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Smarter higher education: information literacy adds value

Introduction

Information and knowledge are the thermonuclear competitive weapons of our time. Knowledge is more valuable and more powerful than natural resources, big factories, or fat bankrolls. In industry after industry, success comes to the companies that have the best information or wield it most effectively - not necessarily the companies with the most muscle (Stewart, 1997: ix).

There is much talk these days of information societies, learning societies and the ability to use information critically. The rapidly advancing shift to knowledge economies in which resources created through ? *brain power* are increasingly more valuable in wealth creation than natural resources? and in which value is created with information, herald an era in which human resources are the most valued asset of the Global Information Society (Lepani, 1996: 4). It is in this context that the advancement of information literacy within a framework of lifelong learning is regarded as essential.

Information and knowledge are dynamic entities in constant states of flux and growth. According to Lenox and Walker, ? there is more information in a single edition of the new York Times than a man or woman in the sixteenth century had to process in the whole of his or her life? (1993: 312). The volume of information which people need to process is overwhelming often leading to information overload. Learners who have the competencies to learn for life therefore need the abilities to navigate a range of information systems, vehicles and highways and additionally require the skills to work with information critically. It is thus argued, albeit from a human capital perspective, that ? skills have become the key competitive weapon in the global market place? (HR Focus, 1992: 17)¹. As Thurow writes:

The problem today is not just finding work for the functionally illiterate in a high-technology society. The problem also is how society itself can survive competitively if so much of its workforce cannot contribute effectively. Modern economies need a well-educated labour force, an educated elite does not suffice ... In an increasingly technological society, skilled, noncollege and blue-collar workers become more and more important ... Robots may build the cars of the future, but skilled human beings are going to maintain and repair those robots (quoted in HR Focus, 1992: 17).

It is this condition in which there is much greater appreciation of the economic significance of knowledge and learning and the value of a skilled workforce and *smart workers* that focuses attention on learning cultures. The agenda for smart workers though, is precisely the kind of requirement of the Global Information Society (GIS) which is imposed on people with little regard for what they bring to development. From a somewhat different perspective, the South African Qualifications Association has emphasised a range of Critical Outcomes which are to be incorporated into all

¹ It should be noted that in the context of this paper, skills should be seen to include knowledge and values (Babb & Skinner, 1997: 10).

qualifications to ensure that the National Qualifications Framework it seeks to enact will create ? an integrated national framework for learning? that will improve quality of life and education (SAQA Bulletin, 1997: 5)².

This paper attempts to explore some of the difficulties encountered in integrating one of SAQA's critical outcomes, that of information literacy, into curricula in the hope of developing a framework of flexible learning. The lens through which the issues are seen is that of the INFOLIT experience. This paper explores the modest contribution made, both theoretically and in practice, by INFOLIT, an information literacy project of the Adamastor Trust³ and CALICO, the Cape Library Cooperative, in the Western Cape Region. Lessons are drawn from INFOLIT to illustrate both good practice as well as difficulties in spreading information literacy education.

The context of globalisation, information infrastructures and knowledge systems

Globalisation, which includes economic, cultural and communications shifts presents a paradox of new forms of imperialism co-existing with the potential for the developing world to use the convergence of telecommunications, microelectronics and computers to advance and participate fully in shaping development. In the context of global competition, information can be used either to promote development or to perpetuate inequality and subordination. The Global Information Infrastructure becomes the primary means through which information and, it could be argued, power is mediated or attained.

Information, irrespective of the channels through which it is communicated is a fundamental resource for development (Kularatne, 1997:117). It is the basis upon which people make decisions. It allows people to communicate with others about their lives and to assert their experiences as valid. Indigenous information, which is usually transmitted through traditional information structures, is highly relevant to people living in the areas in which the information is generated. As the IDRC Gender and Information Working Group states:

Acquiring knowledge is the first step toward change, whether this change be technological, social, economic, cultural, legal, or political. Information is the catalyst, fuel, and product of this process of transformation. Inevitably, information systems - both formal and informal - play a central role in our lives (1995: 267).

Information is thus a value laden and dynamic resource which is produced by people collectively and/or individually on the basis of their experience through what Lepani calls 'brain power'. Its value is derived on the basis of need. Just as the value of information differs from context to context, people acquire and require different competencies in different contexts generating multiple information systems and information literacies. Globalisation apparently connects these different information

² It is important to note that these outcomes relate to performance and emphasise cognitive learning. While there is a trend towards taking into account the experience of the learner as a whole person, it seems that our emphasis on lifelong learning at present is interested in the mental and physical rather than the emotional and spiritual realms of humankind.

³ The Adamastor Trust is formed by and seeks to promote collaboration between the five higher education institutions in the Western Cape region of South Africa.

systems and contexts, but as with any physical entity the dominant cultures, systems and values tend to engulf and overshadow leading to a formation/s in which certain competencies and experiences are regarded as superior and desirable. It is precisely through our experiences that we interact with and make sense of the world. When those experiences are undermined and discounted we are stripped of power and have to assume other dominant views of the world in order to gain power and legitimacy. Information literacy develops as we become more conscious and self-conscious of the role and value of information in all its forms in the world/s we occupy. The self-consciousness aspect is what allows us to bring our experiences (our information resources) into contexts we occupy. For learners and teachers alike, this means valuing different experiences and seeing how these enrich our world.

One of the features of the global economy is the perpetuation of inequalities between and within societies. The GIS marks new forms of imperialism with information continuing to flow primarily from the developed to the developing world with minimal flow in the other direction. Thus despite the rhetoric of the global village and inclusivity, it has become evident that if lesser developed countries do not claim their contribution to the GIS, they will not achieve the shift from information consumption to knowledge production. There is now general acceptance that the information infrastructure as a medium is not an end in itself and that the message transmitted is extremely politically and ideologically loaded. The issue of content has thus become ever important. Within this context, it can be assumed that those who generate knowledge and have the competencies to articulate and spread this knowledge improve their capacity to influence decision-making.

Various types of knowledge have been identified including disciplinary or formal knowledge which are constructed through investigations (often at higher education level) in particular disciplines, and tacit knowledge which is embodied in people and accumulated by way of personal experience and acquisition and influenced, obviously, through a range of socio-cultural experiences.

Higher education knowledge production and universal scientific knowledge especially has (a) been highly gender, and (b) assumed and presented itself as ? truth? . As this type of knowledge increasingly faces charges of appropriateness and accountability,

institutions will in particular also need to be able critically to evaluate whether, as is often claimed in transformation debates, certain bodies of knowledge in a discipline are global (usually referring to aspects of a discipline that relate to Western society and values) while others are local and therefore presumably of lower intellectual status (Ekong & Cloete, 1997: 5)

Indigenous or local knowledge systems have to be regarded as part of the GIS not by way of appropriating them, but asserting their place and voice in the GIS. Local knowledge systems bring perspectives that are crucial for globalisation if we are to use the new information and communication technologies (ICTs) for sharing, exploring difference and expanding the ? whole".

Indigenous knowledge systems usually embody complex systems of planning and understanding which are different from systems in Western industrialised nations. According to Appleton et al whereas ? the generation of science and technology is directly linked to centralised control over the distribution of information, information in local knowledge systems is the common property of integrated social groups?

(1995: 57). They go on to argue by drawing on Shiva and Dankelman's work that whereas

women's knowledge systems tend to be holistic and multidimensional, the introduction of agricultural technologies usually result in 'resource fragmentation undermining the position of women ... the woman's role becomes more and more that of a labourer as she loses her control over production and access to resources (1995: 59).

The introduction of systems or ICTs into local knowledge systems in ways that do not comprehend these social relations could, in fact, introduce new disparities. In contexts of gender differentiation for instance, ICT incorporation could disadvantage women and result in their subordination. What seems to be called for is an articulation between local knowledge systems and the new ICTs so that the latter enhance the efficiency, effectiveness, flexibility and sustainability increasingly apparent in the former. Local groups must direct the interface though, to avoid the dangers of appropriation and imposition of power.

One of the implications for learning is that a learner's tacit knowledge is clearly an extremely important yet undervalued part of the learning process. It is this life experience which has proved difficult to integrate into a dominant education culture which assumes that learners are empty vessels that need to be filled with information and knowledge. Taking account of learners' encyclopaedic knowledge means grappling with indigenous information and knowledge systems that often become subordinated by the introduction of new information systems.

These various factors underscore the need for integration of the Critical Outcomes that SAQA has identified in order for learners to acquire the various competencies that allow them to participate in society and assert their experiences as valid. It is these competencies of critical thinking, team learning, the abilities to contextualise and communicate etc. which will ensure that people are mindful of the contexts in which they are learning and the importance of their contributions to a collective pool of knowledge. At the same time, it is important to note that these outcomes are currently considered crucial according to different sets of competing interests. Both sets of interests emphasise the importance of participation with the one stressing information consumption and the other knowledge production.

It is believed that information literacy not only delivers to the kind of skills requirements of the GIS, but that it develops in learners a consciousness and self-consciousness which allows them to:

1. take cognisance of their experience as an information resource, and
2. exercise their critical faculties in deciding how to articulate this experience with the world at large so that they influence globalisation.

It is the latter point which ensures that local knowledge systems are not simply engulfed by larger and, in some respects, more aggressive knowledge systems. Developing country experiences and women's experiences have to be brought into the GIS to make it truly global.

Information literacy theories and practices

Through focus group discussions with key constituents in higher education, INFOLIT has developed a working definition of information literacy. This signals the relation

between information literacy on the one hand, and *knowledge production* on the other, and highlights the need to take account of various specific factors, relevant in the South African and indeed the wider African context. These include:

- prior learning experiences
- contextually specific teaching and learning
- affective issues
- access skills
- use and evaluation
- higher order cognitive skills
- student-centred learning.

The INFOLIT definition reads as follows:

information literacy refers to the ability of learners to access, use and evaluate information from different sources, in order to enhance learning, solve problems and generate new knowledge (1997: 2).

Implicit in this definition is the notion of articulating competencies with content. It is believed that learners acquire life skills in the context of learning subject knowledge through undertaking meaningful tasks and activities. The subject knowledge and the information competencies are thus learnt simultaneously. Special note is taken of the fact that in the context of South African higher education, information literacy

? develops when situational and affective factors that impinge upon the teaching and learning process are recognised by learners and teachers alike. The development of information literacy is directed towards producing independent and self-directed learners who are able to become active and responsible citizens, make informed decisions in their private and public lives and contribute both to individual and national empowerment and growth? (1997: 2).

While information literacy may not be the only pre-requisite for lifelong learning, understanding it to include a self-consciousness of value of information and learning has allowed INFOLIT to link it to promote other aspects of lifelong learning identified by Candy, Crebert and O'Leary (1994). In addition to information literacy, these include:

- *a love of learning*
- *helicopter vision*
- *a sense of personal agency*
- *a repertoire of learning skills*
- *interpersonal skills (Candy, 1996: 142)*

Recent work within INFOLIT has shown that information literacy is context dependent and develops differently in different situations. While we are able to advocate that courses meet particular requirements such as ensuring that their students are able to work with information critically, we are by no means insensitive to the fact that different types of information are appropriate to and used in different contexts. It is recognised that we cannot develop an information literacy blueprint that guarantees the spread of information literacy education across all disciplines. Instead we require guidelines and policy which through modelling various ways of promoting information literacy education illustrate ways of spreading information literacy practice.

At its inception, INFOLIT believed that information literacy could be promoted in a number of ways:

- generic, foundation type courses with a broad content-base
- infusion in specific subject courses
- integrating higher order cognitive skills into more senior undergraduate programmes
- the adjunct model whereby courses draw on the expertise of various academic development groups such as the writing centres to advance aspects critical to information literacy education.

While these were tested to a greater or lesser extent through various pilot projects, the needs assessment study forced a much closer examination of an appropriate understanding of information literacy in the South African context. Throughout this process, INFOLIT has thus needed to attend to the conceptualisation and promotion of information literacy.

Preliminary Findings

Through its various pilot projects, the needs assessment study, conceptualisation and spread of information literacy, INFOLIT has begun to explore issues relating to the development of:

- coalitions and partnerships of academics and information workers in delivering value-added programmes
- content which advances information literacy appropriate to the needs of learners
- CD and Web-based materials which can be used across the region
- collaboration across institutions to deliver foundation-type programmes

Primary lessons

Integration

Information literacy has to be integrated into academic courses for it to make a real difference in the way in which learners are able to acquire and maintain information competencies. Where information literacy remains an add-on, or extra-curricula, learners generally tend to forget these skills very soon after they were 'taught'. It appears that real integration has to do with inserting information literacy into the very content and mode of delivery of a course so that it almost becomes indistinguishable from the subject matter. This kind of integration raises a series of questions about the transferability of 'skills', an assumption we were happy to make in the first few years of INFOLIT's operation. We have also learnt that integration is best achieved when students acquire information literacy competencies through meaningful tasks and activities which have value in their estimation.

Curriculum Development Expertise

Information literacy integration is a pedagogical challenge which relates to teaching and learning. Our piloting experience taught us that because academics are rarely trained as teachers since no professional teaching qualification is required for tertiary instruction, academics are often ill prepared to deal with issues of curriculum development. This means that in the context of the SAQA initiatives which call for

the integration of Critical Outcomes into qualifications, academics have to grapple with issues of design and development of curricula – expertise which has largely been gained by education and/or academic development initiatives at the institutions. Part of the complexity of curriculum development seems to be that of finding ways in which to incorporate learners' own information resources into the learning context.

Capacity development of librarians

In terms of capacities to spread information literacy education, it has become evident that the current South African LIS model of training for library and information workers is generally inadequate in equipping librarians to deal with the kinds of curriculum development challenges which allow them to insert information literacy into courses and subjects. Librarians are generally not trained with any discipline specific knowledge which allows them to map and structure knowledge domains. And they also appear to lack the kind of specialisms which qualify them to provide professional input on information flow, sociology and economics of information. Furthermore, the traditionalism and conservatism of the historical LIS sector in South Africa means that we continue to offer authoritarian type courses that attract poor quality students, often opting for LIS as a soft option.

Developing coalitions

In order to develop intra-institutional collaboration whereby different players bring a range of competencies to the development of quality education, the development of coalitions or teams which bridge divides within higher education is crucial. It seems that the divide between the library and academics worlds is in some instances wider than it has ever been and the need to build bridges more of an imperative than ever. Librarians tend to be non-reflexive and are not self-critical so that they often reproduce rather than resolve their marginalisation.

Replication

One of the criteria according to which INFOLIT's pilots were selected was that of replicability in the hope that we would be able to reproduce models of information literacy across institutions and disciplines. We have learnt that it cannot be assumed that a course developed at one institution is portable or that it will not have to be substantially adapted to be taught in a different context. Our experience has shown us that even in terms of materials, the nature of the audience is paramount in terms of design and our student cohorts as well as approaches to pedagogy appear to differ meaningfully across the region. The point about replication is that entire courses if taught in a different context to which they were designed have to take account of difference. In this respect, the models of delivery that can be viewed as templates have become the valuable features of the various pilots.

Regional Collaboration

Regional collaboration is difficult to effect. Senior management is happy to buy into the rhetoric of collaboration, but we have not yet reached the stage where this has become a priority for institutions. Co-existing with the call for greater regional collaboration, there is growing competition emerging between institutions. The imperative to allow students greater mobility between institutions so that they have greater choice about how to make up their degrees still holds and it is for this reason that INFOLIT is striving to achieve, not the same courses between institutions, but

certainly a common framework which improves articulation of the institutions and potential for student mobility between them.

Changing mindsets

The problem of developing a critical mass engaged in new styles of teaching and learning has proved important. While INFOLIT has successfully identified champion innovators who are demonstrating new models of quality education, the importance of changing mindsets has proved difficult. The dominant authoritarian culture which reinforces the notion that learners bring very little, if anything, to the learning experience means that there is very little institutional support for the fundamental rethinking that must accompany the development of a lifelong learning framework.

Institutionalising information literacy

Working with institutional initiatives and agendas has proved important. The INFOLIT office stands to face the same criticism as extra-curricula, add-on 'information literacy' courses as long as it stands outside of institutional cultures and practices. In order for our agendas to articulate with those of institutions, they have to be meaningful to the people who are going to become information literacy agents. Integration is thus not simply about course integration, it is also about institutional integration. It is however, important to note that in facilitating 'integration', INFOLIT is promoting its agenda of regional collaboration as well as intra-institutional collaboration.

Challenges

Changing teaching and learning

It seems the most immediate and difficult challenge is that of changing educational culture at the institutions so that those in positions of delivery develop learning spaces in which all information resources including life experience is factored into academic courses. The change of culture is about a change of mindset in which learners and the experiences they bring to education is encouraged and explored. The development of quality assurance measures and processes that assess courses is crucial to the development of a new culture. As important is the ability of teachers to be flexible and to constantly adapt and transform their courses according to changing contexts and needs.

The need for effective evaluation studies

It has become evident that evaluation studies, which measure impact of various learning strategies, especially the information literacy initiatives, in ways that allow for adaptation of programmes, must be developed.⁴

⁴ One of the lessons from INFOLIT is that it is extremely difficult to measure the value of the interventions we are making. How many variables can you be conscious of taking into account when measuring impact and how confidently can you attribute an increase in scores to a singular albeit complex intervention. As one of the pilot project leaders, Brenda Leibowitz states: 'It is almost impossible to demonstrate the impact on learning of this kind of materials design. The more integrated it is, the less it stands out. The less integrated it is, the easier it is to speak about it to students and get a positive sounding response, but the less evident it becomes whether the skills or awareness is being utilised in genuine task completion?' (INFOLIT Annual Report, 1997). Conversely, how do we value no change in scores, but an expressed increase in awareness of the role of information as reported by students on the Information Society: Tools and Skills course.

Replication of projects

It has been found that due to the diverse nature of the higher education sector in the Western Cape, it is unfeasible simply to import materials developed for a specific audience at one site to another as the materials are incorrectly pitched and inappropriate to the needs of the 'secondary' audience. In an effort to combat this problem, it is envisaged that materials that are flexible and versatile will be designed by cross-institutional groups of developers in accordance with their local needs and conditions.

Integration and mainstreaming of projects

Converting from a pilot to a programme involves careful negotiation with educational managers and institutional bureaucracies. Negotiating the process whereby pilot projects become mainstreamed is time-consuming and it must be ensured that the new ways of approaching learning continue to be adapted and developed so that they are not only portable but also responsive to the needs of a changing student base and society.

Institutionalisation and Sustainability

It is imperative that investments made in the pilot projects become part of new ways of teaching and learning so that institutions themselves assume responsibility for continuing to improve quality education.

Endorsement of Pilot Projects by Senior Management

The issue of endorsement is linked to that of institutionalisation in that educational managers need to be prepared to invest in new ways of advancing learning which prove successful. Their support is also key in terms of the institutional authority they wield to promote best practice and encourage and fund further information literacy incentives.

Collaboration and partnerships

Overcoming barriers to collaborative teaching and learning is a major challenge. In order to promote programmes that are globally competitive, collaboration which offers a wider-ranging audience and fosters versatile development is important. Collaboration occurs where there is will. These models, where successful, encourage further joint ventures.

Interactive learning

New models of learning require a radical departure from exclusively lecture-based courses to multi-media type learning environments in which learners are encouraged to interact with concepts and information resources to develop their understanding of a subject.⁵ Not only do educators/facilitators need to be encouraged in this regard, so do students, at least those who have been domesticated through rote learning and passive environments.

Needs Assessments

The Needs Assessment study that INFOLIT undertook has proved invaluable on at

⁵ It appears that one of the imminent challenges in the area of networked learning is the design of flexible learning spaces which are able to expand as new technologies and telecommunication developments introduce value-added features which enhance learning. Thus, for example, learning could become increasingly interactive as bandwidth expands and makes possible the use of graphics and images. The development of such spaces challenges coalitions to transform lecture-based teaching and to develop interactive learning models. It calls for comprehensive or cohesive frameworks in which learners are able to move between information sources, listserves, queries, discussions, exercises and assignments to explore concepts to which they are exposed. This kind of learning ideally removes the barriers be they physical or intellectual, between the learner and the world of information s/he wishes to explore. Implicit in this challenge is that of bridging the historical divides which exist not only between previously competitive institutions but also between compartmentalised disciplines and desegregated functions such as those of information provision and discipline induction.

least two counts:

- it has provided inroads into institutions and allowed participants of focus-group interviews and the survey to interact with notions of information literacy;
- it has provided a substantial base for motivating the need for information literacy interventions to both senior management and educational facilitators.

Promotion and Marketing

Facilitators of learning need to see practical ways of advancing information literacy education. The development of real models that can be critiqued and adapted has proved important.

Human Resource Development

The need for significant capacity development interventions that prepare learning facilitators for the spread of information literacy education is clear. INFOLIT has responded to the need for training of both library and the teaching staff to prepare them for the integration of critical outcomes into qualifications and the evaluation of these.

Inclusion of all players in pilot project formulation and delivery

It has proven important for the successful implementation of project proposals that all players involved in the delivery of information literacy models be incorporated in the formulation and planning of such projects. Experience has shown those errors in these regard results in lack of collective ownership and enhancement of initiatives as well as alienation from and disuse of resources.

Understanding learning

INFOLIT's experience has highlighted the importance of developing a closer understanding of learning and how this takes place since it is through contextual learning that information literacy is acquired. Our hopes have been to find a democratic learning model that can be cloned. However, increasing exposure to learners in common and varied programmes shows that learning styles are individual and often unique. This complicates the tasks of learning facilitators and presupposes their ability to work with a variety of learning process and strategies.

Development of higher order cognitive skills and structured domains of knowledge

The various INFOLIT initiatives have concentrated on the development of generic information literacy education and have not yet addressed the structuring of domains of knowledge. The latter would support the development of higher order cognitive skills and a more advanced understanding of information flow and knowledge production in various discipline areas. Such proficiencies allow learners not only to access more diverse information sources, but also encourage a critical appraisal of and induction into the world of knowledge.

School and community information literacy models

INFOLIT has recognised the importance of expanding our operation at school level so that students become more conscious of their information literacy, bring this into the tertiary environment, and lobby for quality education. A further challenge is that of developing community models that bring information literacy/ies to citizens outside of formal education institutions so that they are able to utilise these competencies in their daily lives for purposes of making more informed decisions.

Conclusions

It has been argued that information literacy education is a vehicle through which life skills for learning and knowledge production will be engendered. The infusion of information literacy into courses, curricula and academic programmes is seen as a means of articulating information and subject knowledge. The development of educational spaces in which learners' experiences and information resources are valued, in which learners' can explore and develop their potentials, in which learning is contextualised, is challenging. An emphasis on outcomes and performance begs the question: "towards what" and the issue of whose agendas set the frames in which we are learning remain pertinent.

In order for the new information infrastructure to aid development by the people, for the people and of the people, it seems imperative that people's capacities are developed to ensure that they can participate in shaping the development of the global information society. The ways in which curricula are developed in response to this need, the ways in which educational systems are designed to address problems of equal access, equity and redress are central to this challenge. Most importantly, the extent to which academics who wield tremendous power within the system are able to shift their mindsets from a notion of "having to teach their students everything" will create the spaces for using the opportunities presented by the formulation of a framework for lifelong learning most productively. The extent to which academics are prepared to become more reflective and self-conscious of their own ongoing learning will influence their ability to engage with students more interactively to create open spaces into which students can bring their own experiences to promote quality learning.

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