INFORMATION SKILLS: THE KEY TO TOMORROW TODAY

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ABSTRACT

Learning in TAFE today requires that students have skills in the key competencies of:

- collecting analysing and organising ideas and information
  and
- communicating ideas and information.

These competencies are being included in TAFE curriculum documents. Acquisition of the competencies supports student learning tomorrow by giving students the skills to become lifelong learners. TAFE teachers need to consider how they will be best taught. The moves towards more flexible delivery of courses suggest that this will remain an issue for teachers into the future.

This paper is based on a range of research which indicates that students learn these skills best if they are taught in the context of a real task, and as a process. The paper supports the role of librarians in working with teachers to teach information skills and briefly outlines the work being undertaken by SIT Library in this area.

The paper concludes with an examination of some of the issues associated with assessing students’ competence in information skills with reference to the recent work undertaken in school education associated with the development of national profiles and outcomes intended as benchmarks for student achievement. The recent research of Todd and McNicholas is used to suggest a more achievable model for demonstrating student success. The paper proposes that TAFE based research in this area is required.
There is widespread agreement on the need for all members of the community to have skills in the use of information, both in order to be competent workers and to be effective managers of their personal lives. The information society is seen as being dominated, even overwhelmed by, information. (Kirk, 1987)

Mike Eisenberg (1995) identifies the dilemmas associated with this as:

- information overload which causes information anxiety
  and
- being surrounded by information yet never seeming to find what we want, when we want it, in the format we need.

The Finn Report (1991) proposed accessing and using information, analysis and critical thinking as being among the key areas of competence essential for all young people engaged in post-compulsory education and training.

This was further refined by Mayer (1992) as:

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

These, and other competencies, have been included as learning outcomes in many TAFE curriculum documents.

Information professionals and teachers of information literacy applauded these developments.

However the decade is almost over and there is no evidence to show if, or how, the competencies are being successfully taught in TAFE, nor is there evidence to indicate that if they are being taught that students are benefiting. This paper considers some of the issues associated with assessing student success in the area of the above two competencies and suggests that there is a need for TAFE-based research in this area.

**Teaching information skills - Background**

There is a body of literature in the field of information science dating from the seventies which suggests that skills associated with the use of information are best taught as a process and in the context of a real task. In the case of students this task is usually one associated with the content of the curriculum. Schools across Australia have, since the late eighties, been teaching information skills in this way. Irving and Marland (United Kingdom); Kulthau and Eisenberg (United States) and Kirk and Todd (Australia) have all supported this framework.

The NSW Department of Education developed a policy document *Information skills in the school* (1989) which stated that the teaching of information skills should be taught across the curriculum and was the responsibility of all teachers. The model adopted to describe the process had six steps: Defining, Locating, Selecting, Organising, Presenting and Evaluating.

In many schools the teacher-librarian has played a key role in the information skills program, working in partnership with teachers to develop students' information literacy.
Similarly the national guidelines for TAFE libraries *Focus on Learning* (1995) state that one of the roles of a TAFE library or Learning Resource Centre is to:

- actively encourage guide and empower students and staff to acquire lifelong learning skills through the provision of information literacy and learning skills programs. (p16)

**Information skills - a partnership between library staff and teachers at SIT**

An initial examination of TAFE curriculum documents suggests that students are given many opportunities to develop skills in collecting, analysing and organising ideas and information and in communicating ideas and information.

A number of modules specify the two communication competencies related to information as learning outcomes. There is no sense however that within a course information skills are taught as a continuum or that more advanced courses build on the foundation of information skills already taught or acquired.

To following illustrate the diversity of approaches found in different modules and courses:

- the competencies refer only to oral information and achievement is demonstrated by undertaking a practical spoken task
- the information skills are only related to one or two sources of information (the text book and the teacher)
- the information is to be gathered from observation and verbal questioning and presented in a written report
- the skills are taught as a module, for example the Research Methodology Module which is included in a number of courses including Public Relations, Marketing Management, Retail Strategic Management, Business Studies, Advertising and Human Resource Management. Such modules need to be taught in the context of the content of other modules within the course or they may be viewed by students as irrelevant and there may be little transfer of skills.
- the learning outcomes or assessment strategies require students to access a range of resources to complete an assignment or project.

In the latter two cases the skills of library staff and the resources within the library are able to contribute to student success. SIT Library staff over the last two years have developed a program which targets courses and modules which include these opportunities to teach information skills. We have been working with teachers to teach students the information skills process in the context of an assignment set as part of the course. We have adopted the following steps to describe this process:

**Defining**

Library staff have given particular emphasis to the need to support students in this first step - Kuhlthau (1991) found that "in the initial stages of a problem specifying precisely what information is needed may be nearly impossible for the user" (p.363). Todd and McNicholas's research (Todd,
Also supports the benefits of focusing on this step. In traditional library education classes this step would receive little attention.

**Locating**
Library staff teach location skills which are relevant to the location of sources of information relevant to the specific information task. General library workshops and tours were targeted in the past to the location of resources relevant to the subject or relevant to a specific assignment if this was provided.

**Selecting**
"As users move through levels if information need and stages of an information problem, their judgements of relevance are also likely to change, reflecting their personal knowledge of the topic and their understanding of the problem." Saracevic (1975) quoted in Kuhlthau 1991 p.363 It is at this step that one becomes aware of the iterative nature of the information seeking process. This judgement of relevance is directly related to the definition of the task. Initial understanding of the definition is often modified as the information user gains greater knowledge as a direct result of the information search.

**Organising** This step frequently requires skills in analysis and synthesis.

**Presenting**
The steps of organising and presenting are not always seen as the province of the librarian although in a number of recent cases librarians have continued working with teachers to develop these skills.

**Evaluating** - in this model evaluating refers to self-evaluation and reflection by the student.

Librarians have theoretical understandings and practical expertise in information management and these provide a firm foundation for this program. A professional development workshop "Understanding Information literacy" was developed by the SIT Library Information Literacy Committee and all library staff have attended this course. The course has been run on a fee-for-service basis in two other Institutes. All librarians have now undertaken the three day National Teaching and Learning Program to improve their teaching skills. A workshop to give library staff skills in analysing TAFE curriculum documents, with a view to identifying opportunities to work in partnership with teachers to develop student's information literacy skills, has been developed and by early 1998 all librarians will have completed this workshop.

Are we making a difference? Does this program contribute to module success rate? Some research in this area, in partnership with teachers could answer these questions?

**Information skills - Assessment issues**
It is difficult to measure an individual’s improvement in developing information skills. Indeed it is difficult to assign a level of difficulty to any information task. Apparently simple tasks may in some conditions become more difficult. For example the children’s picture book *Each peach, pear plum* invites children to play ‘eye-spy’ and locate well known nursery rhyme characters from visual clues in a series of pictures. Would adults from a non-western culture identify Cinderella from a glimpse of an arm and a feather duster? Background knowledge is an important element in the level of difficulty in any information task.
As teachers we can make a task simpler by providing one of two sources of information from which students can extract relevant facts instead of expecting the student to locate these sources for themselves from a library. When we encourage use of the Internet the location step may seem simpler because of the powerful search engines available but selecting the relevant information from the vast amount retrieved can make the task very difficult and issues associated with judging the authority of Internet information increase the level of difficulty again.

In addition TAFE curriculum documents do not specify the level of competence required. Do we assume different levels for example in Certificate courses as opposed to Advanced Diploma? We have no quantitative or qualitative benchmarks to assist.

The Finn Committee identified the need to assess achievement of key competencies and identified a number of desirable features of a system for assessing achievement in the key areas. Masters (1992) examined three frameworks which could be used to develop nationally agreed competence profiles against which achievements in key competencies could be assessed and recorded. He rejected a normatively-defined framework as this would not indicate the kinds of knowledge, skills and understandings that students have achieved, nor would it provide an adequate basis for monitoring individual growth. Masters also rejected what he described as the frameworks of precision which had in the past resulted in assessment and reporting frameworks which were unwieldy and impractical in their complexity and specificity. Masters advocated the development of what he described as a probabilistic framework. Included in the key ideas underlying such a framework were:

Progression ...... The frame of reference under this approach is not a checklist of competencies, but a progression of increasing competence along which individual growth can be charted and

Probabilistic interpretation. Rather than attempting to say with certainty what a person has mastered or is able to do, this approach interprets an individual's level of competence by describing what can be typically expected of a person with that level of competence. The comparison is thus between a person's estimated level of competence and descriptions of typical achievements (behaviours) at various levels along an achievement continuum. (Masters 1992 pp 71 -72)

The National Profiles and Outcomes developed in 1992 and 1993 for the eight key learning areas in the compulsory years of schooling could be described as a probabilistic framework. The National Profiles have been described as "maps of the learning outcomes typically achieved by students as they progress through ...... Years 1 to 10. (Hill 1994 p.37).

For each learning outcome at each level pointers were developed which were to serve as a guide to teachers in their professional judgements as to whether students had achieved the outcome. For example the NSW English K - 6 syllabus (1994), one of the first to incorporate this outcomes and profiles approach, stated that the following pointers would serve as indicators that students had achieved the outcome “With teacher guidance, uses several strategies for identifying resources and finding information in texts”

- predicts and lists a range of resources for answering focus questions (print and non-print, literary and factual films, photographs, charts, people)
- searches for and finds a few information resources relevant to topic or questions by browsing, asking for help, using a catalogue, skimming texts
• finds information in junior reference material using the table of contents, index, page numbers, heading and captions, key words

• makes brief notes of information relevant to the topic, recording resources used.

• makes some comparisons between information from different formats and sources

• participates in class brainstorming activities to identify and narrow a research topic, to cluster and categorise ideas and to develop focus questions to guide a search for information.

These pointers relate to the Reading strand of Level 3 of this curriculum. Each strand, of each level of each of the eight key learning areas could be expected to address information skills if we accept that these skills are the responsibility of all teachers and that they will be taught as a continuum. The complexity associated with assessing achievement in information literacy becomes immediately apparent.

Richard Sweet (1992), a researcher with the Dusseldorp Skills forum warned when the Finn Report was published that "the stress upon common national frameworks for levels, assessment and reporting will lead to more important but harder to measure workplace competencies - problem solving and personal and interpersonal skills - being put into the too hard basket" (p. 40). I would suggest that assessment of success in information skills may also be in danger of being regarded as too hard.

Measurement of success - an alternative model

Are there other ways in which we could measure the impact of information literacy programs on student’s success?

Some recent research undertaken in Sydney by Ross Todd (University of Technology, Sydney) and Celeste McNicholas (Marist Sisters’ College at Woolwich, Sydney) offers a more holistic approach. Todd and McNicholas (1993) undertook empirical research in which they compared student achievement in classes in which the teacher organised the approach to teaching based on the information skills process against control classes taught by more traditional methods. The findings were that "there is a measurable and statistically significant increase in learning achieved by students who have gone through a consistent period of teaching using information skills strategies" (McNicholas 1994). As part of this project Year 7 students in the school were allocated randomly to five science classes two of which were taught using strategies which gave priority to information management. Two of the other Year 7 classes were identified as control groups. The following year the students were placed in Science classes based on their Year 7 academic results. Statistically the two classes in which the teacher organised the approach to teaching based on the information skills process should have contributed 12 students to the top Year 8 class. In fact 27 students in the top class were drawn from these classes.

In 1993 further information was published on the work being undertaken by Todd and McNicholas. These results related to extended learning programs for students in Years 7, 8 and 9, in which information skills had been purposefully integrated into specific curriculum content. Data was both qualitative and quantitative, based on lengthy participant observation and in-depth interviews. The following are some of the findings:
Students felt that

- defining skills contributed to increased confidence in knowing how to ask appropriate questions, and an improved ability to map out what is already known in order to more effectively determine what is needed to be known

- organising skills facilitated student's ability to manage the complexity and quantity of information confronted both within and out of the classroom

- selecting and organising skills have students more confidence in managing the tasks of meeting information requirements ....

- selecting and organising skills helped students separate trivial from significant information and encouraged more critical assessment of the information ..... 

Students believed that:

- information skills were empowering, enabling them to make sense of and take control of their learning

- information skills encouraged responsibility for learning, and learning from mistakes

- information skills helped learning at a deeper level and gave confidence to explore the unknown

Teachers felt that:

- mastery of information skills provided a sense of achievement and satisfaction and improved self-esteem

- learning to manipulate and arrange information contributed to self-directed, autonomous information seeking

- there was some evidence of transfer of skills to other information problems beyond the immediate context of the classroom and subject content. (Todd 1993)

The results of this study suggest that this approach is valuable. The results may, or may not, apply to TAFE students. One would expect a higher level of information literacy in most TAFE students compared to Year 7 students. However one could also hypothesise that TAFE courses require more sophisticated and more complex information skills than do Year 7 courses and many students may not have achieved information skills to the level required. Todd and McNicholas's results suggest that having effective information skills could have a positive impact on the success rates for students undertaking any course. These benefits may be even more apparent for students undertaking courses delivered in a flexible mode.

The challenge for TAFE library staff and teachers in the competitive VET environment is to demonstrate the effectiveness of the learning programs for which we are responsible. To be able to
do this in the area of the two the key competencies which are the subject of this paper would be particularly useful. Is there anyone out there who would like to take up the challenge?

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