Softening the MIS Curriculum for a Technology–Based Profession

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INTRODUCTION

Information systems[1] (IS) professionals help to achieve business and organizational goals through the use of information technology. The information systems profession is team oriented and project based.

Students are first and foremost concerned with future employability. Employers, on the other hand, often indicate that they want new graduates who can be immediately productive in their environment.

Are the aspirations of students and employers fundamentally incompatible? How can IS educators help to find a workable and satisfying balance? How can information systems educators soften and refine the design of information systems curricula to achieve a better fit between the workplace and the university 'studyplace'?

BACKGROUND: BALANCING THE MIX OF HARD AND SOFT SKILLS IN THE IS/IT CURRICULUM

The preparation of information systems (IS) professionals must encompass a body of knowledge and a repertoire of technical and 'soft' skills identified by various professional bodies (Cheney, Hale & Kasper, 1990; Davis, Gorgone, Feinstein & Longenecker, 1997; Gorgone & Gray, 1999; Underwood, 1997; Lidtke, Stokes, Haines & Mulder, 1999; Cohen, 2000; Mulder & van Weert, 2000; ACM-AIS, 2002).

The persistent research finding that employers want graduates who possess better business skills is often interpreted by academics to mean that more traditional, formal business subjects such as accounting, economics, business finance, and marketing should be taught alongside traditional technical or 'hard' skill subjects such as systems analysis/design and programming in particular languages (Trauth, Farwell & Lee, 1993; Van Slyke, Kittner & Cheney, 1997). On the other hand the 'soft' areas such as teamwork, communication skills, ability to accept direction, and others are somehow 'picked up' along the way through an unspecified, osmotic process and not addressed as part of a curriculum.

The past few decades have been characterized by a rapidly and constantly changing business environment. Lee, Trauth, and Farwell (1995) argued that technological and sociological developments facilitated by evolving information technology and changing business needs has made it necessary for IS professionals to develop a wider range of non-technical skills than was previously the case. Similar views have been expressed by many others, including Burn, Ng, and Ma (1995), Cafasso (1996), Lowry, Morgan, and FitzGerald, (1996), and Morgan, Lowry, and FitzGerald (1998).

The work presented here is part of an ongoing research program that investigates the views of major IS curriculum stakeholders, including employers, IS practitioners, currently enrolled students, and academics. The data were gathered from a survey of IS practitioners and IS decision makers in Australia, and covered all industry sectors as well as business unit sizes. We argue that IS practitioners, employers, and students see little value in some of the more formal business subject areas that often form the core of an IS degree offered in a business or commerce faculty. These stakeholder groups see more value in the development of 'soft skills' useful in client interaction. The findings have serious implications for IS educators and IS curriculum design (Turner & Lowry, 1999a, 1999b, 2000, 2001, 2002, 2003).

IS CURRICULUM CONTENT AND DELIVERY IN THE FIRST DECADE OF THE 21ST CENTURY

In a 1999 study, the authors began to suspect that the 'other business skills' desired of new IS graduates were not synonymous with traditional business curriculum subjects. Study results indicated that of nine business subjects that are typically included in IS curricula, only three—*Accounting*, *Business Ethics*, and *Management*—were judged to be important by students and employers.

Follow-up studies were conducted in 2001 and 2002 to further explore the 'other business skills' aspect of the IS curriculum (Turner & Lowry, 1999b, 2001, 2002, 2003). Tables 1 and 2 show comparative ratings of 'hard' or traditional IS and business subjects, and of 'soft' skills by information systems and technology professionals and employers.

COMPARATIVE RATINGS OF ACADEMIC SUBJECTS BY IS PRACTITIONERS AND EMPLOYERS

The research instruments contained two sections pertaining to academic preparation of graduates. These two sections separately covered the technical areas of an IS business degree and the other academic areas that are not specific to IS. Subjects responded to each question using a seven-point Likert scale (1= irrelevant, 7 = essential). Table 1 shows the mean and standard deviation of ratings of academic subjects and soft skills by *Information Systems/Information Technology (IS/IT) Professionals* and *IS/IT Employers.*

Of the 14 subjects/skills in Table 1 that achieved a mean rating of 5.0 or more, the highest rating by both practitioners and employers was achieved by *Communications & Report Writing,* a soft skill. *Analysis and Design,* a core IS academic subject, was rated highly by both IS/IT professionals and employers. The value placed on these two subjects is consistent with earlier (1999) findings by the authors.

Eleven technical subjects and two 'other business subjects'—management and business ethics—achieved mean ratings of 5.0 or more. These higher ratings suggest

Table 1. Comparative ratings of academic subjects by IS practitioners and employers

Skills	IS/IT Professionals		IS/IT Employers	
	Mean	σ	Mean	σ
Communications & Report Writing	6.02	1.05	6.09	0.81
Analysis & Design	5.87	1.09	5.63	1.26
Client Server Applications	5.67	0.92	5.37	1.15
Business Applications	5.65	1.11	5.76	1.20
Use Operating Systems	5.60	1.10	5.39	1.27
Database Design	5.55	1.25	5.12	1.16
Management	5.54	1.03	5.20	1.10
Knowledge of PC Apps	5.43	1.22	5.41	1.37
Project Management	5.43	1.16	5.60	1.24
E-Commerce/E-Business Development	5.33	1.23	4.78	1.38
Apply OOPs	5.26	1.25	4.61	1.51
LAN & Data Communications	5.22	1.27	5.55	1.22
Large System Experience	5.12	1.19	4.54	1.53
Business Ethics	5.07	1.57	5.23	1.52
Web Design/Development	4.96	1.54	4.67	1.15
Organizational Behavior	4.90	1.41	4.92	1.34
Data Mining/Data warehousing	4.76	1.36	4.66	1.36
Apply 3GLs	4.70	1.41	4.15	1.58
CASE Applications	4.51	1.32	3.80	1.42
Knowledge Base/Expert Systems	4.49	1.42	4.20	1.37
ERP Implementations & Operations	4.48	1.39	4.33	1.61
Marketing	4.35	1.52	4.39	1.34
Business Finance	4.30	1.50	4.54	1.47
Operations Research	4.29	1.26	4.32	1.26
Mathematical Modeling	4.25	1.44	3.97	1.49
International Business	4.24	1.59	3.69	1.56
Business Statistics	4.18	1.40	4.33	1.38
Accounting	4.13	1.55	4.68	1.38
Business or Commercial Law	4.07	1.55	4.12	1.45
Psychology	3.70	1.76	3.85	1.46
Economics	3.63	1.50	3.68	1.47
Foreign Languages	3.15	1.78	3.04	1.46
n=	**136**		**138**	

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