TOWARDS THE INFORMATION LITERATE GRADUATE: RETHINKING THE UNDERGRADUATE CURRICULUM IN BUSINESS STUDIES

Bill Johnston
University of Strathclyde

ABSTRACT

This paper explores the case for information literacy as a core discipline of undergraduate study, and identifies prospects for curricular renovation. It draws on experience from two cohorts of year three business school undergraduates at the University of Strathclyde taking a credit-bearing elective class in Information Literacy.

INTRODUCTION AND PERSPECTIVES

This paper argues that the discourse of information literacy offers the basis of a flexible and dynamic course of undergraduate study that is responsive both to the Lifelong Learning movement, and the policy demand of national governments for an economically relevant higher education curriculum. We also contend that simply offering information literacy as yet another course option within business degree programs may be insufficient for the scale of change entailed by the Lifelong Learning movement and the constellation of factors represented by the ubiquitous term, *Globalisation.*

This perspective is grounded in the literatures of both information literacy and educational development, and shaped by two years experience of successfully teaching a credit-bearing class titled *Information Literacy* to year three undergraduates within the Strathclyde University Business Faculty. Our perspective is broadened by our membership of the interdisciplinary design and teaching team currently implementing the first year of a sequence of compulsory *Integrative Studies* classes. These are introducing a common spinal core of 'key skills' development for the first three years of undergraduate study within the faculty. However, neither of these strands can be regarded as complete or final blueprints for the business curriculum. Therefore, our views as we express them in this paper, are best regarded as reflections on our fieldwork, and an invitation to rethink the nature of an education for business in the 21st century.

COMMON GROUND AND SHARED PATHS

National perspectives

There are powerful, but often disparate, external forces levering alternatives to 'traditional' university education in the UK:

- new policy perspectives on the connection between education and economic activity with a growing trend towards preparation for lifelong learning;
- State demands for substantial growth in student numbers, and a revision of the purposes and content of their education;
- accountability for resources, quality, and the economic relevance of learning outcomes – each requiring careful attention to the extent to which curricular innovation can be generalised;
- theoretical revision of the nature and importance of student learning to academic teaching and assessment practices;
- explosive growth of the quantity and forms of knowledge allied to the rapid advance of relevant information technologies.

The UK government's policy on higher education reflects the view that a major purpose of that education is to equip students to contribute to an advanced, adaptable, knowledge-based global economy. The National Committee of Enquiry into Higher Education (1997) – commonly known as The Dearing Report – describes these purposes of higher education in terms of what people will be able to do; thus undergraduates are to become skilled in:

- communication,
- numeracy,
- the use of information technology,
- learning how to learn.

Programs to develop such skills rest on the assumption that it is both possible and desirable to teach generalisable abilities connected with employability and citizenship. This description of transferable knowledge and forms of thinking as 'key skills' currently dominates discourse in the UK.

In our view, the change forces outlined above have reached a stage of take off into sustained growth, and can no longer be treated as passing pressures to be accommodated or criticised within existing conceptions, structures, and methods. In the UK, for example, this change agenda, begun during the last Conservative period of Government (1979-1997), has survived the election of New Labour, and looks set to embrace devolved political as well as administrative structures within the United Kingdom.

The UK is clearly not alone in holding such a perspective. Teichler (1999) notes that the issue of connections between higher education and employment is currently a key topic internationally in the discourse of innovation and development in higher education practice. He concludes that the dominant trend is to "devote greater attention to generic competencies, social skills and personality development, prepare students for the growing globalisation and internationalisation, and serve students through an increasing variety of means beyond classroom teaching and learning."

'Skills' – a critical thinking perspective

Whilst three of the four Dearing key skills are at the root of our information literacy class (numeracy was excluded), explicitly stated in the aims and objectives of the class and used to show relevance to prospective students, our thinking and practice has sought to embrace other accounts of 'skills'. In particular, we have been influenced by notions of critical thinking, student centred learning, facilitative practice as teachers, and interdisciplinary perspectives on degree programs. This account of the educational development literature elaborates these influences.

In much of the literature on learning and teaching in higher education, good thinking is *not* described as sets of skills; rather, it is implied that good thinking involves students being able to engage in self-directed transformations of understanding of aspects of the world. Many writers imply that thinking is intimately connected with subject content or other relevant contexts (Ramsden, 1992; Laurillard, 1993). They imply that learning to think involves learning to use content in successively more sophisticated ways of understanding the world. Barnett (1994) argues that a major teaching goal should be the development of wisdom, defined as "a form of deep reflection, collective exchange and a recognition of or perhaps even a critique of inner values." Laurillard, in a similar vein, implies that learning to think involves developing a sound knowledge base and an understanding of how the knowledge base is constructed.

Harvey et al. (1997) describe what employers value in terms of forms of thinking which enable certain kinds of acting: employers seem to value staff who are able to engage in critical, analytic thinking which can add value to organisations. In some of the vast literature on thinking, the term 'critical thinking' is used to encompass a wide variety of abilities which seem to include those which the 'key' skills movement wants to develop. Some conceptualisations of critical thinking would describe aims acceptable to many stakeholders, in that they incorporate the notion that disciplinary knowledge and forms of thinking are intimately related and inter-dependent. (Drew, 1998, Hyland & Johnson, 1998; Bonnett, 1995; Gardner & Johnson, 1996).

In other readings, 'key skills' are encompassed by a description of critical thinking as reasonable, reflective thinking, focusing on task, people or belief. It is assumed that this sort of thinking is brought to bear in identifying a problem and its associated assumptions, clarifying and focusing the problem, analysing, and understanding and making use of inferences and inductive and deductive logic, as well as in judging the validity and reliability of the assumptions, sources of data, or information available. Evaluation is seen as a core ability. Attitudes or dispositions such as a "spirit of inquiry" are also seen by some writers in the field as very important (Perkins et al. 1993). For instance, critical thinking involves broad dispositions, transferable over various domains such as 'being open minded', 'drawing unwarranted assumptions cautiously' and 'weighing the credibility of evidence'. All these abilities appear to pervade key skills such as effective communication. Graduate jobs often involve justifying the reasons for choosing between alternative courses of action, and this in turn involves explaining and challenging assumptions, and weighing up evidence.

Implications for teaching and learning

We are concerned that the conceptualisation of UK higher education's purposes in terms of four sorts of skills or competencies, tends to encourage a view that it is a relatively straightforward matter to design higher education curricula in ways that enable undergraduates to acquire such skills and thereby behave as the sort of effective employees envisaged in the Dearing Report. Simply 'bolting on' skills requirements, either through parallel skills training courses or the inclusion of team working, presentation, and other communication skills in extant discipline-based courses, can appear at first glance to be all that is needed to meet the pressure for skills relevance and employer friendliness exerted by broadly-based national statements like The Dearing Report.

By contrast, the sorts of student activities which might promote good thinking have been well described (Gibbs, 1992; Ramsden, 1992; Laurillard, 1993; Tait & Knight, 1996; Wisker & Brown, 1996; Boekaerts, 1997). What such approaches have in common is that they encourage students to find questions worth pursuing, to pursue their questions through self-directed search and interrogation of knowledge, and to debate their emerging views with others. The discourse includes description and discussion of lecturer's and student's conceptions of teaching and learning (Kember, 1997).

In deploying ideas from the educational development literature, we have emphasised notions of critical thinking over skills and competencies, and facilitation of student learning over teacher-dominated instruction. We shall see how this discourse of educational development connects with that of the information literacy community.

Information literacy theory and pedagogy: definitions of information literacy

Information literacy has been defined in various ways by different authors (see, for example, Bruce, 1994, 1997a; 1997b; Breivik et al., 1998; Mutch, 1997). Our concept of information literacy includes information seeking, information management, decision making, critical thinking, censorship and bias in the media, business ethics, communication skills, and learning to learn. It is thus a concept that embraces and grows out of earlier work in library and bibliographic instruction, information science, educational theory and practice, and emphasises the importance of dialogue and the development of critical thinking.

Information literacy as a field of study has been more actively pursued in North America and Australia than it has been in the UK. In the USA, there have been two major initiatives from the library sector, the Institute for Information Literacy and the National Forum on Information Literacy (the latter particularly well established: see the reference list for the website addresses), which encourage teaching of information literacy both in schools and in higher education. The US Computer Science and Telecommunications Board's recent report on *Being fluent with information technology* (Committee on Information Technology Literacy, 1999) also covers an area which would fall within many people's definition of information literacy (as opposed to information technology).

Bruce (1997a) identifies three approaches to information literacy.

- The behaviourist approach. In this view, the information user, to be described as information literate, must exhibit certain characteristics and demonstrate certain abilities, so there is emphasis on measurable skills.
- The constructivist approach. The learner constructing their own picture of the domain through, for example, problem-based learning.
- The relational approach. This starts by describing a phenomenon in terms of the way in which it is experienced; taking a phenomenological approach.

Bruce favours the relational approach, and elaborates her preference through a detailed phenomenographic research study. Whilst seeing merits in the constructivist approach, she feels that this leads to the weakness of still having to define the area with reference to characteristics exhibited by individuals.

One of the distinctive features of behaviourist definitions of information literacy has been to personify it as a set of personal attributes, and this chimes with the personal transferable 'skills' and 'competencies' discourse outlined in the previous section. For example, the draft *Information Literacy Competency Standards for Higher Education* drawn up under the aegis of the US Association of College and Research Libraries (1999) define information literacy in terms of the desirable characteristics of an information literate person. For each area, the draft standard lists performance standards and measurable outcomes. Whilst the standards cover areas which are certainly relevant to information literacy, they encourage a 'tick the box' mentality that does not really seem conducive to lifelong learning.

Whilst having sympathy with Bruce's arguments, we felt that constructivism was helpful as an approach to course delivery. Biggs (1999) contrasts constructivist-driven and phenomenologically-driven teaching and concludes that if educators want "a framework to aid reflection: a theory of learning that is broad-based and empirically sound, and that easily translates into practice" then "that means constructivism" (p.12) although he feels that there is much in common between the two approaches. Brandt (1997) puts forward an argument for taking a constructivist approach specifically in the area of information searching. He highlights the need for students to construct and develop mental models for this area, where success depends on being able to grasp underlying concepts and test alternative solutions, rather than follow the same steps every time.

However, Bruce (1997a) herself notes that "The relational model of information literacy may also be used productively by educators advocating constructivist models of learning"(p.3). We feel that

this approach to course *delivery* does not mean that a solely constructivist approach has to be taken to the exploration and definition of information literacy as a subject domain. We also adopted a number of the strategies identified by Marton & Ramsden and summarised by Bruce (1997a) as being part of a relational approach (e.g. helping students to recognise how they are conceiving information literacy; presenting the student with new ways of seeing).

Teaching designs and information literacy

At the institutional level, the powerful shaping forces listed at the start of the paper have led to effort in seeking out new models and forms of education. The forms that such alternatives might take seem to fall into two broad project categories:

1) adaptations of existing curricular programs aimed at renovating teaching, learning and assessment practice, but largely accommodated within existing institutional program structures and modes of attendance;
2) apparently-radical departures from current forms, mainly constellated around the discourse of computers and information technology (C&IT) in education, and drawing on experience gained in distance education.

This pattern can be seen in responses to the challenge of stimulating information literacy in students. A typology of designs can be proposed as follows.

1) Contextualisation orientation: starting with the view that skills development requires content and context otherwise it remains atomised, superficial, and undervalued; and that disciplinary knowledge is the obvious source of content and context (e.g. Hepworth (1999) or Robertson (1999). This fits in with the adaptation model outlined above.
2) Information technology orientation: the emphasis has been on the IT skills element of information literacy, without reference to underpinning theory. This approach could be seen as a continuation of library instruction, bibliographic instruction, and user education activity that has been carried out by libraries for many years. In some cases, it seems to be viewed as a more radical development, but the radical element may simply be the application of IT (e.g. remote teaching via the Internet), rather than the approach to the curriculum overall, or the underlying philosophy of teaching and learning.

The problem of information literacy being perceived as an 'add-on', skills-based, topic is illustrated by Brancolini & Heyns (1998) at Indiana University. The authors note the school's refusal to add a credit-bearing class, and the inadequacy of one-off sessions incorporated into other classes. There seem to be issues of politics and status: the class is not being proposed by faculty members and is evidently not perceived as being a 'real' subject of study that should have priority in the curriculum. The coping strategies which the program's proposers adopted are admirable, but are vulnerable, in particular, to changes in personnel.

At Strathclyde we felt that the most effective response was to concentrate on a stand-alone, credit-bearing class, since this would signal that information literacy was the 'real' subject (not an adjunct) and the credit-bearing nature of the class would enable us to use assessment to aid the learning process and motivate students.

Other stand-alone classes have been developed. For example, Wykoff & Diller (1998) describe a credit-bearing class for undergraduates at Washington State University Vancouver (USA). It covers searching, evaluation, the nature of information, and the ethics of being an information publisher. However, one characteristic of their institution is its relatively small size: 1,300 students. Wiggins (1992) notes the success of information literacy programs at North American *colleges*, and outlines some key challenges for universities, where "it is much more difficult, if not impossible, to reach every student."

As explained above, the strategy for our teaching, learning, and assessment had constructivist, and relational elements, together with an emphasis on critical thinking.

THE INFORMATION LITERACY CLASS – A CURRICULUM INNOVATION

The information literacy class has its origins in our desire to act on the Dearing Report's key skills agenda (see above) as part of the university's overall strategy for undergraduate development. There is direct reference to Dearing in the class outline and discussion of the nature of key skills during the class. The information literacy class was researched and developed during 1997/98. An account of its development is provided by Johnston & Webber (1999). The class was offered to undergraduate students within the Business School during first semester Session 1998/99 and 1999/2000. Semester one runs from late September to mid-December giving twelve weeks of teaching and assessment time. Numbers were healthy in both sessions, with approximately 50 students in each year.

The information literacy class

The aim of the class is to provide students with a foundation in information seeking and communication skills to enable more confident and competent performance during degree studies, enhance employability, and contribute to their capacity for lifelong learning and continuing professional development. The class emphasises development of technical competence in the selection and use of information strategies and technologies, but places great importance on evaluation of information in relation to specific contexts, needs, and uses. The course links guided reading of selected research papers to lectures, computer labs, and tutorial interactions, and uses the Web and e-mail as topics of study and modes of student communication and assessment; engaging students with learning theory.

The teaching strategy adopted, engages students in active development and regulation of their learning rather than passive responses to pre-packaged units and examination of recall. The emphasis during lecture, tutorial, and laboratory meetings is on collaboration, brainstorming, discussion, and reflection on learning process, as well as presentation of subject matter. Concepts of learning and their implications for teaching practice, course design, and information management form an important strand in the literature on information literacy, so students are involved in directly relating educational ideas to their own course experiences, and to their prior educational experiences.

The teaching and learning strategy is reinforced and integrated by the nature of the assessed assignments. Both the individual and group assignments require students to select disciplinary topics and business organisations for investigation and evaluation, negotiate topics with tutors and with other students for the team assignment, work individually and as team members, contribute to the course website and e-mail discussion list, apply concepts and techniques critically, and include reflective accounts of their learning processes in all written reports.

There is a broadly-expressed *defining framework of four linked perspectives on Information Literacy* to guide students' understanding and to structure sections of assignment reports. These are as follows.

i. The Information Literate Person.
ii. The Information Economy.
iii. Lifelong Learning.
iv. Cultural Change.

This construct allows the class tutors considerable flexibility in the choice of content and issues, and the inclusion of guest lecturers to reflect differing accounts of information literacy from different professional roles. It also encourages students to develop their own perspectives, opinions, and alternatives.

This brief overview of the class can be enhanced by looking at our information literacy website at http://www.dis.strath.ac.uk/literacy/ (the class website is only available within Strathclyde). This offers a richer picture and also contains material created out of classroom discussions with students, and not reported here.

For evaluation of the class, we drew on individual entry level questionnaires, whole class brainstorms, discussion in tutorials and labs, formal feedback sessions in class, and our analysis of the reflective sections of both sets of assignments. The objectives and content of the class were accepted, although students tended not to express great interest in the Cultural Change dimension of the four defining perspectives of class content, unless pressed to do so.

We felt that the student definitions of information literacy, and their views on teaching methods, were consistent with the aspects of the research literature that informed our design and management of the class. These definitions were gathered through class exercises (it is outside the scope of this article to describe this area further, but we hope to report on this area in more detail in a future paper).

We also found it was important not to overestimate the students' familiarity with the technology and the conventions of the new media. At the start of the class, we asked students to indicate their skill level, in broad terms, in use of e-mail and the Internet. There were additional statements from students in assignments. Some of them noted that they had overestimated their entering level of knowledge and expertise, particularly as regards e-mail options, the complexity of the Web, the range of alternative information sources, and the ways in which searching strategies could be conceived and implemented. By the same token, they expressed new-found confidence, arising from the lab exercises and the assignments, in their capacity to make more intelligent searches for study information. They also expressed a strong opinion that they would be better placed in the job market as a consequence of gaining experience in communications within the class and in developing a wider perspective on how businesses were adapting to the new technologies.

Linkage with other subjects of study

Many of the students identified information literacy as being directly beneficial to other subjects that

they were studying when they formulated statements about information literacy. Students also reported specific incidents of finding material which was of direct relevance to another class. The second cohort were asked specifically to reflect on whether knowledge or skills gained through study of their principal subjects had helped them with the second assignment (a group project, looking at the usability of a corporate website). A number of the students highlighted ways in which work in other classes had helped improve their group work, communication, research, and report writing skills. In all these cases we were able to identify statements in students' reflective work which gave evidence for their views.

On this experience, information literacy is attractive, motivating, and welcomed by these experienced students. The student feedback we elicited demonstrates that information literacy can be taught as a stand-alone subject in its own right, and does not have to be incorporated into other classes in order to be meaningful to the students. Indeed, members of both cohorts argued that the benefits should be made more widely available within the Business School degree program. Our course design encourages students to apply the concepts they are learning to other subject areas, and this gives them practice in applying these concepts to a variety of situations. A constructivist approach is appropriate for teaching many aspects of information literacy and, in our Business School, that approach is recognised as valuable and appropriate by students in disciplines such as management science, human resource management, and marketing.

From our perspective as teachers and curriculum developers, we mourn the lack of time and the lack of full articulation to the overall Business School degree program needed to optimise the depth of study, student reflection, and interdisciplinary work which we believe could be constellated around information literacy.

CURRICULUM MODELS FOR BUSINESS STUDIES – FROM DISCIPLINES TO META PROCESSES AND FROM SKILLS TO LITERACIES

Stepping back from the information literacy class experience and reviewing the overall business curriculum in terms of degree programs, we pose a question. Could our information literacy model simply be mapped onto the wider curriculum? Answering this question may go some way to rethinking what direction to take in creating the 'information literate graduate' by engaging in meta-thinking about the overall nature of business education for the 21st century.

In contemplating any change in the kind of graduates to emerge from business education programs, we must first take account of the traditional curriculum. This comprises the hegemony of disciplines, the primacy of the department, the power of the academic research culture, a tradition of socially narrow and educationally specialised student populations, reliance on a combination of print resources, lectures, practical, written assignments, and examinations as the pedagogy for transmitting knowledge. The curriculum development task is likely to be substantial, and it may not be possible to engineer change through an accretion of local initiatives.

However, as outlined at the start of our paper, there are trends which are forcing some kind of change onto the traditional education program. We would see the information literacy class as being both a response to such trends (and as such, it falls into the 'adaptive' category listed in the section on 'Teaching designs and information literacy' above), and a testbed for ideas on developing the curriculum in a more radical way. There are elements at Strathclyde which have been advantageous in terms of innovative practice, for example:

- working within an existing modular structure;
- having a disciplinary context, within the Business School, that all the information literacy students can relate to.

Additionally, there is clear relevance of the class to student learning practice and future employability.

However, in our view, were information literacy to be mapped onto the overall degree program in the Business Faculty, the scale of change envisaged would be considerable, and the benefits to be gained, dubious. We are concerned, for example, that simply piggy-backing onto existing modules within other courses of study would result in a bolt-on or service-teaching mentality. By this, we mean that the topic, while fitted into the curriculum, is not viewed by the academics as being as important as the 'real' subjects which are their specialisms (marketing, human resources management, etc.) Such an attitude is readily picked up by students, who, in the UK at least, are increasingly rigorous in the way they allocate their valuable time between different classes. Students may feel pressure to focus their energies on their 'main' subjects, however positive their response to information literacy might be. Feedback from students indicated that this is an issue with the existing class. Equally, we are concerned that a C&IT-based strategy would be subject to the same negative pressures.

Consequently, we propose as a starting point that a reconceptualisation of the nature of business education, together with a rethinking of the key practices involved in that education, offers a potentially more fruitful approach than either the adaptive or radical change routes.

We suggest a reconceptualisation using the term 'meta processes' denoting: a set of socio-economic processes that represent the primary directions of change in the business world, and which offer a level of domain generality which unifies and integrates disciplinary specialisations in the overall field of business education. The rethinking of practice from a 'literacy' perspective has already begun through the academic discourse of information literacy and we will add to this development by identifying three further candidate literacies to underpin domain teaching within a context of meta process.

Four meta processes

Globalisation processes: described in terms of the flow of technology, capital, people, values, and ideas across borders, with each country or region affected in different ways due to their individual history, culture, and priorities.

International and regional processes: one of the key ways in which countries respond to the impact of globalisation. It can be studied at policy level and in terms of the emerging pattern of social, cultural, economic, and political relations instituted by internationalisation of economic activity.

Corporate processes the strategic and organisational changes entailed by decline and growth within markets, industries, and sectors in response to global and international development.

Empowerment processes: individual and collective experiences and actions of citizens engaged in the new forms of cultural differentiation and social mobility consequent on the other three meta processes.

Arguably, a multi-disciplinary appreciation of these four meta processes would constitute the true 'core' of a business education, and provide the greatest degree of value to graduates entering the globalised knowledge economy of the 21st century. However, what would constitute the appropriate practices and outcomes of disciplinary teaching, learning, and assessment for such a model of business education?

Conclusion: from skills and competencies to key literacies

Throughout this paper, we have challenged the current pressures on professional education to reduce complex ways of understanding and acting on the world to ever growing bullet point lists of 'skills' and 'competencies'. Our development of the information literacy class represents one practical attempt at such a challenge, but we are concerned that, of itself, such a manoeuvre will be insufficient. However, we are satisfied that the strategy of shifting concept and approach from 'skills' to 'literacy' is sound and, therefore, speculate on the nature of additional 'literacies' which, taken together, might offer a more powerful lever of curriculum development and learning achievement.

Three candidate 'literacies' are offered in addition to information literacy.

- *Vocational and technical literacy*: When students enroll in any business school they reasonably expect to graduate equipped with the fundamentals of their chosen profession. However, in the traditional discipline-focused model, learning is easily conceived as the acquisition of discrete 'amounts' and 'units' of disciplinary 'content' together with relevant skills and methodologies. The challenge is to develop students' specific technical and vocational competencies, whilst preparing them to define and manage complex problems. To achieve this we need a focus on the changing nature of business professionalism, and also on our second key literacy.
- *Intellectual literacy*: This involves encouraging students to think critically about the disciplinary content and learning processes of their business courses, and to understand the meta processes of the business world that we outlined above.
- *Cultural literacy*: Universities may be better at trying to institute equality of access, but they do not take advantage of students' rich diversity of background and experience. Globalisation and internationalisation of economies entail new and more complex kinds of ethnic, racial, and cultural diversity to influence and qualify business practice. Arguably, graduates should no longer consider themselves 'qualified' without having learned not only the details of other national languages, legal systems, business conventions, etc., but also the conceptual and emotional language of multiculturalism.
- *Information literacy*: We have set out the disciplinary beginnings of an information literacy in the preceding sections, but questioned whether or not a 'course in the discipline' would be sufficient for the challenges of 21st century business

education. The next iteration of information literacy can follow two paths: vertical development of its own disciplinary discourse and related pedagogy, and horizontal development in relation to reform of the overall business curriculum and institutional degree programs.

We have proposed a particular perspective, that of meta processes and key literacies, others may wish to explore alternative visions. However, the metastructuring framework offered here should be able to encompass alternatives and permit comparisons and synergy between institutions and across national boundaries.

REFERENCES

Association of College and Research Libraries. (1999). Information Literacy Competency Standards for Higher Education: Draft (1999). Chicago: American Library Association. Retrieved from the World Wide Web: http://www.ala.org/acrl/nili/nilihp.html

Barnett, R. (1994). The Limits of Competence: Knowledge, Higher Education and Society. Buckingham: The Society for Research into Higher Education & Open University Press.

Biggs, J. (1999). Teaching for quality learning at university. Buckingham: Open University Press.

Boekaerts, M. (1997). Self-regulated Learning: a new concept embraced by researchers, policy makers, educators, teachers, and students. Learning and Instruction, 7 (2), 161-186.

Bonnett, M. (1995). Teaching thinking and the sanctity of content, Journal of Philosophy of Education, 29 (3), 295-309.

Brancolini, KR., & Heyns, EP. (1998). Implementing an assessment plan for information literacy. In Living the future II: selected conference proceedings. Tucson: University of Arizona. Retrieved from the World Wide Web: http://www.library.arizona.edu/conference/ltf2/papers/iu4 2398.html

Brandt, D.S. (1997). Constructivism: Teaching for Understanding of the Internet, Communications of the ACM (Association for Computing Machinery), 40 (10), 112-117.

Breivik, S., Hancock, V., & Senn, J. A. (1998). A progress report on information literacy: an update on the American Library Association Presidential Committee on Information Literacy: final report. Washington, DC: American Library Association. Retrieved from the World Wide Web: http://www.ala.org/acrl/nili/nili.html

Bruce, C. (1997a). The relational approach: a new model for information literacy. The new review of information and library research, 3, 1-22.

Bruce, C. (1994). Portrait Of An Information Literate Person. HERDSA News, 16 (3), 9-11.

Bruce, C. (1997b). The Seven Faces of Information Literacy. Adelaide: Auslib Press.

Committee on Information Technology Literacy. (1999). Being fluent with information technology. Washington: National Academy Press.

Drew, S. (1998). Key Skills in Higher Education: Background and Rationale. (SEDA Special; 6) Birmingham: Staff and Educational Development Association.

Gardner, P., & Johnson, S. (1996). Thinking Critically about Critical Thinking: an unskilled inquiry into Quinn & McPeck. Journal of Philosophy of Education, 30 (3), 441-456.

Gibbs, G. (1992). Improving the quality of students' learning. Bristol: Technical and Educational Services.

Harvey, L., Moon, S., & Geall, V. (1997). Graduates' Work: organisational change and students' attributes.

Hepworth, M. (1999). A study of undergraduate information literacy and skills: the inclusion of information literacy and skills in the undergraduate curriculum. In IFLA Council and General Conference. Bangkok, Thailand; August 20-28, The Hague: IFLA. Retrieved from the World Wide Web: http://www.ifla.org/IV/ifla65/papers/107-124e.htm

Institute for Information Literacy website. Retrieved from the World Wide Web: http://www.ala.org/acrl/nili/nilihp.html

Hyland, T. & Johnson, S. (1998). Of Cabbages and key skills: exploding the mythology of core transferable skills in post-school education. Journal of Further and Higher Education, 22 (2), 163-172.

Johnston, B., & Webber, S. (1999). Information literacy as an academic discipline: an action research approach to developing a credit bearing class for business undergraduates. In Klasson, M., Loughridge, B., & Loof, S. (Eds.), New fields for research in the 21st century. Proceedings of the 3rd British Nordic Conference on Library and Information Studies: 12-14 April 1999: Boras, Sweden. (pp 183-197) Boras: University College of Boras. (Rapporter och publikationer fran Hogskolan i Boras; 1999: 1)

Kember, D. (1997). A reconceptualisation of the research into university academics' conceptions of teaching, Learning and Instruction, 7 (3), 255-275.

King, Alison. (1993). From sage on the stage to guide on the side. College Teaching, 41 (1), 30-35.

Laurillard, D. (1993). Rethinking University Teaching. London: Routledge.

Mutch, A. (1997). Information Literacy: An Exploration. International Journal of Information Management, 17 (5), 377-386.

National Committee of Enquiry into Higher Education. (1997). Higher Education in the Leaning Society. (The Dearing Report). London: HMSO.

National Forum on Information Literacy website. Retrieved from the World Wide Web: http://www.infolit.org/

Perkins, D. N. Jay, E., & Tishman, S. (1993). Beyond abilities: a dispositional theory of thinking. Merril Palmer Quarterly, 39 (1), 1-21.

Ramsden, P. (1992). Learning to Teach in Higher Education. London: Routledge.

Robertson, S. (1999). University of Melbourne Library meeting the challenges of providing information literacy in a networked environment. In 65th IFLA Council and General Conference. Bangkok, Thailand: August 20-August 28 1999. The Hague: IFLA. Retrieved from the World Wide Web: http://www.ifla.org/IV/ifla65/papers/116-165e.htm

Tait, J., & Knight, P. (Eds.) (1996). The Management of Independent Learning London: Kogan Page, in association with the Staff and Educational Development Association.

Teichler, U. (1999). Higher education policy and the world of work: changing conditions and challenges. Higher Education Policy, 12, 285-312.

Wiggins, M.E. (1992). Information literacy at Universities: challenges and solutions. In D.W. Farmer, & T.F. Mech, (Eds.), Information literacy: developing students as independent learners. (New directions for higher education; 78). (pp73-81). San Francisco: Jossey-Bass.

Wisker, G., & Brown, S. (Eds.). (1996). Enabling Student Learning. London: Kogan Page, in association with the Staff and Educational Development Association.

Wykoff, L., & Diller, K. (1998). Changing organisational partnerships to build an information literacy program in the extended campus environment. In Living the future II: selected conference proceedings. Tucson: University of Arizona. : Retrieved from the World Wide Web http://www.library.arizona.edu/conference/ltf2/papers/wsu42298.html