

Is There a Value Paradox of E-learning in MBA Programs?

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Abstract

Academic institutions invest considerable resources in improving the website quality of their MBA courses, in the hope of increasing student retention and willingness to recommend the programs to others. Despite this investment, it seems that the old "keep it simple" rule is also true for e-learning. Data collected from students enrolled in a blended distance learning MBA program at the Open University of Israel, shows that the students were most satisfied with the simple and relatively inexpensive e-learning tools, which did not require their active participation. The paper discusses bounded rationality and attention economy as suggested theoretical explanations for this phenomenon, as well as practical implications for academic institutions and educators.

Keywords: Value of Online Learning Systems, Blended Learning, E-Learning, Distance Learning, Bounded Rationality, Attention Economy, Student Retention.

Introduction

E-learning has become a strategic necessity for many organizations engaged in education or training (Hiltz & Turoff, 2005; Neumann, 1994). Academic institutions invest money, lecturers spend time and efforts answering students and supervising online activities, and websites are loaded with enrichment materials. Utilizing these resources, students are engaged in online activities, such as reading and posting messages in online discussion forums, checking out relevant links to other websites, and reading current newspaper excerpts. The question arises then, academically as well as practically, what is the relative value of all these activities?

There are many different values of e-learning services: they may increase student satisfaction (Levy, 2006), or enhance the learning process (Hiltz & Turoff, 2002), and therefore, increase student retention. Nevertheless, not all e-learning services are of equal value. Some distance learning environments or tools may be more effective than others (Alavi Marakas, & Yoo, 2002; Rovai & Jordan, 2004), and students may regard some activities as much more valuable than others (Levi, 2006).

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Since the value of E-learning provided information is relative and depends on the user and the circumstances (Ahituv, 1980, 1989), we relate to three groups of users: academic institutions, teachers, and students.

Student retention is one of the most important challenges facing distance education institutions (Eastmond, 1995; Rovai, 2002; Tresman, 2002; Woodley,

2004; Guri-Rosenblit, 2005). As more and more academic institutions embed distance e-learning elements into their programs (Alavi & Leidner, 2001; Hiltz & Turrof, 2005) and incorporate distance or blended learning into their programs, the research questions grow in importance (Hirschheim, 2005). Thus, from an academic institution perspective, the value of e-learning should be measured by its effectiveness in increasing student retention and willingness to recommend the program to others.

The value of e-learning to students depends on many things. Among these are the field of study and the purpose of study. We chose to examine the value of e-learning to MBA students, since their motives for study are usually different from those of other graduate students and also because this is a very popular field that serves as a major income resource for many institutions. The time these students can invest in learning is limited, as most of them also work full time and sometimes also have a family to take care of. As a result of this balancing act, students need to set priorities. And so, they miss classes, make other compromises, and some of them adopt a satisficer approach. Simon (1957) suggested that satisficing decision makers aspire to reach a satisfactory solution, and not necessarily the optimal one (Ronen, Pliskin, & Pass, 2006, pp. 14-18). In our context, a student who adopts a satisficer approach would aspire to successfully complete the courses by achieving a passing grade (or some other level of aspiration, e.g., an average grade of 80% out of 100%), and would invest the least amount of effort required to achieve this goal. Even if indeed students would like to study more, and attain the highest grades, or broaden their knowledge, they have limited attention (Simon, 1971; Davenport & Beck, 2000, 2001). The flexibility of e-learning and distance education may help these students. Therefore, it is especially interesting to examine the value of various e-learning services to MBA students.

The strategic need to invest in e-learning is a budget burden constraint in academic organizations and a strain on teachers' limited time. This may be especially important to new academics who must excel in both teaching and research in order to get tenure. Hence, on one hand they believe that they need to invest in their courses' websites to achieve high student evaluations, and on the other hand, they should engage in academic research and other activities. Adopting Simon's (1957) satisficer concept, teachers need to know how much effort to should invest in developing their websites and what tools are most valued by students.

The proposed model outlines the influence of auxiliary e-learning tools on student retention and willingness to recommend the program to others. The findings show that the students were most satisfied with the simple and relatively inexpensive e-learning tools which did not require active participation. The findings are discussed from a satisficing approach and a bounded rationality and attention economy perspective.

The Suggested Model

Figure 1 presents the proposed research model and delineates the influence of various types of auxiliary e-learning services on student retention and willingness to recommend the program to others.

The value of e-learning to academic institutions stems from its influence on student retention and willingness to recommend the program to other prospective students. E-learning is expected to increase both retention and student satisfaction (Simpson, 2003; Levy, 2007).

H1: Student satisfaction with e-learning overall quality positively influences willingness to recommend the program to others.

H2: Student satisfaction with e-learning overall quality reduces inclination to withdraw the program.

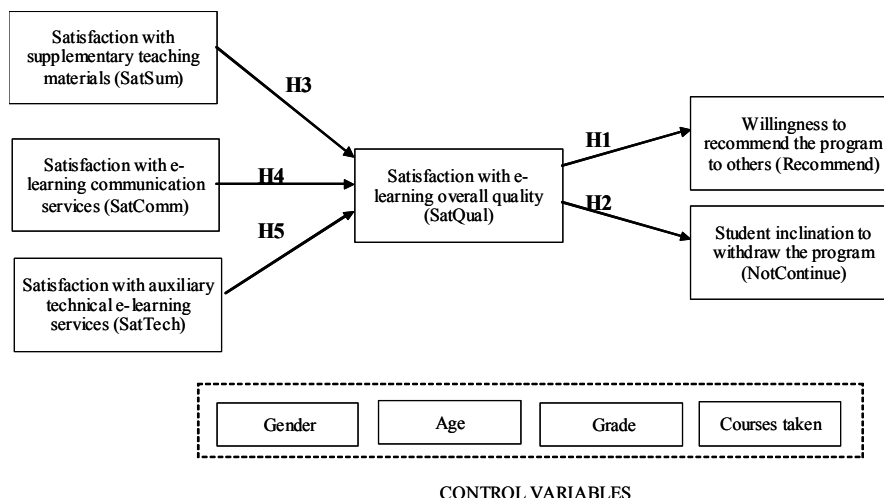


Figure 1: The Suggested Research Model

Since we would like to compare the relative contribution of different e-learning services, these services were divided to three constructs, according to the level of effort they require and the load on student attention (Simon, 1957; Davenport & Beck, 2000, 2001):

- Supplementary teaching materials (SatSum) require the least effort of the students. These are basically materials which the course coordinator posts on the website and the students may download them.
- E-learning communication services (SatComm) enable better communication with instructors and classmates. The students may choose just to read the messages, or be actively engaged by posting messages. Usually, this communication deals with course assignments and exams. Hence, students may benefit just from tracking these messages, and even more if they post a question and get an answer to a specific problem.
- Auxiliary technical e-learning services (SatTech) include optional activities that enhance the learning process or interaction among students, and represent advanced use of e-learning. They usually entail more investment of resources by academic institutions and educators for developing and maintaining them, and they also require more efforts of the students, therefore consuming more time and attention.

The specific e-learning services which are included in each construct are depicted in appendix 1. Since student retention is influenced by many factors (Tinto, 1975; Simpson, 2003, Woodley, 2004), we do not assume direct influence of specific e-learning tool types on retention and recommendation, but rather hypothesize that satisfaction with each type of tools should increase student satisfaction with e-learning overall quality. The three hypotheses related to these constructs are:

H3: Satisfaction with e-learning supplementary teaching materials positively affects student satisfaction with e-learning overall quality.

H4: Satisfaction with e-learning communication services positively affects student satisfaction with e-learning overall quality.

H5: Satisfaction with auxiliary technical e-learning services positively affects student satisfaction with e-learning overall quality.

Is There a Value Paradox of E-learning in MBA Programs?

Since the use of auxiliary technical e-learning services poses greater demand on student time and limited attention (Simon, 1957; Davenport & Beck, 2000, 2001) than the other two types of services, we also suggest the following:

H5a: The impact of satisfaction with auxiliary technical e-learning services on student satisfaction with e-learning overall quality is smaller than the impact of simpler e-learning services.

The model was controlled for possible influence of:

- Gender.
- Age.
- The student average grade.
- The number of successfully completed courses.

Methodology

The research population comprised of students registered in the MBA program at the Open University of Israel. The students of the MBA program, inaugurated in October 2002, may choose between a full distance learning model and a blended model which combines a few face-to-face meetings with traditional distance education tools such as books and study guides along with online learning support through course websites. The tuition is the same, regardless of the chosen mode, and the students do not have to choose their learning mode a-priori, so they may decide spontaneously whether to attend or skip a face-to-face class meeting. Many students work full time, and they chose this program due to its flexibility and distance learning option.

The research pilot included examination of the initial questionnaire by three experienced course coordinators, followed by data collection from 44 students. The results were analyzed and discussed at a seminar conducted by the Chais Research Center for the Integration of Technology in Education, at the Open University of Israel. The questionnaire was slightly adjusted according to the feedback analysis. The entire population of 1,916 students enrolled in the Open University MBA program courses in April 2006 was contacted by email and asked to answer the anonymous online survey. 390 students responded to this request. An additional 130 students answered the survey after a reminder. The total 520 answers represent a 27.1% response rate. Non response bias was assessed by comparing the early and late respondents (Armstrong & Overton, 1977). There were no significant differences between these two groups. Construct reliability and validity were adequate, and the measurement of both is further explained in the next section.

Results

The demographic characteristics of the 520 MBA program students who answered the survey are presented in Table 1. There were no gender, age, or grade differences in the data.

Gender	Men	Women					
	50.8%	49.2%					
Age	Below 21	21-25	26-30	31-35	36-40	41-50	Over 50
	-	3.7%	32.9%	34.0%	14.0%	12.7%	2.7%
Average MBA grade	just started	Less than 70	70-75	76-80	81-85	86-90	91-100
	18.1%	.4%	6.7%	19.0%	28.9%	20.2%	6.7%
Number of completed courses (15 courses required for an MBA)		None	1-3 courses	4-6 courses	7-9 courses	10-12 courses	Over 12 courses
		17.5%	26.0%	18.8%	15.0%	11.2%	11.5%

Appendix 1 presents the relative contribution of various e-learning tools to learning, as perceived by the students. The students perceived supplementary teaching services (SatSum) provided by the websites, such as sample exams, as having the highest contribution to learning, with average item scores of 5.94 to 6.43 on a Likert scale of 1 to 7. The contribution level of auxiliary communication services (SatComm) ranged from 5.07 to 5.58, whereas the perceived contribution of auxiliary technical services (SatTech) was the lowest with values of 2.47 to 4.62.

The data was analyzed with Partial Least Square (PLS-Graph 3.00 Build 1126), which is widely used in MIS research (Gefen & Straub, 2005). PLS is a structured equation modeling method that analyzes how the items load on their constructs simultaneously with estimating all the paths in the model. PLS estimates all paths, loadings, the Average Variance Extracted (AVE) of principal constructs, and construct reliability. Convergent and discriminant validity are shown when each item loads much higher on its assigned factor than on any other factor and when the square root of the AVE of each construct is much larger than the correlation of that construct with all other constructs (Chin, 1998; Chin, Marcolin, & Newsted, 2003; Gefen, Straub, & Boudreau, 2000; Gefen & Straub, 2005). Appendix 2 contains a confirmatory factor analysis in PLS. Appendix 3 shows the mean, standard deviation, and PLS reliability along with the correlation among the constructs and their square root of the AVE. Finally, appendix 4 details the path loadings and t-values. All the measures are above the thresholds suggested in the literature (Gefen, et al. 2000).

The standardized PLS path coefficients are shown in table 2, which shows that both retention and willingness to recommend the MBA program were influenced by student satisfaction with the overall quality of e-learning (standardized coefficients -0.272 for inclination to withdraw, and 0.399 for willingness to recommend). All three e-learning constructs significantly contributed to the over e-learning quality, but whereas the standard coefficients of SatSum and SatComm were 0.310 and 0.318 respectively, the SatTech coefficient was 0.146. Those students who were inclined to leave the program would not recommend it to others (-0.368). The number of courses taken had a strong negative influence (0.419) on student inclination to withdraw the program, and also a weak negative influence (0.096) on willingness to recommend it. All the other paths among pairs of constructs were insignificant.

Table 2: PLS Results of the Proposed Research Model

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Path Coefficients									
	NotConti	SatQual	SatTech	SatSum	CoursesT	SatComm	Grade	Gender	Age
LoyRecmd	-0.3680	0.3390			-0.0960		-0.0520	-0.0690	0.0180
NotConti		-0.2720			-0.4190		0.0110	0.0480	-0.0020
SatQual			0.1460	0.3100	-0.0400	0.3180	0.0730	-0.0130	0.0640
Path T Values									
	NotConti	SatQual	SatTech	SatSum	CoursesT	SatComm	Grade	Gender	Age
LoyRecmd	7.7518	9.6397			2.1453		1.3449	1.7192	0.4332
NotConti		6.3557			12.4376		0.2581	1.3181	0.0454
SatQual			3.4201	5.3277	1.0173	5.7917	1.9945	0.3552	1.5757

Discussion

The most interesting finding of this study is that although auxiliary technical services (SatTech) significantly affected overall e-learning quality (SatQual), this influence was weaker than the influence of the other two e-learning constructs, supplementary teaching materials (SatSum) and communication services (SatComm), which represent less sophisticated tools. First, we shall discuss potential explanations as to why students perceive the more sophisticated technical e-services as less valued. Then, we will elaborate on the practical implications for academic institutions and educators.

One way to look at the students' preferences regarding e-learning services is from a satisficer perspective (Simon, 1957). The students want to successfully complete the course, while investing minimal efforts in the process. Hence, they prefer to get focused teaching materials, such as sample exams, solutions to assignments, and presentations which summarize the learning materials. They also value fast answers from the instructor to questions posted at the course discussion board, which usually refer to the assignments or the exam. Bounded rationality (Simon, 1957) also provides an explanation to this phenomenon: the students are overwhelmed with the ample learning opportunities, thus they choose the simple familiar tools. Another potential explanation is from an attention economy perspective (Davenport and Beck, 2000, 2001). The students have limited attention resources, and there are many demands on them. Therefore, even if they would like to engage in learning that is more active and explore enrichment references, they simply cannot afford to allocate the time to these activities. Sometimes, they are so busy that they are not even aware of these possibilities.

The findings of this research seem to reveal a value paradox of investment in MBA e-learning services. Although the sophisticated services require more resources, the students attribute higher value to the simple standard tools. One implication may be that institutions that cannot afford sophisticated tools may still gain much from utilizing standard e-learning tools. A second suggestion is that all academic institutions should consider this basic e-learning infrastructure as a strategic necessity for MBA programs (Neumann, 1994) due to its impact on retention and recommendation.

The implications of these findings to educators are that they should at least maintain simple course website services, such as providing auxiliary teaching materials, because the students expect to get these services, and the lack of them may impair student satisfaction, resulting in decreased retention as well as a lesser willingness to recommend the program. Instructors should use the bulletin board to notify students of relevant course information, as well as important additions to the website, to get the students' attention. Since instructor time is also a limited resource, investment of this time in sophisticated e-learning services should be carefully considered, and perhaps it should be focused on one or two advanced tools which are appropriate to the specific course and are expected to be used by the students and to create the most value for them.

Conclusion

This study examined the value of several aspects of MBA course websites to academic institutions and showed that student satisfaction with e-learning overall quality affects both student retention and loyalty, measured by willingness to recommend the program. An analysis of the relative contribution of the three types of auxiliary e-learning services on student satisfaction with e-learning overall quality revealed that students valued most the simple services which did not require their active engagement in online activities. A satisficing approach, bounded rationality and limited attention resources (Simon, 1957, 1971; Davenport & Beck, 2000, 2001) were suggested as possible explanations of this preference.

While course discussion boards are perceived as crucial for socializing and learning (Rovai, 2002; Rovai & Jordan, 2004; Salmon, 2004) it seems that this aspect is less important to MBA students who prefer functional forums which are focused on learning support. Future research should examine this, controlling for different study subjects, as well as culture, gender and age.

As in other online environments (Gefen, Karahanna, & Straub, 2003), student trust in the content of diverse e-learning resources is also an issue which requires further research. Students are expected to trust website content which is provided by the teacher, but they may be hesitant to use information from peers, or external information such as newspaper articles, or commercial websites, which are commonly used in MBA studies to demonstrate practical issues.

In conclusion, course websites are important, but in order to be effective, they must be focused. They have to answer the students' needs and also consider their limited attention. "A wealth of information creates a poverty of attention" (Simon, 1971). Simple e-learning tools can provide students with reliable structured information and therefore enhance learning, satisfaction, retention and willingness to recommend the program to others.

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Is There a Value Paradox of E-learning in MBA Programs?

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Appendix 1. Relative Perceived Contribution of E-Learning Tools

Construct	Item	Average	Standard deviation
SatSum Supplementary teaching services	E6.05 Sample exams	6.43	1.08
	E6.06 Task solutions	6.35	1.10
	E6.08 Meeting summaries and presentations	5.94	1.42
SatComm Auxiliary communication services	E6.09 Discussion board	5.58	1.49
	E6.01 Bulletin board	5.07	1.61
SatTech Auxiliary technical services	E6.04 Glossary of course terms	4.62	1.80
	E6.07 Electronic reader	4.51	1.90
	E6.02 Discussion board group activities	4.27	1.87
	E6.03 Links to other websites	4.17	1.75
	E6.13 Current newspaper articles examples	4.02	1.86
	E6.15 Course instant messaging tool	2.89	1.97
	E6.10 Personal notepad	2.47	1.75

Appendix 2. Confirmatory Factor Analysis in PLS

	LoyRecomd	NotContinue	SatQual	SatTech	SatSum	SatComm
K2.1 I will recommend the Open University MBA program to others	0.98	-0.40	0.44	0.27	0.24	0.22
K2.2 I will encourage others to study in the Open University MBA program	0.98	-0.40	0.43	0.27	0.24	0.22
K2.3 If my friends were looking for an MBA program, I would recommend the Open University MBA program	0.97	-0.42	0.40	0.27	0.23	0.24
K1.1 I will probably successfully complete the MBA studies	0.39	-0.82	0.27	0.14	0.22	0.16
K1.2 I will probably continue the MBA studies in another institution	-0.34	0.83	-0.26	-0.07	-0.22	-0.15
K1.3 I will probably have to quit the MBA studies	-0.31	0.87	-0.23	-0.12	-0.23	-0.19
A4.1 The academic level of the course websites' content is adequate	0.38	-0.31	0.79	0.32	0.39	0.39
A4.2 The Information provided in the course websites is accurate	0.34	-0.27	0.70	0.22	0.39	0.33
A4.3 The content of the course websites is reliable	0.30	-0.29	0.73	0.24	0.35	0.36
E1 The Course websites help me overcome difficulties with my studies	0.28	-0.12	0.75	0.39	0.35	0.42
E2 So far, I am satisfied with the usefulness of the course websites	0.30	-0.22	0.78	0.33	0.44	0.46
E3 I am satisfied with the level of learning support provided by the course websites	0.32	-0.23	0.83	0.31	0.40	0.43
E4 the course websites enrich my learning experience	0.39	-0.14	0.74	0.40	0.36	0.42
E5 I was disappointed with the service provided by the course websites	-0.24	0.25	-0.61	-0.18	-0.33	-0.21
E6.02 Discussion board group activities level of contribution to learning	0.15	-0.02	0.32	0.71	0.30	0.31
E6.03 Links to other websites level of contribution to learning	0.22	-0.15	0.32	0.77	0.26	0.36
E6.04 Glossary of course terms level of contribution to learning	0.21	-0.15	0.31	0.72	0.37	0.33
E6.07 Electronic reader level of contribution to learning	0.23	-0.14	0.30	0.72	0.38	0.22
E6.10 Personal notepad level of contribution to learning	0.14	0.08	0.08	0.50	0.07	0.19
E6.13 Current newspaper articles examples level of contribution to learning	0.23	-0.12	0.29	0.72	0.32	0.27
E6.15 Course instant messaging tool level of contribution to learning	0.11	0.05	0.20	0.59	0.12	0.20
E6.05 Sample exams level of contribution to learning	0.21	-0.25	0.47	0.28	0.89	0.32
E6.06 Task solutions level of contribution to learning	0.19	-0.18	0.43	0.29	0.88	0.39
E6.08 Meeting summaries and presentations level of contribution to learning	0.20	-0.24	0.37	0.50	0.73	0.37
E6.09 Discussion board level of contribution to learning	0.19	-0.22	0.49	0.37	0.44	0.89
E6.01 Bulletin board level of contribution to learning	0.22	-0.10	0.38	0.32	0.27	0.81

Appendix 3. Correlation Matrix, Descriptives and Average Variance Extracted of Principal Components

Mean, Standard Deviation, and PLS reliability together with the correlation among the constructs and their square root of the AVE. Correlations of latent variables and Square Root of the AVE are presented in the diagonals.

	Mean	Standard Deviation	PLS Reliability	LoyRecmd	NotConti	SatQual	SatTech	SatSum	CoursesT	SatComm	Grade	Gender	Age
LoyRecmd	4.920	1.764	.99	.978									
NotConti	1.883	1.140	.88	-0.419	.840								
SatQual	5.605	0.943	.91	0.433	-0.306	.743							
SatTech	3.849	1.261	.86	0.276	-0.127	0.407	.682						
SatSum	6.240	0.995	.87	0.242	-0.266	0.509	0.412	.837					
CoursesT	3.11	1.608	Single item	0.064	-0.435	0.089	0.024	0.153	1.000				
SatComm	5.322	1.324	.84	0.232	-0.196	0.513	0.405	0.427	0.107	.853			
Grade	3.29	1.855	Single item	0.048	-0.262	0.172	0.018	0.186	0.544	0.190	1.000		
Gender	1.49	0.500	Single item	-0.077	0.022	0.030	-0.053	0.095	0.043	0.111	0.034	1.000	
Age	4.07	1.167	Single item	0.057	-0.052	0.032	0.059	-0.058	0.072	-0.073	0.000	-0.230	1.000

Appendix 4. Path Loadings

Construct	Item	Loading	T-value	Construct	Item	Loading	T-value
LoyRecmd	K2.3	0.9687	232.9402	SatTech	E6.03	0.7749	34.8373
	K2.2	0.9825	391.5986		E6.04	0.7205	28.1020
	K2.1	0.9814	395.8274		E6.07	0.7201	24.7176
NotConti	K1.1	-0.8194	35.8082		E6.02	0.7080	25.1343
	K1.2	0.8297	35.6975		E6.10	0.5005	10.7495
	K1.3	0.8711	46.3994		E6.13	0.7209	27.7832
SatQual	E2	0.7756	31.2346	SatSum	E6.15	0.5858	14.8927
	A4.1	0.7873	24.2300		E6.05	0.8930	59.6640
	A4.2	0.7046	22.0168		E6.06	0.8764	36.0989
	E5	-0.6148	12.6230	SatComm	E6.08	0.7310	15.8793
	A4.3	0.7285	24.7419		E6.09	0.8914	50.5500
	E3	0.8288	51.4683				
	E1	0.7459	28.0785				
	E4	0.7390	22.2062				

Biography



Nitza Geri is Head of Undergraduate Management Studies at the Department of Management and Economics at The Open University of Israel and a member of the Chais Research Center for the Integration of Technology in Education. She holds a B.A. in Accounting and Economics, an M.Sc. in Management Sciences and a Ph.D in Technology and Information Systems Management from Tel-Aviv University. She is a CPA (Israel) and prior to her academic career she had over 12 years of business experience. Her research interests focus on various aspects of the value of information, and information systems adoption and implementation, which include: strategic information systems, e-business, value creation and the Theory of Constraints, managerial aspects of e-learning systems adoption and use.



David Gefen is an Associate Professor of MIS at Drexel University, where he teaches at the MBA level Strategic Management of IT, Database Analysis and Design, and Programming languages. He received his Ph.D. in CIS from Georgia State University and a Master of Sciences from Tel-Aviv University. David has conducted extensive research on issues relating to the adoption, implementation and use of advanced computer technologies. His wide interests in IT adoption stem from his 12 years of experience in developing and managing large information systems, including the ongoing management of a large state-of-the-art logistics system. His research specialization is in IT adoption, the Internet, culture and gender effects, and e-trust. His current research interests focus on psychological and relational processes involved in the successful implementation of technological innovations. His research findings have been published in leading academic and professional journals, including the *MISQ*, *ISR*, *Database*, *Omega*, *JAIS*, and *CAIS*. Dr. Gefen is also the author of a textbook on VB.NET programming, and a SE at Database.