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ABSTRACT

The concept of information literacy is explored and the major issues to be developed in its pursuit of technical and further education (TAFE) in Australia are considered. Information literate people are those who have learned how to learn because they know how knowledge is organized, how to find it, and how to use it so that others can learn from them. Australia faces strong competition to remain a viable competitor in the international market. The new types of education and education delivery systems that are developing are essential to the nation's preparedness in the age of information literacy. Research has identified competencies that are required for the information literate. Library activities conducted by TAFE college libraries in Australia are summarized. A major accomplishment is the development of teaching modules in the area of information literacy. Pilot versions have been forwarded to all TAFE libraries in Queensland for testing and evaluation. (Contains 4 references.) (SLD)

INFORMATION LITERACY
The TAFE Scene

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Gamaliel Bradford stated

> *Ignorance is the curse of the age we live in. We talk about the Dark Ages. When was there one so dark as this? We have smothered ourselves, buried ourselves in the vast heap of information which all of us have and none of us has.*

Information technology is reshaping our society. As members of our society become more sceptical of the mass media's treatment of information and the subsequent reporting of it, many people acquire a desire to find information for themselves and thus make their own judgements and interpretation. Is this not one of the reasons that AAP is available on-line?

Where are we heading? The following story was featured in Campus Review (15-21 April 1993) Is this indicative of the way learners will deal with information during their education?

The Virtual Library

Ten years from now a young scholar working in women's studies decides to undertake research on popular fiction by women in the 1960's.

She has read some of it, and has decided to begin with the well-known novelist, the founding mother of the genre, Jacqueline Susann.

She sits down at her workstation, logs onto the network and begins her search.

She starts simply with a bibliographic search which turns up all of Susann's novels and other published writings immediately.

In addition, it turns out that there is actually a critical literature (after a fashion) on Susann and that too comes up in the search.

Then there are the reviews of Susann's work written at the time, reports about her in popular news magazines and newspapers, interviews with her, obituaries at the time of her death, and so on.

Our young friend is also able to call up references to all the places where Susann's name appeared, even peripherally, in the text of a print resource during the period of her publishing career.

Although this search turns up the citations, our intrepid scholar can access the full text of all of these materials just as easily and either read it on her high resolution screen, print it out on a high-speed printer, or download it for use later on to her own machine's hard disk (or a successor technology) that holds perhaps 100 gigabytes of material.

Of course, she can also append her own annotations to any of this material as she goes along.

But having acquired in half an hour or so bibliographic citations that might now consume perhaps a full weeks work and having also acquired all the texts to which those citations point, our young scholar is not finished with her preliminary research - not by a long shot.

She now turns to search out all the extant television, radio and film interviews of Susann or ones in which she was mentioned.

Again, there turns out to be more than one would have thought.

In one especially amusing interview, she comes across Truman Capote's comment about Susann's novels: "That's not writing; that's typing."

She makes a note to use this in her own monograph.

Again, the material can be downloaded for later use to her machine either as text or in its original format since her workstation handles media of every type and description.

Next, copies of all the films that were made of Sussan's novels.

Interviews with screen- writers, directors and actors. And so on.

All of them easily trans- ferred from the network to the scholar's workstation.

In the course of her research, however our young friend discovers that Susann kept a diary for 30 years and that she saved copies of all the drafts of all her books and all her letters.

Indeed, it turns out that she kept copies of just about every sentence she ever wrote as well as lists of everything she read and watched on television.

Even her own library card is available and machine readable so that her reading habits can be charted.

These materials were broken up at her death and are now physically in 15 repositories all over the United States.

Fortunately, our friend does not need, at least at this early point in her work, to hold the physical objects in her hand.

Instead, by uttering a few commands, she can access the entire corpus of material in crystal clear digital form, print it out in copies indistinguishable from or better than the originals or store it or read it on her screen.

In addition, a previous researcher created a database of all the best selling authors of the period, including not only Sussan but such eminences as Harold Robbins, Leon Uris, James Michener and Jackie Collins.

. This database too can be statistically manipulated directly or downloaded to the scholar's workstation for later use and report generation.

Within a year, she will have completed her first major scholarly work, a multimedia monograph titled *Valley of the Trash:Jacqueline Susann and the Semiotics of Mediocrity in Late 20th Century American Literature.*

In considering this scenario and reflecting on the words of Bradford it is apparent that the work described in the article could only be completed by a skilled user of information. What competencies did that student possess? How are we developing these competencies in our students today?

Surely if we are able to identify the skills required to complete that research, regardless of the fact that some of the technology is still to be developed, would we as a profession not be remiss if we failed to provide our students with learning opportunities through which these skills may be developed and mastered?

In this paper, I intend to discuss:

- the broad definition of information literacy
- curriculum influences
- the competency curriculum
- Bjørner's competency description
- competency structures used in TAFE♦TEQ
- key concepts of information literacy, and
- the work being undertaken in this area by TAFE♦TEQ Library Network.

WHAT IS INFORMATION LITERACY?

The term *information literacy* was first used as a descriptor in ERIC in the November 1990 CIJE. In 1991 it still had not been accepted as a desciptor in either LISA or *Library Literature*. Even searching for the terms *information* adjacent to *literacy* or *literate* yielded minimal results. (Bjørner 1991)

Those that attended the seminar in late 1992 at the State Library organised by ALIA and SLAQ that featured Patricia Breivik were provided with an ERIC mini-bib on information literacy records. It was indeed a mini-bib as there was barely enough information gathered to cover both sides of one A4 page.

This is not to say that the area now described by the term information literacy has only receive recent attention. How much different were the skills grouped under the terms research and/or study skills to those forming the skills of information literacy?

In 1976 I produced a minor dissertation on research skills in primary schools. Revisiting the work some seventeen years later, I find that this work described how there was a core of information usage skills that were used in language arts, science and social studies. Of the skills listed, 33% were found in all three areas. These skills were listed within the curricula, not under specific headings, but infused with other activities.

In 1979 a close colleague produced a monograph entitled *Research Skills ... What You can do: A Program for Teachers.* In it, this comment was made *it should be stressed that such skills are not pertinent to one subject area only. More correctly, they should be viewed in the context of the total school curricula and implemented in that context.* (Burnheim, 1979, p ii). Another comment from that work:

> *the information explosion of the last two decades has led to the emergence of a new group of skills which must now be dealt with by educators at all levels. The changing focus of our society has put emphasis on not only what we know, but also on how quickly we can find out, thereby making the skills involved in finding information invaluable.* (ibid p1)

If a watershed date was to be fixed to the emergence of the concept of information literacy as a skill genre, I would suggest that January 1989 would be that date. As a result of an initiative of the American Library Association, a committee under the leadership of Patricia Senn Breivik presented a report addressing the issue of information literacy in the light of national education reform in the United States.

The report provides this description:

> *. . . information literate people are those who have learned how to learn. they know how to learn because they know how knowledge is organised, how to find information and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision.*

CURRICULUM INFLUENCES

Most of you are well aware of the Finn and Mayer Committees and their reports. it is not my intention to recount significant chunks of the document. However, it is prudent to note the caveats placed by the Mayer Committee on the skilling of students in the key competency strands.

The Mayer Committee is most definite that the key competency strands are not to be treated as stand-alone subjects or areas of study, running the risk of optionality, courses of study. Their recommendation is that these areas become seamless and infused through all other subject areas so that during the student's education that student will be given the opportunity to engage in activities that will develop the skills.

The first two competency strands have the most to do with the development of information literacy skills. These are

- collecting, analysing and organising ideas and information
- expressing ideas and information.

At the same time as the Mayer and Finn committees were undertaking their investigations, work was being undertaken on the content and structure of the training curricula. Thus, on one hand, core competencies were being examined, while, on the other, specific occupational competencies were being identified.

Diverse areas such as built environment, metals and engineering, horticulture and hairdressing were examining the training curriculum being used to prepare workers for those areas.

The end result of the examinations was the development of a modularised curriculum developed around a set of core modules such as occupational health and safety, generic hand and power tools, industrial relations. Added to these, students would select from a range of modules those that would provide them with the competencies required for a specific job. Through the modular approach, if a student found, after working for some time, that an extra skill was required, the appropriate module(s) could be worked through thus 'topping up' the student's abilities and enabling a job profile to be met. Job profiles in some cases have been developed as a result of skill auditing occupational areas.

The introduction of competency-based training curricula into our voc ed and training system can be traced to various factors.

The Australian workforce is aging. As the baby-boomers move through the system, the bulge created by their path will effect the profile of Australia's workforce. If one was to travel to the year 2000 and compare the workforce of that time with today, it would be observed that approximately 80% of today's workforce were still in employment.

If one compares the jobs available in the year 2000 to those available today, it will be seen that 50% of those jobs did not exist in 1992. The percentage will decline as 2000 is reached. While we are training clients in preparation for work, some of the jobs that they may aspire to do not exist at the time of training.

Australia faces strong competition to remain a viable competitor in the international market. The historical reliance on the value of primary and extractive industrial output to support the GNP and maintain a satisfactory balance of payments is constantly being eroded. In its place it would appear that the country is moving to take advantage of value-added industries.

The Australian Prime Minister of the late 1980's, Bob Hawke, promoted the notion of Australia becoming the clever country. He suggested that we harness our minds and use them to economic advantage. The adage of don't work harder but work smarter has been used throughout the country in many forums.

During the first half of 1992, a colleague and I conducted a series of workshops throughout Queensland examining the impacts of the delivery of a competency-based training curriculum on the teaching process and the library services that would be required to support this delivery. Of interest to this forum are the following observations.

There is a move from whole class instruction to small group and individualised instruction. Because acknowledgment is given to prior skills, not all students will progress through the curriculum at the same rate. Because not all students have the same abilities, some will achieve and demonstrate competence earlier that others. Therefore regulation of curriculum engagement will be largely the responsibility of the student with direction and assistance available from the teacher where and when necessary.

Where the instructional modules are not interdependent, the timing and sequence of engagement will not be critical. In many cases this will be at the convenience of the learner. It was felt that the whole class lesson would become the exception rather than the rule.

With flexible delivery of training being encouraged, students may not actually be physically located at the college or delivery agency. They may be at home, on the job or at a distance learning centre. Certainly with the use of video-conferenced instruction, this will not be an unusual mode of study.

In 1992 TAFE♦TEQ trialled such teaching between Brisbane and Weipa a distance of 2 626 kilometres. For this trial the teacher was located in Brisbane, the classroom and students were in Weipa. Lessons that were delivered using this technology included fluid dynamics and the mixing of cocktails. For the latter, the teacher demonstrated the techniques and then watched and advised as the students undertook activities such as creating a Brandy Alexander and making garnishes.

What is the overall, or strongest impact of these curriculum changes? I would suggest that what we are looking at is the increased dependence on the student functioning as an independent learner.

That gives you a rather reasonable outline of some of the pressures being exerted on TAFE♦TEQ. If TAFE♦TEQ students are to function in that mode, it goes without saying that information literacy skill mastery will be critical to their success.

THE SKILLS OF INFORMATION LITERACY

Earlier I defined in broad terms the concept of information literacy. What are the skills? I present two views - one from the Massachusetts Institute of Technology, the other an Australian adaption of a British concept.

I have referred earlier to the work of Susan Bjørner. In her paper she presents a taxonomy of the competencies required for information literacy. These are reproduced below:

COMPETENCIES REQUIRED FOR INFORMATION LITERACY

A. **Recognising and accepting an information gap**
   1. Identify a question to be answered.
   2. Place the question in a context.
   3. Determine the information needed to answer the question.

B. Responding positively to the need for investigation.

1. Identify the consequences of not answering the question.
2. Determine the costs of investigating the question.
3. Decide on a range of effort to be used to answer the question.

C. Constructing alternative strategies to reduce the information gap.

1. Identify appropriate information sources.
2. Determine physical location of sources.
3. Determine access paths to sources.
4. Evaluate skills required to access sources.
5. Develop action plan(s) for utilising resources.

D. Evaluating and selecting a strategy.

1. Estimate effectiveness of a strategy in relationship to cost, time and effort required for use.
2. Compare various strategies in terms of estimated effectiveness, cost, time and effort.
3. Identify the best strategy in terms of estimated effectiveness, cost, time and effort.
4. Revise a strategy or select another as necessary.

E. Acting on a strategy.

1. Determine a workplan for implementing the strategy.
2. Consult the sources required by the strategy.
3. Note/record the information derived from the sources.
4. Structure/restructure the information derived from the sources.

F. Assessing the effectiveness of a strategy.

1. Formulate the answer(s) found by using the strategy.
2. Compare the answer(s) found with the statement of the question to be answered.
3. Evaluate the success of the strategy selected in relation to the effectiveness of the answer found, time, cost and effort used.
4. Determine whether the original question has been answered.

G. Using information

1. Identify the audience for the information.
2. Determine the physical format of presentation.
3. Select and arrange the intellectual content of the presentation.
4. Prepare the presentation.

H. Storing information for future use.

1. Consider storage requirements of discrete information items.
2. Determine retention value of each item.
3. Discard items of no continuing value.
4. Determine physical storage mechanism(s) for items to be retained.
5. Determine intellectual access points for items to be retained.
6. Prepare items to be retained according to physical and intellectual access requirements.
7. File items in personal files.

(Bjørner 1991 p157)

The taxonomy has been field tested in the USA. The test involved asking the participants to think of an information problem that they had recently experienced. The group was then asked to correlate their strategies to those listed. Evidence suggests that the taxonomy is valid in that where the test group had not used a particular element there was agreement that it ought to have been.

The work that I have been undertaking in TAFE♦TEQ is also based on a set of competencies. The competencies are based on the question steps included in the publication *Information Skills in the Secondary Curriculum* (Schools Council Curriculum Bulletin 9, Methuen Educational, 1981) as Appendix B.

These stages are restated as competencies, i.e. *the student must be able to:*

- formulate and analyse an information need
- ide.tify and appraise the worth of likely information sources
- trace and locate individual resources
- examine, select and reject individual resources in the light of the information need
- interrogate resources to isolate required information
- record and store information
- interpret, analyse, synthesis and evaluate information gathered
- present and communicate findings
- evaluate the conduct of the process.

I will refer to how these are being developed later in the presentation.

KEY CONCEPTS IN MASTERING INFORMATION SKILLS

In using information effectively certain key concepts are involved.

Information resources are collections of information data. To create the resource, this data has been coherently organised and is capable of being understood by the target group of clients. Information resources are used by teachers to develop the knowledge base of the student.

Very rarely is the student expected to use an information resource in its entirety at the one time. Certainly over a period of time the whole resource may be used, but for most cases learning activities will be more finely focussed. Of course, an exception to this is where the information resources itself is finely focussed and not lengthy.

The expectation of teachers directing students to use i formation resources is that the students will:

- identify and define their information need
- locate resources that may satisfy that need
- decompose the resource into information data while retaining the coherency of structure
- evaluate and select, from that resource, information data that will assist in satisfying the need
- repeat identification, decomposition, evaluation and selection until a satisfactory body of information data has been isolated
- recompose the information data into a new information resources that will satisfy the initial need definition
- use the created information resource and add to the knowledge base of the student.

Critical to success is the student's:

- mastery of the skills of information literacy
- ability to locate and retrieve information resources
- being able to work with the information resource.

The latter point is concerned with being able to decompose the information resource through note-taking or photocopying or copying portions of a computer-readable file of text and images.

TAFE♦TEQ LIBRARY ACTIVITIES 1993

During 1992 a set of information skill development modules, titled *Working with Information*, was developed by the Bayside Community College in consultation with Library Network Branch, Training and Delivery Services, TAFE♦TEQ.

A Working Party, that I convene, has been formed to continue this work by refining and widening the application possibilities of the modules.

The working party is also conducting an environmental scan to ascertain the current level of information and resources available in the area of information literacy and information literacy skills development. The culmination of this scan will be the presentation of a various papers at a colloquia staged by the working party.

The ten modules developed to help TAFE♦TEQ students use information resources effectively are based on the question steps I displayed previously. Each module includes a pretest, learning activity, post-test and expansion activities. With the Mayer Committee supporting the need for students to acquire competency in accessing and using information, this set could be a very useful resource.

While acknowledging that skills should be taught in context, these modules have been structured as stand alone resources. By doing so, they will not be locked into one or two curriculum areas. Rather they have been structured so that they can be used in a variety of subject areas. Each module requires a only short time to compete.

It is planned that, where students are engaged in a learning activity and a skill deficiency is identified, they will disengage from that activity and work through the appropriate module(s). On completing the module, they re-engage in the activity and put the newly taught skill into practice thereby providing context and immediate re-inforcement for the skill.

The pilot version of the modules has been forwarded to all Queensland TAFE college libraries for beta testing, evaluation and review. It has also been offered for sale throughout Australia

In drawing this paper to a close, I have attempted to show the forces affecting the delivery of vocational education, explored the concept of information literacy and outlined what we perceive to be the major concepts to be developed.

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