TEACHER EDUCATION AND INFORMATION LITERACY: A COURSE PROPOSAL

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Children of all ages can discover infinite numbers of facts by simply pressing buttons on a computer. With this total access there are no limits on the amount of misinformation, bias and untruth, which may also find their way into a student's knowledge base via the electronic media. How are children to learn the skill of discernment, the ability to discriminate the true from the untrue? The obvious answer to this question is, "The teacher should teach the student to use electronic media properly ." True, but who teaches the teacher? This paper attempts to provide an answer.

Students from elementary school to universities in developed and developing countries see the electronic media as their prime source for knowledge required for school work and for their own edification. It is wonderful to have access to all the knowledge presently available to humankind. We live in an age of information saturation and a large measure of that information is delivered electronically. The plethora of information available through electronic media is awe inspiring and not a little frightening to the classroom teacher, if not to the potential student user. The answer to any question, the solution to any problem, the information any scholar needs -all this is the promise of the electronic media. News, advertising, information and entertainment are conveyed through television; information on any topic, advertising, communication and entertainment are available via the Internet. We have legislation to help protect children from pornography on the Internet. However, we do not have laws which provide the skills of reflective thinking and discernment. Who is going to teach our children how to efficiently and knowledgeably travel the electronic path to secure the information they need? The obvious answer to that question is, of course, the teacher, which then raises another question: who teaches the teacher?

Faced with this problem, it was decided that a viable solution would be the development of a course in "Information Literacy" as part of the Teacher Education curricula at the college level. The goal of Information Literacy instruction is to help elementary education majors become better consumers and users of correct information, both written and via the Internet. To this end and following University protocol, a brief questionnaire was developed and administered to elementary and secondary student teachers with anticipated results indicating the need for formal instruction in Information Literacy. [The survey is a mandatory step in the process of adding coursework to an established curriculum.] The process of construction of the new course, review by media specialists, university research librarians, curriculum committees, and overview by the state teacher certification regulation department takes approximately three years.

The present researchers have attempted to determine the need for such a course as part of teacher training in one University service area. In anticipation of a positive response, the outline for a pilot Information Literacy course will be constructed and presented with this paper.

Over thirty years ago, Alvin Toffler in *Future Shock* (1970) coined the phrase "information overload" to describe the state of information delivery at the time. The description is even more apt today than it was in Toffler's day. We are living in an age of information saturation. We are bombarded on all sides by news bulletins, "infomercials", advertising, religious programming and propaganda. The Internet purports to provide us with information on any topic desired. In a speech in 1992, James B. Appleberry, executive director of the American Association of State Schools and Colleges, quoted the following statistics:

The sum total of humankind's knowledge doubled from 1750 to 1900. It doubled again from 1900 to 1950. Again from 1960 to 1965. It has been estimated that the total of humankind's knowledge has doubled at least once every five years since then... It has been further projected that by the year 2020, knowledge will double every 73 days! ("Changes in Our Future, How Will We Cope?" Faculty speech presented at California State University, Long Beach, CA, 28 August, 1992).

Most of the world today is very media oriented; that is, most people expect to receive all the information they need from one media source or another, much of it electronic, and this is especially true in the United States. Much of our thinking is influenced by television and, by extension, the Internet. Children tend to believe that anything they see on television or on a computer monitor is absolute fact. They are not able to discriminate truth from fiction and they grow up with an unshakable confidence in the electronic word. They build their structure of knowledge - beginning with *Sesame Street* and the cartoons; and, from there to computer games, Madison Street propaganda, and the Internet - essentially on a foundation of quicksand. In the schools they get "Channel 1" -more television -and access to the Internet.

In technologically developed countries, most students, when given a research assignment, turn automatically to the Internet for information. For some, the Internet provides easy access to knowledge and information because they have home computers and have grown up with the feeling that "it's all on the Internet". For others, the Internet provides a

short-cut to information with no real knowledge expected or absorbed. For a few, for whom the Internet is not easily accessible, it may be of no more use than an encyclopedia or other reference work which they must use in a library. There is no argument that there is a wealth of material, good, mediocre and some downright bad, available on-line. Laws have been passed designed to protect children from things to which they should not be exposed. However, how are children to be protected from the dangers of misinformation? It will naturally fall upon teachers to instruct students in the proper usage of the Internet and all electronic media as research sources; and, thus, the onus is upon the colleges and universities to prepare those teachers to assume this awesome responsibility.

In addition to the Internet as a source of information for the classroom, there are software programs designed for use in classes or school libraries. With all the emphasis upon the use of technology in schools, libraries, higher education and residences, additional questions arise, "Who determines the quality of information available, the appropriateness of its presentation, and its accuracy?" If this is to be the responsibility of the teacher, as it should be, how is the teacher to be prepared.? The answer is, of course, through yet another addition to the teacher preparation curricula: course work in Information Literacy.

Information Literacy has been defined by the American Library Association's *Presidential Committee on Information Literacy: Final Report* (1989) as "…knowing when information is needed; identifying the information needed to address a given problem or issue; finding the needed information; organizing the needed information; using the information effectively to address the problem or issue at hand"(5).

Patricia Senn Breivik (1998) adds,

> [It involves the ability to:] gather needed information from a variety of sources; test the validity of information as it remains constant and as it changes from discipline to discipline; place information into various contexts that will ultimately yield its pertinent meaning; and, remain skeptical about information while discriminating between fact and truth. And, to produce information-literate graduates, higher education can no longer accept a teaching environment in which a significant portion of faculty view students as mere passive receivers of information... students must be coached through the ever-changing mazes of information so that they can become sophisticated users of information resources and technologies. Producing such a citizenry will require educators in both the schools and college levels…to integrate the concept of information literacy into their learning programs. (3)

Carrying Dr. Breivik's thinking a step further, we must produce teachers who are capable of passing on their own technological research skills to their students.

Questionnaire

A questionnaire was developed by the researchers in order to obtain data and determine whether undergraduate and graduate education majors knew, used, or had formal training in information literacy. The questionnaire was based upon the following five objectives, to determine:

1. if teachers, at whatever teaching level, use the Internet for research;
2. if teachers allow or encourage students to use the Internet for research;
3. if teachers are aware of the pitfalls of indiscriminate use of the Internet;
4. if the teacher ever had any training in the use of electronic media for the classroom; and,
5. if the teacher ever had a course in "information literacy".

A 14-item instrument was developed. A trial survey was administered to 57 students. The results were inadequate as most answers were blank. The researchers felt that modifications to the questionnaire were necessary. A new questionnaire was designed which resulted in additional data being collected (see appendix). This new questionnaire was administered to 157 students. The majority of the subjects were undergraduate students, predominately females, and Caucasian. The subjects attend a public, state-supported institution of higher learning, located in the southeastern part of the United States. Most subjects were elementary education majors.

Content validity of the questionnaire was tested to determine if it reflected the objectives. Four additional objectives were included with the original five. A 100% agreement occurred among the seven-member panel. The panel consisted of seven tenure-track faculty members in the College of Education. None was associated with the study.

The data were analyzed using descriptive statistics and percentages of responses for each questionnaire item. Following are some of the findings: the majority of students have had a college level media course; own a computer with internet access; spend at least one hour per week on the internet for planning instruction; encourage/permit the use of the internet for research in reading, literature, language arts, math, social studies, and science; have had no formal course in information literacy, and feel comfortable at doing research on the internet (see tables in Appendix). More subjects indicated that they identified appropriate web sites through key word searches, by way of other web sites, or in consultation with other teachers.

The Course

The outline of the course, with the approval and collaboration of librarians, was constructed so that elementary teachers may learn to use the available databases efficiently and discriminate valid information from the invalid. Once the Information Literacy course is approved and developed, the professor of the elementary education curriculum will work closely with the professor teaching this new course to ensure that the two goals are met. Additionally, the required elementary education courses will blend the content with the techniques learned in the Information Literacy course.

Having determined that there is a need at the pre-service level for course work in information literacy in teacher training programs, the researchers developed an appropriate delivery system for instruction, using criteria and benchmarks developed and disseminated by the American Association of School Librarians, the Association for Educational Communications and Technology, along with the Montana Standards for Media literacy and Media Literacy Performance Standards. Needing to be addressed in any information literacy course are two major points: students must learn to use the available databases efficiently and they need to learn how to discriminate the valid from the invalid. Instruction should be resource based, with students learning by doing. This approach allows students the option of learning from more than one medium.

At the beginning of the semester, the cooperating reference librarian will, with the pedagogy professor, give the students an in-depth introduction to appropriate print and database reference sources and their use as verification tools in research. Students will be required to complete a series of hands-on research assignments, to discuss problems in class, to participate fully in all classroom activities, instructor-led discussion of problems and potential problems, to assist others via cooperative learning techniques, to construct knowledge and to reflect upon what has been learned. A term project (electronic presentation) will be required. As a follow-up, new in-service teachers who have taken the course will be questioned as to the appropriateness, usefulness, and their overall evaluation of the course.

The Syllabus

Information Literacy is to be a graduate/undergraduate-level course, open to both in-service and pre-service teachers, librarians and any other interested, qualified individuals. The description states,

> This course is designed to investigate various aspects of research and information seeking. It is designed to aid educational professionals and others in their efforts to devise educational activities that engage the learner in research activities that require critical analysis of information gathered. It is designed to help educational professionals work with students to become critical thinkers, intellectually curious observers, creators and discriminating users of information.

The course objectives are behavioral and state, The students will:

- be able to identify and analyze their own information needs and those of their own students;
- understand that criticism must occur and develop viable critical processes;

- possess the discriminatory skill and process to enable them to locate and evaluate information and information sources for appropriateness, reliability, bias, completeness and timeliness;

- be able to organize information and critically utilize informational sources;

- use information to meet immediate and long-range needs.

For criteria the instructor will use "Information Literacy Standards Indicators and Levels of Proficiency", developed and disseminated by the American Association of School Librarians (AASL) and the Association for Educational Communications & Technology (AECT), and published by the American Library Association (ALA) along with the Montana Standards for Media Literacy, Evaluating Web Resources (Alexander & Tate. *Web Wisdom.* 1999), and Media Literacy Performance Standards. (Additional resources will be presented.)

After an in-depth introduction to print reference sources and their use as verification tools conducted by a university reference librarian, students will be required to complete a series of hands-on research assignments, to discuss progress in class, and to participate fully in all classroom activities, instructor-led discussions of problems and potential problems, to assist others via cooperative learning techniques, to construct knowledge and reflect upon what has been learned.

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Appendix I

Information Literacy Questionnaire

This is a questionnaire designed around the concept of Information Literacy. Information Literacy is defined as identifying, organizing, and using information effectively to address a problem or issue at hand. Please answer all questions.

All answers are anonymous.

List any college level technology and or media courses taken: _____

_____

Do you own a computer with Internet access? Yes___ No___

How much time (in minutes and hours) per week do you use the Internet for instructional planning and preparation?_____

Place a check next to each subject to indicate whether you **encourage, permit, discourage**, or **forbid** students to use the Internet for research in the following subjects:

SUBJECTS	Encourage	Permit	Discourage	Forbid
Reading				
Literature				
Language Arts				
Math				
Social Studies				
Science				
Other subjects not listed:				

As part of your teacher preparation coursework did you have a formal course in "Information Literacy" Yes____ No____ Was "Information Literacy" discussed within another course(s)? Yes___ No____ If within another course(s), what was/were the course(s)?

How do you identify Internet sites for use in your classroom and what are your criteria for judging their appropriateness, accuracy, and/or quality?

Are you comfortable doing educational research on the Internet?

Appendix II

Tables of Results from Questionnaire

College level media courses

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	1	.6	.7	.7
CIS 150	3	1.9	2.2	2.9
EDM 310	87	55.4	63.5	66.4
Combination	26	16.6	19.0	85.4
Other	20	12.7	14.6	100.0
Total	137	87.3	100.0	
Missing System	20	12.7		
Total	157	100.0		

Computer with Internet access

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	129	82.2	86.6	86.6
	No	20	12.7	13.4	100.0
	Total	149	94.9	100.0	
Missing	System	8	5.1		
Total		157	100.0		

Time per week on Internet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	17	10.8	12.0	12.0
	.25	1	.6	.7	12.7
	.50	4	2.5	2.8	15.5
	1.00	11	7.0	7.7	23.2
	1.50	5	3.2	3.5	26.8
	2.00	14	8.9	9.9	36.6
	2.50	4	2.5	2.8	39.4
	3.00	17	10.8	12.0	51.4
	3.50	5	3.2	3.5	54.9
	4.00	7	4.5	4.9	59.9
	4.50	2	1.3	1.4	61.3
	5.00	9	5.7	6.3	67.6
	6.00	6	3.8	4.2	71.8
	6.50	1	.6	.7	72.5
	7.00	2	1.3	1.4	73.9
	7.50	3	1.9	2.1	76.1
	8.00	4	2.5	2.8	78.9
	9.00	2	1.3	1.4	80.3
	10.00	6	3.8	4.2	84.5
	12.00	3	1.9	2.1	86.6
	12.50	1	.6	.7	87.3
	13.00	1	.6	.7	88.0
	13.50	2	1.3	1.4	89.4
	14.00	2	1.3	1.4	90.8
	15.00	2	1.3	1.4	92.3
	16.00	1	.6	.7	93.0
	20.00	6	3.8	4.2	97.2
	25.00	2	1.3	1.4	98.6
	35.00	1	.6	.7	99.3
	56.00	1	.6	.7	100.0
	Total	142	90.4	100.0	
Missing	System	15	9.6		
Total		157	100.0		

Use of Internet for reading research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	encourage	92	58.6	68.7	68.7
	Permit	34	21.7	25.4	94.0
	Discourage	7	4.5	5.2	99.3
	Forbid	1	.6	.7	100.0
	Total	134	85.4	100.0	

Missing System	23	14.6		
Total	157	100.0		

Use of Internet for literature research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	encourage	92	58.6	70.2	70.2
	permit	31	19.7	23.7	93.9
	discourage	7	4.5	5.3	99.2
	11.00	1	.6	.8	100.0
	Total	131	83.4	100.0	
Missing	System	26	16.6		
Total		157	100.0		

Use of Internet for language arts research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	encourage	89	56.7	67.9	67.9
	1.50	1	.6	.8	68.7
	permit	39	24.8	29.8	98.5
	discourage	2	1.3	1.5	100.0
	Total	131	83.4	100.0	
Missing	System	26	16.6		
Total		157	100.0		

Use of Internet for math research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	encourage	83	52.9	63.8	63.8
	permit	40	25.5	30.8	94.6
	discourage	7	4.5	5.4	100.0
	Total	130	82.8	100.0	
Missing	System	27	17.2		
Total		157	100.0		

Use of Internet for social studies research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	encourage	118	75.2	89.4	89.4
	1.50	1	.6	.8	90.2
	permit	13	8.3	9.8	100.0
	Total	132	84.1	100.0	
Missing	System	25	15.9		
Total		157	100.0		

Use of Internet for science research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	encourage	117	74.5	90.7	90.7
	1.50	1	.6	.8	91.5
	permit	11	7.0	8.5	100.0
	Total	129	82.0	100.0	
Missing	System	28	17.8		
Total		157	100.0		

Use of Internet for other research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	encourage	15	9.6	83.0	83.0
	permit	3	1.9	16.7	100.0
	Total	18	11.5	100.0	
Missing	System	139	88.5		
Total		157	100.0		

Formal course in information literacy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	32	20.4	23.4	23.4
	no	105	66.9	76.6	100.0
	Total	137	87.3	100.0	
Missing	System	20	12.7		
Total		157	100.0		

Information literacy discussed in another course

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	57	36.3	45.2	45.2
	no	69	43.9	54.8	100.0
	Total	126	80.3	100.0	
Missing	System	31	19.7		
Total		157	100.0		

Appropriate Internet sites identified by:

word searches or other sites	15	10%
recommended by another teacher/professor	13	8%
learned from a book	2	1%
Blank	127	81%

Are you comfortable doing ed research on the Internet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	130	82.8	87.8	87.8
	no	2	1.3	1.4	89.2
	blank	16	10.0	10.8	100.0
	Total	148	94.3	100.0	
Missing	System	9	5.7		
Total		157	100.0		

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