



Economics of information goods: An interdisciplinary subject for Israeli LIS and MBA curricula

Noa Aharony^{a,*}, Daphne R. Raban^{b,1}

^a Department of Information Science, Bar-Ilan University, Ramat Gan, Israel 52900

^b Center for Study of the Information Society, Graduate School of Management, University of Haifa, Mount Carmel, Haifa 31905, Israel

ARTICLE INFO

Article history:

Available online 24 April 2008

ABSTRACT

Economics of information goods is an area of research that studies the unusual nature of information as a good in markets and in the public domain, as well as the value assigned to information. This study explores the attitudes of Israeli library and information science (LIS) and business/management students, lecturers, and practitioners regarding incorporating a course on the economics of information goods into the curricula. The study shows that a deep learning strategy, which reflects high personal commitment, characterized master's students from both schools. The strategy was associated with high overall attitude scores, as well as high attitude scores for information economics: students were willing to include this topic in the curriculum. The overall attitude scores for various information-related subjects were high in both information science and business/management communities and among all stakeholders in the study. Both LIS and business/management master's programs should include economics of information goods in the curriculum. Doing so will help students to adjust to the ever-changing LIS environment.

© 2008 Elsevier Inc. All rights reserved.

1. Introduction

Library and information science (LIS) programs prepare students mainly for performing traditional information tasks such as organizing and retrieving information, and managing libraries (Crosby, 1999; Hill, 1999; Tenopir, 2004). The increased importance and centrality of information in everyday life and in the economy prompted the development of i-schools in the U.S. These i-schools offer new curricula that combine traditional librarianship with technological and social aspects of information consumption. Similar ideas have found only partial application in Israel. On the other hand, courses on technology and social aspects of information are offered outside the LIS curricula in Israel. For example, graduate schools of management and business have incorporated some information-related courses on topics such as management information systems, electronic business, and virtual communities. More than 20 years ago, Porter (1980) and Porter and Millar (1985) discussed the importance of information and knowledge in creating a competitive advantage. However, many academic programs in business or management still do not offer courses on how to turn corporate knowledge into a competitive asset and advantage. A course on the

economics of information goods would fill that gap by providing theoretical and practical tools to help students understand current trends in information markets. Typical course topics would include information as a private or public good, markets for information, the value of information and value creation, network effects, lock-in, standardization, and more. Such a course could benefit both LIS and management students.

This study set out to explore attitudes of various Israeli stakeholders toward the possibility of adding such a non-traditional course to curricula. It also aimed to examine students' attitudes in light of their preferred learning strategies.

2. Problem statement

Rapid changes in the information world are driven by technological developments and catalyzed by economic interests. Coping with these changes requires a comprehensive understanding of their drivers. Academic programs in library and information science partially cover this area; however, most programs do not offer a course dedicated to the economics of information goods. This study explores the attitudes of three stakeholder groups in the field of information about incorporating a course on the economics of information goods into LIS curricula. In addition to looking at faculty, who often discuss and deliberate on new courses, this study also examines students' and practitioners' attitudes. The study findings are important for curriculum development and for understanding and accommodating demands for non-traditional knowledge domains in LIS.

* Corresponding author. Fax: +972 3 5354325.

E-mail addresses: aharonn1@mail.biu.ac.il (N. Aharony), draban@univ.haifa.ac.il (D.R. Raban).

¹ Fax: +972 4 8249194.

3. Literature review

3.1. Changes in the information landscape and information education

Aspects of information production, use, storage, and access are the main study areas in LIS programs. They are rarely found in other programs despite broad agreement regarding the centrality of information to all disciplines. LIS programs provide traditional training while also trying to accommodate the rapidly changing information landscape. The traditional focus of LIS was on information “containers” (such as books and journals) rather than content. For example, Barlow (1993) compared information to fine wine: “We thought for many years that we were in the wine business. In fact, we were in the bottling business. And we don’t know a damned thing about wine.” Now, however, traditional roles dealing with journals and books are becoming less frequent in the careers open to information professionals. New competencies, skills, and graduate-level education are often required (Aharony, 2006a).

Several researchers have argued that libraries will be only one part of the information society, and it may not be the most important part. Librarians will become a small part of the body of information workers; the challenges of information management will require knowledge and skills from other disciplines that were traditionally peripheral to the field of LIS (Katzer, 1990; Van House and Sutton, 1996). This means that LIS education should expand beyond skills and technology to include new cognitive, social, and situational processes (Myburgh, 2003). The emergent market will demand such skills; Cronin, Stiffler, and Day (1993) claimed that there was a low demand for master of library science degrees in the emergent market and more emphasis on subject knowledge and business ability. They concluded that LIS schools offering alternatives to the traditional curricula are more successful in helping information professionals meet the emergent market’s needs.

The KALIPER Report (Kellogg-ALISE Information Professions and Education Reform Project, 2000) found several trends demonstrating active movement toward a change in LIS education. The first trend indicated that by the end of the 20th century, LIS education began to shift from a library-focused model to an information-focused paradigm. Another trend showed increased user-centeredness and increased interdisciplinarity. The third trend was that LIS programs are increasingly integrating information technology into their curricula.

LIS training no longer automatically guarantees students the first pick of all opportunities in the field of information work (Theakston, 2000). The role of information in creating power and wealth is now attracting the attention of other programs such as computer science, business/management, and communications schools (Rehman, 2000). Graduates of these programs enter careers in business, industry, libraries, educational institutions, and more (Wallace, 1994). Abell and Hall (2006) described the “e-information” job market. They claimed that two types of e-information roles offer the greatest number of work opportunities: information architecture and content management. While these roles are open to traditional information specialists, they are often offered to highly skilled people who do not hold formal information qualifications. Employers prefer to hire the best candidates from a wide range of backgrounds, and traditional information professionals must compete with other workers from various domains.

Because the LIS profession and education are facing new competition (Van House and Sutton, 1996), they must acquire new knowledge. Examining various LIS programs during the past decade reveals that many have introduced new courses into their curricula. Course topics include social context of information technology, changes in use and user behavior, human-machine interaction, information economics, communication skills, information policy, and information brokering. Weech (1994) presented a preliminary report on the extent to which economics of information is taught in LIS schools in the U.S. By analyzing syllabi, he found that six schools offered courses in economics of information. Other schools were planning such courses.

Nevertheless, some researchers argue that LIS programs have not yet produced courses dealing with business competencies that are essential ingredients for success in today’s business environment (Blankson-Hemans and Hibberd, 2004). An informal review of ALA-accredited master’s programs shows that about half of the LIS programs in the U.S. now offer courses that relate to the subject of economics of information goods, such as information marketing and electronic commerce. Other LIS programs offer courses on information policy that may include different levels of coverage of information economics. Topics usually refer to government information and regulation and do not focus on information economics, per se. They rarely cover the private sector and the information industry. This is certainly a substantial improvement since Weech’s findings, but it indicates a rather slow rate of acceptance of this topic into the LIS curricula. In Israel, LIS programs neglect the topic. This paper aims to raise awareness and interest in economics of information goods in Israel and elsewhere in the academic and professional community.

3.2. Economics of information goods

Studying economics of information goods provides an in-depth understanding of the value of information and value creation, information as a private and public good, the structure of information markets and the information industry, and the behavior of information consumers (Geri, 2006; Raban, 2007; Shapiro and Varian, 1999). Its importance for LIS programs is evident.

During the past twenty years, academics have produced a growing body of research about the value of information and its unique characteristics as an economic good (Repo, 1989). Some of the unique characteristics of information as an economic entity include:

- Information is expensive to produce but virtually costless to reproduce (Cleveland, 1982; Levitan, 1982; Shapiro and Varian, 1999).
- Information can be a public good, a private good, or a hybrid good (Rafaeli and Raban, 2005).
- Depending on the type of good (public, private, or hybrid), the value of information may increase or decrease as a function of availability.
- Information is an experience good. Its value is revealed only after use (Shapiro and Varian, 1999).
- The value of information is largely subjective (Ahituv, 1989; Rafaeli and Raban, 2003).
- Information is transferred mostly by copying. Therefore, ownership rights do not, or at least should not, pose a problem (Bates, 1989; Cleveland, 1982).

The value of information is one of the more difficult ideas to conceptualize. Researchers have analyzed this concept in a variety of ways, each complementing the other and increasing the concept’s complexity. Information can be a commodity, a product, a service, and an experience (Pine and Gilmore, 1999). Value increases along this continuum. Value is sometimes assigned to the form of packaging and delivery; at other times, value is assigned to the content itself regardless of the mode of transfer (Bates, 1989; Parker and Houghton, 1994). The value of information can be derived from exchange or from usage (Repo, 1989) and may be assessed normatively, realistically, or subjectively (Ahituv, 1989).

Information is the main subject of interest and work for librarians and information professionals. Many researchers believe that learning the economic aspect of information should be an integral part of information-related programs because “technology changes; economic laws do not” (Shapiro and Varian, 1999, p. 2). Researchers also propose that gaining a good understanding of the economic rules of information is important for the survival of librarians and information professionals. Knowledge of these so-called “new rules” (Kelly, 1998) will enhance the focus on information rather than on its containers. It will also provide the basis for librarians and information professionals to offer added-value products and services.

While the economics of information goods has high practical significance, it is also characterized by a substantial tradition of academic research and scholarship. Its study requires high commitment to reading scholarly articles published under various disciplines. It also requires an ability to apply the fundamental concepts to understand the rapidly changing online scene.

3.3. Learning strategies: deep and surface

This study analyzed learning processes based on Biggs' teaching-learning model (Biggs, 1993). Biggs suggested that a student's approach to the learning process is a combination of the motivation and the strategy that he or she adopts. In the present research, the authors distinguish between "deep" and "surface" learning approaches. These terms were first coined by Marton and Saljo (1976a,b), who distinguished them based on qualitative analysis of the differences in the students' approaches to written texts.

The deep learning strategy is characterized by the ability to relate new information to previously acquired knowledge, to study different aspects of the material in order to obtain the entire picture, to search for a relevant meaning and connect the material to daily life and personal experiences. Additional characteristics include the students' tendencies to use meta-cognitive skills, to develop learning materials that create a basis for new ideas, to offer other solutions from an inquisitive-critical perspective, and to search and discover their inner selves (Beishuizen and Stoutjesdijk, 1999; Biggs, 1993; Entwistle, 1977).

The surface learning approach is characterized by a student's tendency to choose the quickest way to accomplish the task, to acquire the learning material without asking in-depth questions, to study the material in a linear manner, to relate to minimal aspects of material or to a problem without showing interest or understanding it entirely, to learn by relying on memory and not on comprehension, and to be concerned with the time needed to fulfill the learning task (Biggs, 1993). This learning approach, which focuses on memorizing the main elements, requires few meta-cognitive skills.

One of the groups that participated in the present study included students from two master's programs: LIS and business/management. The study set out to explore whether students who used a deep learning strategy expressed positive attitudes toward the possibility of expanding the curriculum to include a non-traditional discipline.

4. Hypotheses

Hypotheses were tested at a level of $p < 0.05$ or better.

- H1: LIS stakeholders (students, faculty, and academic librarians) will have higher attitude scores toward traditional LIS areas such as search skills, while business/management stakeholders will have higher attitude scores toward business-oriented areas, including information economics.
- H2: Business/management school stakeholders will have higher attitude scores toward information economics than information studies stakeholders.
- H3: Information professionals from the business/industry sector will have higher attitude scores toward information economics than academic librarians.
- H4: A higher learning strategy score is associated with higher attitude scores toward information-related subject areas among students.
- H5: A higher learning strategy score is associated with high attitude scores toward information economics among students.

5. Procedures

The research was conducted in the first semester of the academic year 2005–6. Questionnaires were administered to three main groups of stakeholders: lecturers, students, and practitioners. These groups

represented both the supply and demand side of courses. The groups were further divided into two sub-groups each. Practitioners were divided into academic librarians (31) and information professionals working in business and industry (28 people randomly selected from the Israeli equivalent of SLA; organizational affiliation was checked to verify that they came from the industry/business sector). Students were divided into information studies (44) and business/management school (50) sub-groups. Lecturers were divided into information studies (25) and business/management school (12) sub-groups. Participants were from two universities in Israel that have both LIS and MBA programs.

The research tools used for the present study included a personal details questionnaire, a discipline attitude questionnaire (Questionnaire A), a motivation for studying information economics questionnaire (Questionnaire B, used only for the students), and a learning strategies questionnaire (Questionnaire C, used only for the students).

Questionnaire A elicited attitudes towards various areas of study in the field of information using a 5-point scale (1 = *area of study not important at all*; 5 = *area of study is very important*). This questionnaire consisted of 15 items and was identical for all three groups of participants (students, staff, and information professionals). The alpha Cronbach coefficient for this questionnaire was 0.86, which indicates high internal reliability.

Factor analysis (maximum likelihood) of the responses revealed four distinct dimensions. All items received factor loadings much higher than the threshold of 0.4. The authors decided to accept and use three of the four factors for further analysis. Based on judgment regarding the relationships between the various subject areas, the authors divided the fourth factor into two factors, while maintaining the threshold criterion. Creating the fifth factor allowed a better distinction between study areas related to search skills and information management. Subsequently, five factors were used for further analysis. Table 1 describes the factors and the items associated with them. Acronyms are used throughout the rest of this study.

The mean scores for each factor are reported in Table 2. Table 2 includes both the overall scores and the score of each main group.

The questionnaire on motivation for studying information economics (Questionnaire B) presented fine-tuned statements regarding attitudes towards studying information economics, again using a 5-point scale (1 = *disagree*, 5 = *agree*). Only the students received this questionnaire, since it pertained to participants enrolled in academic studies at the time of the study. This questionnaire consisted of 11 items. It was analyzed as a single factor or dimension, after factor analysis showed all items loaded on a single factor. The alpha Cronbach coefficient for this questionnaire was 0.90, indicating good internal reliability. The mean score on Questionnaire B was 2.91

Table 1
Factors identified from Questionnaire A

Factor/dimension	Acronym	Items
Information economics	InfoEcon	•Information economics •Marketing information services •Information as an economic asset •Economics of information goods
Competitive intelligence	CI	•Competitive intelligence •Searching business databases •Patents and trademarks
Information management	InfoMgmt	•Digital content management •Organizational information production •Organizational knowledge management systems
Search skills	Search	•Searching Sci/Tech databases •Advanced searching techniques
Business-related information systems	BIS	•Introduction to information systems •E-commerce •Information security

Table 2
Mean scores for each factor in Questionnaire A (standard deviation in parentheses)

Factor	Overall mean (N=178)	Students (N=87)	Staff (N=35)	Information professionals (N=56)
InfoEcon	3.67 (0.75)	3.74 (0.65)	3.80 (0.68)	3.49 (0.91)
CI	3.80 (0.83)	3.93 (0.59)	3.73 (0.70)	3.65 (1.14)
InfoMgmt	4.11 (0.73)	4.07 (0.68)	4.13 (0.63)	4.17 (0.86)
Search	4.41 (0.81)	4.33 (0.77)	4.27 (0.95)	4.64 (0.86)
BIS	3.69 (0.74)	3.87 (0.62)	3.80 (0.69)	3.33 (0.82)
Overall	3.89 (0.55)	3.96 (0.43)	3.91 (0.50)	3.78 (0.72)

(N=88, S.D.=0.73). Statements 1, 2, 4, and 9 received the highest scores, which ranged from 3.20 to 3.47.

The learning strategies questionnaire (Questionnaire C) was a previously validated instrument (Aharony, 2006b) consisting of two factors: deep and surface learning strategies. Each strategy had 10 items (alpha Cronbach was 0.79 and 0.74, respectively). This questionnaire was administered only to students because learning is a relevant motivator for this group of stakeholders. The mean scores were 3.37 for the deep learning strategy (N=87, S.D.=0.57) and 2.11 for the surface learning strategy (N=87; S.D.=0.54). A paired comparisons *t*-test showed a statistically significant difference between deep and surface learning strategies [$t_{(90)}=12.45, p<0.01$].

6. Results

Table 3 offers a brief summary of the main findings.

H1: One-way analysis of variance (ANOVA) showed that there was no statistically significant difference between the three groups regarding their overall views towards the five subject dimensions combined [$F_{(1,178)}=1.72, p<0.18$ n.s.]. Separate ANOVA for each of the five dimensions revealed a statistically significant difference among the three groups for the Search Skills [$F_{(1,178)}=3.32, p<0.04$] and Business-related Information Systems (BIS) [$F_{(1,178)}=10.66, p<0.01$] dimensions. Post hoc tests (using the Scheffé test) showed that attitudinal difference in Search Skills was mainly between students and information professionals. There was a difference in BIS attitudes between the information professionals and both other groups. The ANOVA results for Information Economics were not statistically significant [$F_{(1,178)}=2.46, p<0.09, n.s.$].

H2: *T*-tests were used to compare the mean scores of business/management school students and staff to information studies students and staff concerning their respective attitudes towards information economics. Table 4 summarizes the test results. Overall, there was no statistically significant difference between business/management school and information studies students and staff combined. However, analyzing the sub-groups separately revealed a

Table 3
Summary of the hypotheses tested

Hypothesis	Finding	Comments
H1	Partially supported	Rejected for the overall attitudes. Supported for Search Skills and BIS.
H2	Partially supported	Rejected for students and staff. Supported for the student groups. Business school students had more favorable attitudes.
H3	Supported	
H4	Supported	
H5	Supported	

Table 4
T-test results for mean attitudes towards information economics

Test group	N	Mean	<i>t</i> value	Significance
Students	44 business* 43 information*	3.88 3.59	2.10	0.04
Staff	12 business 22 information	3.73 3.82	-0.34	0.77, n.s.
Staff+students	56 business 65 information	3.85 3.67	1.49	0.14, n.s.

*"business" stands for the business school curriculum; "information" stands for the information studies curriculum.

difference between the student groups: Business/management school students gave information economics a statistically significant higher score.

H3: The result of an independent samples *t*-test shows clearly that information professionals working in the business/industry sector value the subject of information economics significantly higher (mean score=3.77) than academic librarians (mean score=3.24) [$t_{(27,29)}=-2.27, p<0.05$].

H4: Table 5 presents the mean scores for all attitudes towards subject areas. It also shows the learning strategies for the entire student group and for each sub-group.

H5: Table 6 provides the correlation coefficients between the factors of Questionnaire A (attitudes toward subject areas) and the factors of Questionnaire C (learning strategies) for the entire student group.

Table 6 shows fairly weak correlations between learning strategies and attitudes toward the various subject areas. A statistically significant, positive correlation was found between the deep learning strategy and two attitude factors: Information Economics and BIS. A statistically significant negative correlation was found between the surface learning strategy and three attitude factors: Overall Attitudes, Information Management, and Search Skills.

A linear regression analysis between the deep and surface strategies and the overall attitudes to the subject areas was statistically significant. Approximately 7.8% of the variance of the overall attitudes was accounted for by its linear relationship with the surface learning strategy; 6.4% of the variance was explained by the deep learning strategy. Subsequent linear regression analyses were performed for 4 of the 5 subject areas (excluding Competitive Intelligence, because no significant correlation was found). A statistically significant regression model was produced for Information Management, where 7.5% of the variance was explained by the surface learning strategy. In addition, 8.7% of the Search Skills variance was explained by the surface learning strategy, and 13.4% of the variance of the BIS attitudes was explained by the linear relationship with the deep learning strategies.

The correlations between the learning strategies and the attitudes for studying information economics were 0.32 ($p<0.01$) for the deep

Table 5
Mean scores for each factor in Questionnaires A and C for the entire student group and for the business and information studies sub-groups (standard deviation in parentheses)

	All students (N=87)	Information studies students (N=43)	Business school students (N=44)
InfoEcon	3.74 (0.65)	3.59 (0.56)	3.88 (0.70)
CI	3.93 (0.59)	3.95 (0.62)	3.92 (0.56)
InfoMgmt	4.07 (0.68)	4.29 (0.57)	3.86 (0.70)
Search	4.33 (0.77)	4.69 (0.55)	3.99 (0.80)
BIS	3.87 (0.62)	3.92 (0.59)	3.83 (0.64)
Overall Questionnaire A	3.96 (0.43)	4.03 (0.37)	3.88 (0.48)
Deep strategy	3.37 (0.57)	3.35 (0.60)	3.39 (0.54)
Surface strategy	2.11 (0.54)	2.10 (0.59)	2.12 (0.48)

Table 6
Correlation coefficients between attitude to subject areas and learning strategies for the entire student group ($N=90$)

	Overall	InfoEcon	CI	InfoMgmt	Search	BIS
Deep strategy	0.20 (n.s.)	0.25*	0.01 (n.s.)	-0.02 (n.s.)	-0.02 (n.s.)	0.37**
Surface strategy	-0.27*	-0.14 (n.s.)	-0.18 (n.s.)	-0.23*	-0.25*	-0.20 (n.s.)

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

strategy and -0.03 (n.s.) for the surface strategy. The regression model was statistically significant. It showed that 12.4% of the variance in attitudes towards information economics was explained by the deep learning strategy.

7. Discussion

The high overall attitude score toward various information-related topics indicated that most of the subject areas seemed important to most participants. In general, the traditional LIS subject areas of Search Skills and Information Management received higher scores than business-oriented areas. This finding reflects the LIS programs' focus on traditional rather than non-traditional disciplines (Crosby, 1999; Hill, 1999; Tenopir, 2004). Within the business-related factors, Information Economics received scores similar to established areas of study.

A statistically significant difference among the three groups was observed for Search Skills and BIS. This supported H1. The difference in attitudes for Search Skills was mainly between students and information professionals, suggesting that practical experience highlights the value of search skills. Students may not be fully aware of the importance of searching in their future employment, or there may be a difference between the two sub-groups that is lost in analyzing all students together. Although there was no formal hypothesis for this particular question, researchers performed a *t*-test. The *t*-test showed that information studies students gave a statistically significant higher score to Search Skills than the business/management students. There seemed to be a natural difference between the student sub-groups; each group reflected the perceived importance of Search Skills in the context of their future profession.

Search Skills and Information Management received the highest scores by all three groups. This indicated a definite desire by all stakeholders to learn more in areas that seem more practical and less academic. This is a surprising result, especially for the staff group. Possibly the current environment of accelerated development of search technologies and search companies (Google™, Yahoo!®, MSN®) has drawn more attention to this particular area. Another possible explanation is that a preference for more practical areas of study may be connected to a preference for more experiential, hands-on learning rather than more academic, formal learning processes. The finding about Information Management may reflect a tendency among the three groups to change the landscape of traditional roles and titles associated with librarians and information specialists. These ideas call for further research to seek balance between theory and practice in information-related curricula.

There was no statistically significant difference among the three groups relating to the main topic of interest, information economics. This result is very encouraging—it indicates that information professionals are open to a field that is completely new to them academically but may be somewhat familiar to them from daily practice. This finding may support Abell and Hall (2006), who claimed that understanding the emerging e-information job market may help information specialists extend their professional reach and aid academic programs in designing new curricula.

Table 4 shows that business school students had a slightly more positive (statistically significant) attitude toward this subject area than information studies students. However, the mean score for information studies students was fairly high (3.57 on a 5-point scale). This indicates that they acknowledged the importance of information economics to their curriculum.

Previous researchers have suggested that LIS schools that offer alternatives to the traditional curricula are more successful in meeting the emergent market for information professionals (Cronin, 1993). Still, only a few LIS programs provide courses dealing with business competencies, information brokering, or business management (Blankson-Hemans and Hibberd, 2004). This study's findings indicate an awareness and understanding among LIS students toward the importance of information economics as part of the curriculum.

The findings in Table 5 indicate that more master's students in the sample were deep learners than surface learners. Scores for the information science and business/management curricula were similar, indicating that most learners at this level of education prefer the deep learning strategy.

While Table 6 shows fairly weak correlations between learning strategies and attitudes to the various subject areas, it suggests that the correlations with the deep learning strategy tend to be positive. Correlations with the surface learning strategy tend to be negative. Students who are inclined to use the surface learning strategy have lower attitudes overall to all study areas, especially information management and search skills. Students who exhibit a deep learning strategy have higher overall attitude scores, particularly towards information economics and the BIS dimension. This finding supports H4. The Cronbach coefficient indicated high reliability of the scales; however, the correlations and explained variance were moderate. The authors assumed that Questionnaire A had good face validity, yet the results suggested that further research is needed to validate it. Such validation may lead to a stronger relationship with the learning strategies variables.

H5 was supported by the finding that students who scored higher on the deep learning strategy scale tended to have higher attitudes toward studying information economics. This result is not surprising. Some of the deep learners' characteristics reflect the abilities to reach a complete understanding of the subject; to study different aspects of the material in order to see the entire picture; and to search for relevant meaning and a connection between the learning material, daily life, and personal experiences (Beishuizen and Stoutjesdijk, 1999; Biggs, 1993; Entwistle, 1977). These characteristics would be likely to improve attitude scores.

The present study shows that the overall attitude scores for various information-related subjects are high in both information science and business/management communities and among all stakeholders. Information Management and Search Skills generated more positive attitudes than the other topics. A deep learning strategy characterized students from both schools and was associated with higher attitude scores for information economics. As deep learners, master's students would welcome a broader professional horizon in the curricula as they understand the importance of this unique subject. These findings are encouraging since they suggest a higher than expected level of interest in information and its associated subject areas. The results may explain a tendency toward change and openness to new information-related areas, especially within LIS education.

Examining various LIS programs around the world shows that many have introduced new courses focusing on the topic of information. For example, curricula include courses such as social context of information technology, changes in use and user behavior, human-machine interactions, information technology, information economics, communication skills, information policy, and information brokering (Jeng and Kehoe, 1997; Rehman, 2000; Theakston, 2000). The current research was conducted 11 years after Weech's (1994) finding that only six LIS schools in the U.S. offer courses on economics

of information. The researchers hoped that after more than a decade, some LIS curricula in Israel would include business and economics related courses. Unfortunately, no LIS program offers such a course and only one MBA program does (out of about 30 MBA programs). The results of this study show a positive attitude and a high level of interest toward the subject of economics of information. This fact is apparently neglected by LIS and MBA schools in Israel.

Expanding the curriculum would train new generations of librarians with competencies and skills that fit a modern, dynamic, and changing work environment. In addition, a review of the situation of LIS schools in Israel reveals a gloomy picture about librarians' and information professionals' education. Only one academic program provides bachelor's, master's, and doctoral degrees in LIS; the other major academic program closed last year. Other professional programs offered by colleges and universities provide a professional certificate, not an academic degree. It seems that the LIS curriculum did not position itself well enough in Israel; it did not respond fast enough to the rapid changes in the information landscape. Drawing a connection to the business context of information might make the LIS curriculum seem more relevant.

The results of this research are limited to Israeli schools and may be subject to cultural influences. To draw broader international insights, this research should be repeated in other countries. Another limitation is the small number of lecturers in the current survey, which placed constraints on analyzing this group of stakeholders.

8. Conclusion

Master's programs in both LIS and business/management should include information economics in the curriculum. LIS schools may also consider offering a continuing education course on the economics of information goods. Understanding the economic influences on the information industry would help practicing librarians and information professionals adjust to the new and ever-changing LIS environment, as well as help them offer new services.

References

- Abell, A., & Hall, H. (2006, November). *New role realities: Avenues for extending the reach of information specialists*. Paper presented at the American Society for Information Science & Technology Annual Meeting, Austin, TX.
- Aharony, N. (2006). The librarian and the information scientist: Different perceptions among Israeli information science students. *Library & Information Science Research*, 28, 235–248.
- Aharony, N. (2006). The use of "deep" and "surface" learning strategies among students learning English as a foreign language in an Internet environment. *British Journal of Educational Psychology*, 76(2), 851–866.
- Ahituv, N. (1989, December). *Assessing the value of information: Problems and approaches*. Paper presented at the Proceedings of the Tenth International Conference on Information Systems, Boston, MA.
- Barlow, J. P. (1993). *Selling wine without bottles: The economy of mind on the global net*. Retrieved April 10, 2006, from <http://homes.eff.org/~barlow/EconomyOfIdeas.html>
- Bates, B. J. (1989). Information as an economic good: A reevaluation of theoretical approaches. In B. D. Ruben & L.A. Lievrouw (Eds.), *Mediation, information, and communication*, Vol. 3 (pp. 379–394). New Brunswick, NJ: Transaction.
- Beishuizen, J. J., & Stoutjesdijk, E. T. (1999). Study strategies in a computer assisted study environment. *Learning and Instruction*, 9(3), 281–301.
- Biggs, J. (1993). What do inventories of students' learning process really measure? A theoretical review and clarification. *British Journal of Educational Psychology*, 63, 3–19.
- Blankson-Hemans, L., & Hibberd, B. J. (2004). An assessment of LIS curricula and the field of practice in the commercial sector. *New Library World*, 105(7/8), 269–280.
- Cleveland, H. (1982). Information as a resource. *Futurist*, 6(3/4), 1–5.
- Cronin, B. (1993). The emergent market for information professionals: Educational opportunities and implications. *Library Trends*, 42(2), 257–276.
- Cronin, B., Stiffler, M., & Day, D. (1993). The emergent market for library and information professionals: Educational opportunities and implications. *Library Trends*, 42, 257–276.
- Crosby, J. H. (1999). SLA library schools survey reveals future information needs (Communications outlook). *Information Outlook*, 3(8), 12.
- Entwistle, N. J. (1977). Strategies of learning and studying: Recent research findings. *British Journal of Educational Psychology*, 25(3), 225–237.
- Geri, N. (2006). *Selected topics in economics of information goods*. Raanana, Israel: The Open University of Israel.
- Hill, J. S. (1999, June). *Some perceived weaknesses in the current system of accreditation*. Paper presented at the Congress on Professional Education: Focus on Education for the First Professional Degree, Chicago, IL.
- Jeng, L. H., & Kehoe, C. A. (1997). The visible college: Educating information brokers. *Journal of Education for Library and Information Science*, 38(1), 66–71.
- Kellogg-ALISE Information Professions and Education Reform Project (2000). *Educating library and information science professionals for a new century: The KALIPER report*. Reston, VA: Association for Library and Information Science Education.
- Katzer, J. (1990). Developing and maintaining interdisciplinary relationships. In J. M. Pemberton & A.E. Prentice (Eds.), *Information science: The interdisciplinary context* (pp. 84–89). New York: Neal-Schuman.
- Kelly, K. (1998). *New rules for the new economy*. New York: Viking.
- Leviton, K. B. (1982). Information resources as 'goods' in the life cycle of information production. *Journal of the American Society for Information Science*, 33, 44–54.
- Marton, F., & Salijo, R. (1976). On qualitative differences in learning: 1 – Outcome and process. *British Journal of Educational Psychology*, 46, 4–11.
- Marton, F., & Salijo, R. (1976). On qualitative differences in learning: 2 – Outcome as a function of the learner's conception of the task. *British Journal of Educational Psychology*, 46, 115–127.
- Myburgh, S. (2003). Education directions for new information professionals. *Australian Library Journal*, 52(3). Retrieved February 27, 2008, from <http://www.alia.org.au/publishing/alj/52.3/full.text/myburgh.html>
- Parker, J., & Houghton, J. (1994, October). *The value of information: Paradigms and perspectives*. Paper presented at the 57th Annual Meeting of the American Society for Information Science, Alexandria, VA.
- Pine, B. J., & Gilmore, J. (1999). *The experience economy: Work is theatre & every business a stage*. Boston, MA: Harvard Business School Publishing.
- Porter, M. E. (1980). *Competitive strategy: Techniques for analyzing industries and competition*. New York: The Free Press.
- Porter, M. E., & Millar, V. E. (1985). How information gives you competitive advantage. *Harvard Business Review*, 63(4), 149–160.
- Raban, D. R. (2007). User-centered evaluation of information: A research challenge. *Internet Research*, 17, 306–322.
- Rafaeli, S., & Raban, D. R. (2003). Experimental investigation of the subjective value of information in trading. *Journal of the Association for Information Systems*, 4(5), 119–139.
- Rafaeli, S., & Raban, D. R. (2005). Information sharing online: A research challenge. *International Journal of Knowledge and Learning*, 1(1/2), 62–79.
- Rehman, S. (2000). Kuwaiti response to the expanding domain of information studies. *Education for Information*, 18(1), 53–66.
- Repo, A. J. (1989). The value of information: Approaches in economics, accounting, and management science. *Journal of the American Society for Information Science*, 40, 68–85.
- Shapiro, C., & Varian, H. R. (1999). *Information rules: A strategic guide to the network economy*. Boston: Harvard Business School Press.
- Tenopir, C. (2004). I never learned about that in library school: Curriculum changes in LIS. *Online*, 24, 42–46.
- Theakston, C. (2000). Why library and information science (LIS) is losing ground to other academic disciplines: The case for the prosecution. *International Journal of Information Management*, 20, 399–404.
- Van House, N. A., & Sutton, S. A. (1996). The panda syndrome: An ecology of LIS education. *Journal of Education for Library and Information Science*, 37(2), 131–147.
- Wallace, D.P. (1994, October). *The economics of information for the information professions*. Paper presented at the 57th Annual Meeting of the American Society for Information Science, Alexandria, VA.
- Weech, T. L. (1994). The teaching of economics of information in schools of library and information science in the USA preliminary analysis. *Proceedings of the ASIS Annual Meeting*, 31, 70–75.