37	0.39
ACE1	0.52	0.93	0.36	0.43	0.44	0.23	0.31	0.16	0.11	0.22	0.38	0.36	0.25	0.32	0.35	0.43	0.43	0.19	0.40	0.41	0.42	0.35	0.41	0.34
ACE2	0.46	0.96	0.45	0.48	0.46	0.18	0.25	0.22	0.12	0.24	0.38	0.39	0.35	0.35	0.37	0.49	0.43	0.24	0.42	0.38	0.40	0.32	0.37	0.28
ACE3	0.40	0.91	0.41	0.53	0.41	0.10	0.25	0.16	0.09	0.20	0.35	0.38	0.36	0.37	0.31	0.48	0.47	0.18	0.40	0.40	0.35	0.36	0.41	0.27
FLE1	0.43	0.53	0.85	0.35	0.62	0.39	0.31	0.29	0.24	0.41	0.66	0.59	0.33	0.35	0.59	0.65	0.53	0.41	0.58	0.41	0.58	0.55	0.52	0.37
FLE2	0.20	0.35	0.93	0.35	0.61	0.50	0.33	0.31	0.25	0.58	0.64	0.48	0.30	0.30	0.58	0.58	0.63	0.52	0.50	0.39	0.49	0.55	0.51	0.32
FLE3	0.24	0.30	0.92	0.36	0.66	0.49	0.37	0.23	0.24	0.56	0.70	0.52	0.30	0.30	0.63	0.54	0.70	0.55	0.63	0.43	0.52	0.60	0.62	0.45
TIM1	0.10	0.49	0.36	0.95	0.45	0.10	0.13	0.16	0.17	0.22	0.34	0.39	0.28	0.26	0.30	0.38	0.50	0.26	0.36	0.34	0.40	0.33	0.37	0.24
TIM2	0.12	0.49	0.39	0.96	0.47	0.14	0.18	0.21	0.17	0.24	0.36	0.38	0.26	0.25	0.35	0.39	0.53	0.25	0.33	0.33	0.39	0.29	0.42	0.20
SYSQ1	0.30	0.45	0.63	0.46	0.94	0.33	0.35	0.21	0.08	0.42	0.58	0.46	0.16	0.24	0.49	0.49	0.72	0.37	0.48	0.30	0.43	0.54	0.45	0.27
SYSQ2	0.34	0.45	0.66	0.46	0.96	0.46	0.45	0.32	0.24	0.54	0.59	0.49	0.22	0.29	0.53	0.56	0.78	0.48	0.56	0.38	0.48	0.55	0.47	0.32
SYSQ3	0.30	0.44	0.70	0.46	0.96	0.50	0.42	0.29	0.23	0.61	0.67	0.53	0.19	0.32	0.57	0.59	0.83	0.58	0.39	0.52	0.58	0.52	0.52	0.36
COM1	0.10	0.22	0.29	0.12	0.28	0.79	0.27	0.23	0.55	0.40	0.23	0.15	0.36	0.10	0.31	0.33	0.27	0.26	0.22	0.17	0.28	0.30	0.18	0.20
COM2	0.13	0.05	0.38	0.06	0.41	0.78	0.43	0.18	0.34	0.50	0.39	0.24	0.08	0.24	0.31	0.34	0.38	0.43	0.37	0.17	0.34	0.30	0.29	0.25
COM3	0.21	0.18	0.53	0.13	0.40	0.87	0.47	0.30	0.38	0.66	0.47	0.32	0.31	0.27	0.49	0.48	0.37	0.51	0.38	0.27	0.44	0.50	0.47	0.25
FOR1	0.27	0.18	0.32	0.09	0.40	0.53	0.40	0.32	0.13	0.40	0.32	0.21	0.15	0.30	0.24	0.28	0.37	0.35	0.32	0.26	0.31	0.34	0.34	0.24
FOR2	0.30	0.29	0.27	0.17	0.37	0.41	0.88	0.31	0.11	0.41	0.30	0.19	0.19	0.32	0.23	0.26	0.38	0.35	0.31	0.30	0.30	0.28	0.31	0.22
FOR3	0.30	0.24	0.34	0.13	0.29	0.29	0.77	0.38	0.03	0.40	0.21	0.20	0.28	0.29	0.29	0.32	0.28	0.42	0.32	0.29	0.30	0.34	0.38	0.25
ACU1	0.28	0.23	0.23	0.18	0.23	0.18	0.41	0.69	0.13	0.24	0.08	0.08	0.11	0.14	0.13	0.16	0.21	0.35	0.09	0.12	0.22	0.15	0.24	0.18
ACU2	0.37	0.12	0.08	0.08	0.13	0.07	0.23	0.78	0.20	0.21	0.05	0.21	0.16	0.33	0.13	0.12	0.13	0.23	0.14	0.08	0.10	0.11	0.13	0.12
ACU3	0.30	0.14	0.34	0.18	0.29	0.36	0.34	0.92	0.29	0.50	0.21	0.26	0.27	0.25	0.29	0.30	0.22	0.50	0.27	0.15	0.34	0.27	0.34	0.34
CUR1	0.12	0.07	0.25	0.07	0.16	0.49	0.06	0.26	0.91	0.29	0.13	0.16	0.39	0.09	0.23	0.23	0.17	0.17	0.23	0.16	0.20	0.18	0.21	0.18
CUR2	0.01	0.09	0.22	0.17	0.13	0.41	0.04	0.17	0.90	0.20	0.11	0.04	0.40	0.04	0.15	0.17	0.15	0.09	0.17	0.11	0.19	0.13	0.16	0.16
CUR3	0.08	0.13	0.25	0.23	0.22	0.45	0.13	0.29	0.89	0.32	0.20	0.20	0.44	0.16	0.20	0.30	0.28	0.29	0.29	0.18	0.36	0.22	0.30	0.33
IQ1	0.13	0.25	0.51	0.23	0.53	0.63	0.47	0.34	0.31	0.89	0.51	0.38	0.29	0.25	0.49	0.55	0.50	0.67	0.49	0.24	0.44	0.45	0.42	0.30
IQ2	0.23	0.22	0.50	0.16	0.48	0.58	0.41	0.45	0.33	0.92	0.52	0.43	0.24	0.34	0.51	0.58	0.44	0.75	0.56	0.30	0.52	0.46	0.50	0.45
IQ3	0.24	0.18	0.54	0.26	0.50	0.58	0.44	0.42	0.20	0.91	0.52	0.45	0.26	0.54	0.51	0.58	0.51	0.76	0.48	0.31	0.53	0.50	0.54	0.39
EMP1	0.23	0.37	0.68	0.37	0.59	0.44	0.28	0.09	0.14	0.53	0.93	0.66	0.31	0.42	0.81	0.72	0.57	0.49	0.72	0.46	0.62	0.62	0.61	0.46
EMP2	0.31	0.29	0.60	0.22	0.52	0.42	0.30	0.18	0.14	0.48	0.87	0.68	0.22	0.48	0.67	0.71	0.54	0.47	0.72	0.53	0.65	0.63	0.60	0.56
EMP3	0.24	0.33	0.74	0.40	0.64	0.44	0.34	0.17	0.13	0.55	0.95	0.72	0.28	0.45	0.82	0.71	0.67	0.53	0.76	0.52	0.64	0.67	0.65	0.51
EMP4	0.24	0.46	0.72	0.37	0.62	0.42	0.31	0.19	0.21	0.55	0.94	0.74	0.29	0.46	0.78	0.75	0.66	0.50	0.81	0.57	0.65	0.66	0.70	0.55
SER1	0.21	0.32	0.52	0.39	0.47	0.25	0.14	0.17	0.23	0.36	0.63	0.82	0.32	0.51	0.59	0.60	0.52	0.42	0.68	0.58	0.56	0.60	0.53	0.59
SER2	0.33	0.34	0.48	0.30	0.40	0.25	0.24	0.24	0.07	0.45	0.68	0.88	0.29	0.57	0.54	0.66	0.53	0.48	0.61	0.62	0.62	0.62	0.61	0.53
SER3	0.27	0.42	0.59	0.36	0.51	0.28	0.24	0.19	0.11	0.46	0.74	0.90	0.31	0.53	0.68	0.68	0.49	0.36	0.66	0.62	0.56	0.64	0.60	0.52
SER4	0.27	0.35	0.47	0.40	0.43	0.29	0.23	0.26	0.17	0.37	0.60	0.60	0.38	0.53	0.61	0.60	0.57	0.45	0.71	0.62	0.52	0.51	0.55	0.53
TAN1	0.18	0.23	0.25	0.12	0.16	0.28	0.15	0.12	0.37	0.19	0.21	0.17	0.79	0.21	0.30	0.33	0.31	0.26	0.29	0.35	0.22	0.27	0.28	0.29
TAN2	0.22	0.31	0.24	0.25	0.11	0.26	0.32	0.20	0.31	0.27	0.21	0.31	0.76	0.32	0.20	0.30	0.24	0.32	0.26	0.43	0.25	0.21	0.28	0.33
TAN3	0.19	0.33	0.27	0.16	0.24	0.23	0.26	0.20	0.36	0.28	0.18	0.27	0.77	0.33	0.28	0.33	0.29	0.25	0.24	0.28	0.22	0.27	0.17	0.23
TAN4	0.16	0.19	0.29	0.31	0.11	0.18	0.07	0.23	0.34	0.16	0.28	0.36	0.72	0.32	0.34	0.41	0.21	0.28	0.33	0.37	0.35	0.25	0.28	0.30

	REL	ACE	FILE	TIM	SYSQ	COM	FOR	ACU	CUR	IQ	EMP	SER	TAN	ASS	RES	SQ	SYS	INS	SES	PEU	PU	EN	ATT	INT
ASS1	0.33	0.36	0.36	0.17	0.30	0.28	0.32	0.21	0.08	0.34	0.51	0.56	0.33	0.91	0.46	0.50	0.43	0.40	0.51	0.52	0.46	0.51	0.42	0.40
ASS2	0.39	0.28	0.24	0.31	0.22	0.18	0.33	0.32	0.12	0.30	0.33	0.50	0.32	0.85	0.41	0.41	0.36	0.43	0.50	0.44	0.44	0.36	0.41	0.50
RES1	0.26	0.37	0.67	0.38	0.61	0.49	0.32	0.24	0.25	0.56	0.79	0.63	0.37	0.50	0.92	0.70	0.60	0.54	0.74	0.49	0.57	0.57	0.63	0.43
RES2	0.32	0.32	0.64	0.32	0.50	0.47	0.33	0.28	0.24	0.57	0.80	0.68	0.34	0.47	0.94	0.76	0.53	0.55	0.73	0.45	0.69	0.57	0.66	0.57
RES3	0.20	0.34	0.55	0.25	0.43	0.36	0.18	0.18	0.12	0.41	0.74	0.60	0.35	0.41	0.93	0.66	0.46	0.40	0.68	0.38	0.50	0.47	0.53	0.45
SO1	0.32	0.46	0.64	0.35	0.55	0.46	0.30	0.22	0.26	0.58	0.76	0.69	0.45	0.45	0.73	0.95	0.57	0.54	0.75	0.56	0.71	0.67	0.63	0.53
SO2	0.33	0.49	0.62	0.44	0.58	0.45	0.35	0.29	0.25	0.65	0.73	0.69	0.45	0.52	0.74	0.96	0.63	0.62	0.78	0.54	0.72	0.64	0.63	0.57
SO3	0.37	0.49	0.62	0.37	0.53	0.47	0.34	0.27	0.25	0.59	0.76	0.70	0.42	0.53	0.73	0.97	0.59	0.58	0.76	0.56	0.75	0.66	0.69	0.62
SysS1	0.33	0.43	0.66	0.53	0.78	0.40	0.42	0.26	0.22	0.55	0.63	0.58	0.32	0.46	0.53	0.60	0.96	0.61	0.59	0.54	0.64	0.64	0.67	0.53
SysS2	0.26	0.47	0.66	0.53	0.80	0.39	0.34	0.24	0.24	0.51	0.66	0.59	0.34	0.42	0.59	0.62	0.97	0.55	0.63	0.51	0.54	0.64	0.64	0.52
SysS3	0.27	0.47	0.66	0.50	0.79	0.43	0.44	0.20	0.20	0.49	0.63	0.56	0.33	0.44	0.54	0.59	0.97	0.53	0.58	0.51	0.52	0.69	0.63	0.49
INS1	0.19	0.19	0.50	0.32	0.40	0.40	0.36	0.43	0.22	0.76	0.50	0.44	0.31	0.41	0.46	0.55	0.55	0.92	0.48	0.38	0.63	0.47	0.57	0.57
INS2	0.30	0.18	0.54	0.22	0.52	0.52	0.47	0.45	0.22	0.81	0.50	0.50	0.36	0.48	0.48	0.58	0.58	0.92	0.53	0.38	0.55	0.47	0.54	0.44
INS3	0.29	0.24	0.47	0.20	0.44	0.49	0.42	0.47	0.16	0.75	0.49	0.39	0.35	0.40	0.54	0.54	0.47	0.92	0.51	0.32	0.53	0.40	0.51	0.50
SES1	0.26	0.40	0.55	0.36	0.53	0.39	0.36	0.23	0.27	0.54	0.79	0.70	0.35	0.55	0.75	0.73	0.59	0.54	0.97	0.63	0.64	0.62	0.70	0.58
SES2	0.25	0.43	0.60	0.33	0.54	0.37	0.36	0.22	0.24	0.53	0.79	0.72	0.35	0.56	0.72	0.77	0.59	0.52	0.98	0.58	0.63	0.65	0.70	0.58
SES3	0.23	0.45	0.59	0.37	0.59	0.43	0.39	0.25	0.26	0.57	0.80	0.78	0.40	0.57	0.78	0.81	0.64	0.55	0.97	0.61	0.66	0.69	0.71	0.63
PEOU1	0.22	0.26	0.40	0.36	0.28	0.25	0.22	0.19	0.19	0.31	0.49	0.64	0.40	0.44	0.47	0.56	0.42	0.34	0.49	0.82	0.55	0.55	0.53	0.62
PEOU2	0.31	0.44	0.52	0.31	0.46	0.33	0.37	0.15	0.21	0.38	0.56	0.63	0.47	0.41	0.47	0.56	0.55	0.39	0.62	0.90	0.55	0.59	0.65	0.52
PEOU3	0.33	0.40	0.41	0.33	0.36	0.17	0.31	0.13	0.10	0.24	0.50	0.64	0.34	0.49	0.37	0.46	0.51	0.30	0.54	0.93	0.45	0.56	0.59	0.50
PEOU4	0.31	0.40	0.34	0.29	0.30	0.18	0.31	0.05	0.09	0.24	0.49	0.55	0.43	0.53	0.39	0.50	0.47	0.33	0.55	0.87	0.47	0.48	0.54	0.51
PEOU5	0.27	0.36	0.34	0.28	0.24	0.19	0.29	0.17	0.16	0.21	0.45	0.62	0.43	0.57	0.39	0.47	0.43	0.36	0.53	0.91	0.50	0.46	0.57	0.60
PU1	0.28	0.28	0.39	0.39	0.35	0.30	0.23	0.21	0.26	0.37	0.45	0.42	0.25	0.36	0.44	0.55	0.40	0.47	0.50	0.40	0.50	0.50	0.50	0.60
PU2	0.34	0.48	0.62	0.40	0.53	0.41	0.34	0.33	0.27	0.49	0.68	0.62	0.32	0.44	0.62	0.70	0.53	0.52	0.65	0.50	0.89	0.64	0.63	0.63
PU3	0.35	0.42	0.58	0.39	0.49	0.45	0.37	0.26	0.26	0.55	0.70	0.65	0.35	0.48	0.59	0.74	0.55	0.62	0.63	0.58	0.95	0.62	0.68	0.71
PU4	0.40	0.33	0.51	0.32	0.42	0.44	0.36	0.31	0.26	0.55	0.64	0.60	0.34	0.54	0.61	0.73	0.49	0.60	0.59	0.55	0.93	0.62	0.64	0.71
EN1	0.29	0.30	0.51	0.31	0.60	0.34	0.29	0.16	0.14	0.41	0.66	0.63	0.19	0.41	0.53	0.60	0.61	0.39	0.63	0.51	0.62	0.84	0.65	0.59
EN2	0.24	0.24	0.57	0.27	0.46	0.41	0.40	0.31	0.19	0.48	0.57	0.57	0.36	0.42	0.50	0.60	0.58	0.48	0.60	0.49	0.62	0.89	0.62	0.62
EN3	0.32	0.39	0.60	0.36	0.52	0.38	0.30	0.24	0.19	0.45	0.66	0.65	0.34	0.48	0.54	0.62	0.65	0.46	0.62	0.55	0.67	0.93	0.66	0.69
EN4	0.29	0.35	0.60	0.25	0.52	0.51	0.35	0.21	0.24	0.51	0.65	0.57	0.32	0.45	0.56	0.64	0.65	0.47	0.59	0.55	0.56	0.91	0.65	0.53
EN5	0.29	0.36	0.49	0.23	0.48	0.42	0.38	0.18	0.14	0.46	0.55	0.57	0.25	0.47	0.45	0.56	0.53	0.35	0.53	0.57	0.45	0.86	0.56	0.45
ATT1	0.36	0.39	0.63	0.44	0.50	0.37	0.32	0.33	0.29	0.51	0.69	0.69	0.35	0.50	0.66	0.66	0.67	0.58	0.75	0.62	0.70	0.68	0.93	0.73
ATT2	0.39	0.37	0.55	0.36	0.46	0.41	0.44	0.28	0.23	0.50	0.64	0.59	0.31	0.40	0.59	0.63	0.61	0.52	0.64	0.60	0.62	0.66	0.95	0.62
ATT3	0.36	0.42	0.57	0.38	0.47	0.39	0.40	0.30	0.22	0.54	0.65	0.59	0.31	0.43	0.62	0.66	0.61	0.58	0.66	0.63	0.66	0.67	0.95	0.64
ATT4	0.35	0.42	0.57	0.38	0.48	0.38	0.41	0.30	0.24	0.49	0.64	0.60	0.30	0.46	0.62	0.62	0.64	0.54	0.67	0.62	0.61	0.67	0.96	0.61
INT1	0.33	0.35	0.45	0.26	0.37	0.31	0.31	0.30	0.26	0.44	0.54	0.61	0.38	0.54	0.52	0.56	0.57	0.54	0.62	0.58	0.67	0.67	0.68	0.94
INT2	0.31	0.28	0.40	0.18	0.28	0.27	0.26	0.29	0.23	0.42	0.56	0.59	0.37	0.48	0.51	0.59	0.48	0.54	0.58	0.59	0.74	0.61	0.65	0.97
INT3	0.31	0.29	0.37	0.22	0.30	0.25	0.24	0.28	0.25	0.35	0.53	0.57	0.37	0.45	0.47	0.57	0.48	0.49	0.57	0.62	0.73	0.59	0.65	0.97

Notes: ACE = Accessibility, ACU = Accuracy, ASS = Assurance, ATT = Attitude, COM = Completeness, CUR = Currency, EMP = Empathy, EN = Enjoyment, FLE = Flexibility, FOR = Format, IQ = Information Quality, INS = Information Satisfaction, INT = Intention, PEU = Perceived Ease of Use, REL = Reliability, RES = Responsive, SQ = Service Quality, SER = Service Reliability, SES = Service Satisfaction, SysQ = System Quality, SYS = System Satisfaction, TAN = Tangible, TIM = Timeliness, PU = Perceived Usefulness

Appendix C

Correlations, Internal Consistency, and Discriminant Validity of Constructs

	CA	CR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ACE	0.92	0.95	0.93																							
ACU	0.73	0.84	0.19	0.80																						
ASS	0.71	0.87	0.38	0.29	0.88																					
ATT	0.96	0.97	0.42	0.32	0.47	0.95																				
COM	0.75	0.85	0.18	0.29	0.26	0.40	0.82																			
CUR	0.88	0.92	0.11	0.27	0.11	0.25	0.50	0.91																		
EMP	0.94	0.95	0.39	0.17	0.48	0.69	0.46	0.16	0.92																	
EN	0.93	0.94	0.37	0.24	0.50	0.70	0.46	0.20	0.69	0.89																
FLE	0.88	0.92	0.43	0.30	0.34	0.61	0.51	0.26	0.74	0.62	0.90															
FOR	0.77	0.87	0.28	0.40	0.36	0.41	0.49	0.08	0.33	0.38	0.37	0.83														
IQ	0.88	0.93	0.23	0.44	0.36	0.53	0.65	0.30	0.57	0.51	0.56	0.48	0.91													
INS	0.91	0.94	0.21	0.48	0.46	0.58	0.51	0.21	0.53	0.48	0.54	0.44	0.84	0.92												
INT	0.96	0.97	0.31	0.29	0.54	0.68	0.28	0.25	0.56	0.65	0.42	0.28	0.41	0.54	0.96											
PEOU	0.93	0.95	0.42	0.15	0.54	0.65	0.25	0.17	0.56	0.60	0.45	0.34	0.31	0.39	0.62	0.88										
REL	0.89	0.93	0.49	0.37	0.40	0.38	0.18	0.08	0.27	0.32	0.32	0.35	0.22	0.28	0.32	0.32	0.91									
RES	0.92	0.95	0.37	0.25	0.49	0.65	0.47	0.22	0.83	0.58	0.66	0.30	0.55	0.53	0.52	0.47	0.28	0.93								
SQ	0.96	0.96	0.50	0.27	0.52	0.67	0.47	0.26	0.78	0.68	0.65	0.34	0.62	0.60	0.59	0.57	0.35	0.76	0.96							
SER	0.90	0.93	0.40	0.24	0.59	0.65	0.30	0.16	0.75	0.67	0.58	0.24	0.46	0.48	0.61	0.69	0.30	0.68	0.72	0.88						
SES	0.97	0.98	0.43	0.23	0.57	0.72	0.41	0.26	0.81	0.67	0.59	0.38	0.55	0.54	0.61	0.62	0.25	0.77	0.79	0.75	0.97					
SysQ	0.95	0.97	0.46	0.28	0.30	0.50	0.45	0.19	0.84	0.88	0.69	0.42	0.55	0.48	0.33	0.37	0.32	0.55	0.57	0.51	0.56	0.95				
SYS	0.96	0.97	0.47	0.24	0.45	0.66	0.42	0.23	0.86	0.68	0.68	0.41	0.53	0.58	0.53	0.54	0.29	0.57	0.62	0.59	0.62	0.81	0.96			
TAN	0.76	0.84	0.34	0.24	0.36	0.33	0.30	0.45	0.29	0.33	0.34	0.25	0.29	0.36	0.38	0.46	0.23	0.38	0.45	0.36	0.37	0.20	0.34	0.76		
TIM	0.89	0.95	0.51	0.19	0.26	0.41	0.12	0.17	0.86	0.32	0.39	0.15	0.24	0.26	0.22	0.35	0.11	0.33	0.40	0.40	0.36	0.48	0.53	0.28	0.95	
PU	0.92	0.95	0.41	0.30	0.51	0.68	0.44	0.29	0.69	0.66	0.58	0.36	0.55	0.61	0.73	0.56	0.38	0.63	0.75	0.64	0.65	0.50	0.55	0.35	0.41	0.90

Notes: CA = Cronbach's alpha, CR = Composite Reliability, ACE = Accessibility, ACU = Accuracy, ASS = Assurance, ATT = Attitude, COM = Completeness, CUR = Currency, EMP = Empathy, EN = Enjoyment, FLE = Flexibility, FOR = Format, IQ = Information Quality, INS = Information Satisfaction, INT = Intention, PEOU = Perceived Ease of Use, REL = Reliability, RES = Responsive, SQ = Service Quality, SER = Service Reliability, SES = Service Satisfaction, SysQ = System Quality, SYS = System Satisfaction, TAN = Tangible, TIM = Timeliness, PU = Perceived Usefulness

Diagonal elements are the square root of AVE. These values should exceed the interconstruct correlations for adequate discriminant validity. This condition is satisfied for each construct.

Appendix D

Screen Shots for the Various Treatments

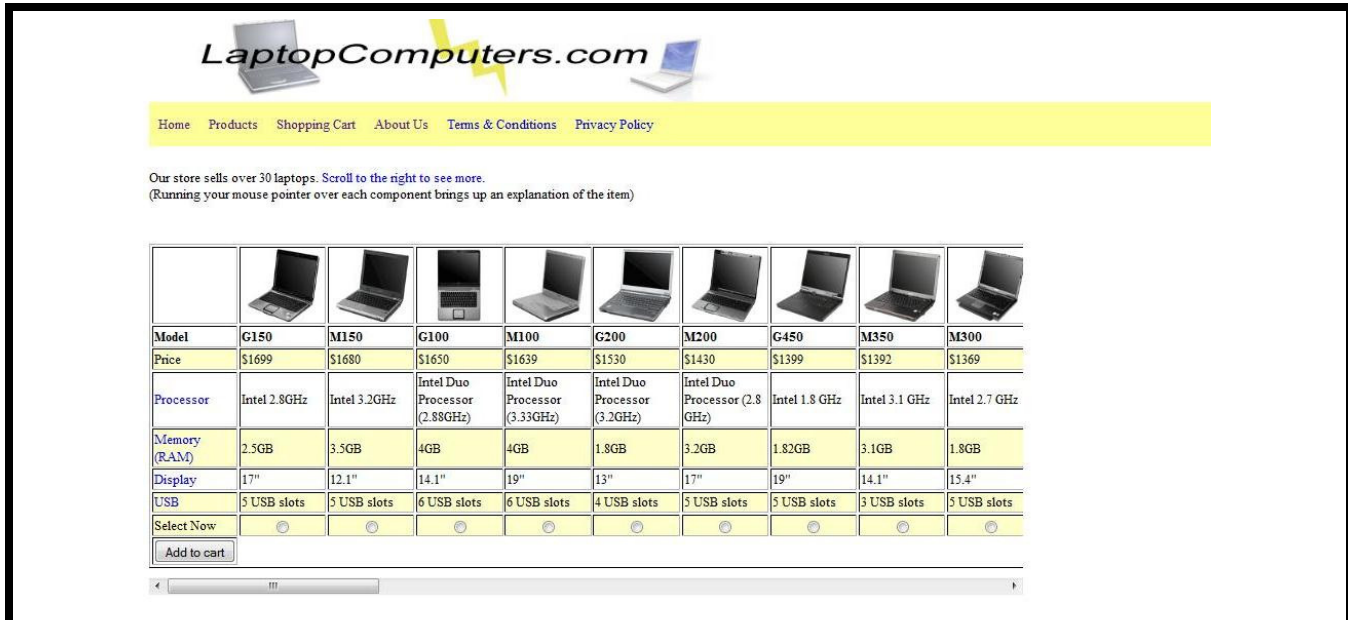


Figure D1. Web Site with Comparison Matrix

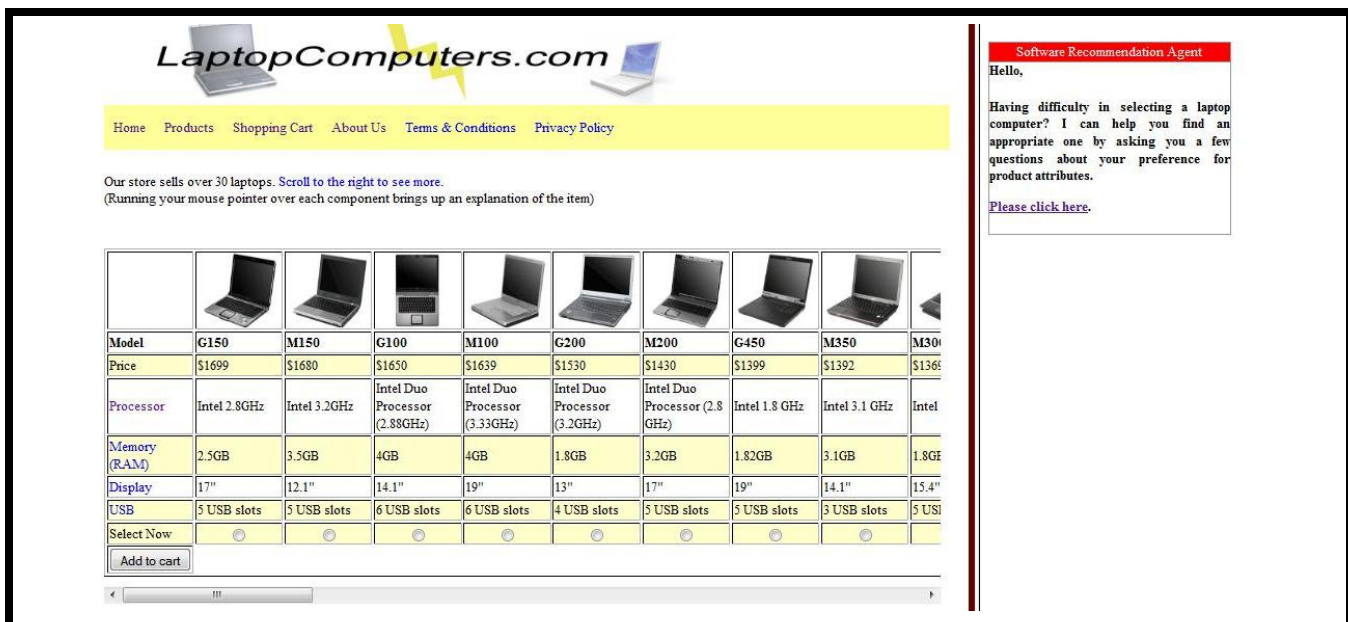


Figure D2. Web Site with Software Recommendation Service

The screenshot shows the LaptopComputers.com website. At the top, there is a navigation bar with links for Home, Products, Shopping Cart, About Us, Terms & Conditions, and Privacy Policy. Below the navigation bar, a text block states: "Our store sells over 30 laptops. Scroll to the right to see more. (Running your mouse pointer over each component brings up an explanation of the item)".

The main content area features a grid of 10 laptop models. Each model is represented by a small image and a set of specifications. Below the grid is a table with the following data:

Model	G150	M150	G100	M100	G200	M200	G450	M350	M300
Price	\$1699	\$1680	\$1650	\$1639	\$1530	\$1430	\$1399	\$1392	\$1365
Processor	Intel 2.8GHz	Intel 3.2GHz	Intel Duo Processor (2.88GHz)	Intel Duo Processor (3.33GHz)	Intel Duo Processor (3.2GHz)	Intel Duo Processor (2.8 GHz)	Intel 1.8 GHz	Intel 3.1 GHz	Intel
Memory (RAM)	2.5GB	3.5GB	4GB	4GB	1.8GB	3.2GB	1.82GB	3.1GB	1.8GB
Display	17"	12.1"	14.1"	19"	13"	17"	19"	14.1"	15.4"
USB	5 USB slots	5 USB slots	6 USB slots	6 USB slots	4 USB slots	5 USB slots	5 USB slots	5 USB slots	5 USB slots
Select Now	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Below the table is an "Add to cart" button. On the right side of the page, there is a "Live Chat Assistant" window for LaptopComputers.com. The status indicates "Customer Service Rep is online". The chat window includes a text input field, a "Customer ID" field, and a "get meebp" button.

Figure D3. Web Site with Human Service

The screenshot shows the LaptopComputers.com website with a software recommendation agent. The layout is similar to Figure D3, but with an additional "Software Recommendation Agent" window on the right. The agent's message reads: "Hello, Have difficulty in selecting a laptop computer? I can help you find an appropriate one by asking you a few questions about your preference for product attributes. Please click here." Below the message is a "Live Chat Assistant" window for LaptopComputers.com, which is identical to the one in Figure D3. At the bottom of the page, there is a copyright notice: "Copyright (c) 2011 ComputerLaptops.ca, All rights reserved".

Figure D4. Web Site with Both Software Recommendation and Human Service