



The Information Literacy Competency Standards: Teacher Education Perspective

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Abstract:

Information literacy (IL) is best addressed at multiple levels in the education process. Information literate students are more effective consumers of information resources. It has become a lot evident that students cannot learn everything they have to grasp in their field of study. Data acquirement equips them with the important skills necessary to become freelance long learners. At the same time, educators and researchers should grapple with shaping the standards and competencies related to data acquirement, develop effective new ways that to interact learners and live the end result and impact of such learning. In Indian context once lecturers encourage students to try to their own analysis, students take responsibility for his or her learning, and that they retain a lot of the data they need gathered for them. This, in turn, creates a greater responsibility towards their own learning, which would help them become dynamic learners and thinkers who are creative, analytical and efficient, instead of mere regurgitations of facts.

Keywords: Information literacy, Teaching, Learning, IL standards for Teacher Education

Introduction:

The quickly changing information and technology landscape requires increasingly sophisticated information literacy skills for the navigation, evaluation, and use of information (Jenkins, 2006). Teachers play a key role in providing students with diverse opportunities to learn how to use information wisely. Those preparing to become pre-kindergarten to twelfth grade (PK-12) teachers require a comprehensive understanding of information literacy to guide their own knowledge creation activities that will ultimately affect their future students. Yet, researchers have shown that future teachers often enter teaching without the necessary information literacy skills and knowledge (Lavery & Reed, 2006). Experiences in pre-service, graduate, and continuing education programs shape how teachers model and facilitate student learning in their

own classrooms. The development of information literacy tools and knowledge is fundamental to teacher education students' abilities to evaluate and use diverse and continually changing information sources in their academic work and pre-service teaching. Once in their own classrooms, PK-12 teachers model for their students how to critically navigate the current maze of information and how to use information to construct credible arguments: Information literacy competence enables pre-service teachers to develop a robust understanding of the role of information in their lives, and to model information literacy to PK-12 students.

INFORMATION LITERACY: CONCEPT AND MEANING

Information literacy means the set of skills, attitudes and knowledge necessary to know when information is needed to help solve a problem or make a decision, how to articulate that information need in searchable terms and language, then search efficiently for the information, retrieve it, interpret and understand it, organize it, evaluate its credibility and authenticity, assess its relevance, communicate it to others if necessary, then utilize it to accomplish bottom-line purposes. Sometimes the terms "Information Competency," or "Information Fluency" or even other terms, are used in different countries, cultures or languages, in preference to the term Information Literacy.

An information literate individual is able to:

- determine the extent of information needed
- access the needed information effectively and efficiently
- evaluate information and its sources critically
- incorporate selected information into one's knowledge base
- use information effectively to accomplish a specific purpose
- understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

According to American Library Association (ALA, 1998), "Information literacy is a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information".

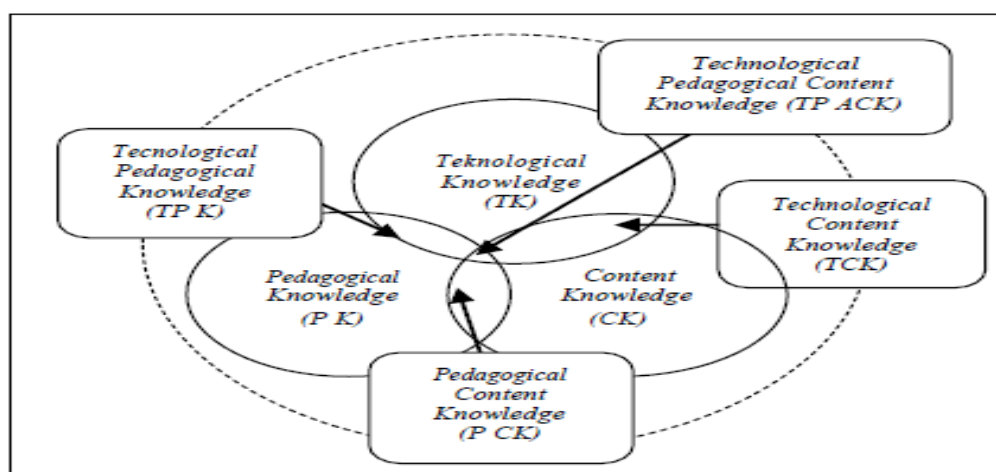
Theories and models related to information literacy competence in education

Constructivist learning theory

Till today, the emergence of ICT in instructional technology has been coincided with the increasing awareness and recognition of alternative theories for learning. Most of past study on information literacy is dominated by constructivists who are emphasizing those individuals, as active builders of meaning and they should be independent and self-sufficient (Tuominen et al., 2005).

Constructivism approaches information literacy by learning how individual required information, seeking the information and the relevance criteria of individuals are affected or directed by their current emotional and cognitive states, situations and tasks. Typically, the traditional approach that requires teachers presented certain problems to the student to enable them to repeat steps that have been shown by teacher before. However in constructivism student need to control elements (i.e.: using multimedia) in the learning environment, even better thereby (Mayer & Moreno, 2002).

Contrary to the views expressed in the theory of constructivism, process to integrate technology, content and pedagogy to develop technological pedagogical content knowledge (TPACK) is easy (Koehler & Mishra, 2009). The teaching process using TPACK is critical in the competency literacy ICT development for new generations of teachers in the future. To enable real changes made in ICT education, leaders need to be trained among educators and teachers (Doyle & Reading, 2012). In TPACK model, the role of education and teachers is very important in realizing the changes to ICT education in educational system. Nore, Engeliën & Johannesen (2010) also stated that TPACK is useful in understand and manage teaching practices and also to determine the need for competence among teachers and school management (Nore et al., 2010).



Technological Pedagogical Content Knowledge (TPACK)

Source: Mishra and Koehler (2009)

Figure 1. TPACK framework

Standards, Performance Indicators, and Outcomes

Standard One

The information literate student determines the nature and extent of the information needed.

Performance Indicators:

1. The information literate student defines and articulates the need for information.

Outcomes Include:

- Confers with instructors and participates in class discussions, peer workgroups, and electronic discussions to identify a research topic, or other information need
- Develops a thesis statement and formulates questions based on the information need
- Explores general information sources to increase familiarity with the topic
- Defines or modifies the information need to achieve a manageable focus
- Identifies key concepts and terms that describe the information need
- Recognizes that existing information can be combined with original thought, experimentation, and/or analysis to produce new information

2. The information literate student identifies a variety of types and formats of potential sources for information.

Outcomes Include:

- Knows how information is formally and informally produced, organized, and disseminated
- Recognizes that knowledge can be organized into disciplines that influence the way information is accessed
- Identifies the value and differences of potential resources in a variety of formats (e.g., multimedia, database, website, data set, audio/ visual, book)
- Differentiates between primary and secondary sources, recognizing how their use and importance vary with each discipline

3. The information literate student considers the costs and benefits of acquiring the needed information.

Outcomes Include:

- Determines the availability of needed information and makes decisions on broadening the information seeking process beyond local resources (e.g., interlibrary loan; using resources at other locations; obtaining images, videos, text, or sound)

- Considers the feasibility of acquiring a new language or skill (e.g., foreign or discipline-based) in order to gather needed information and to understand its context
- Defines a realistic overall plan and timeline to acquire the needed information
- The information literate student reevaluates the nature and extent of the information need.
- Reviews the initial information need to clarify, revise, or refine the question
- Describes criteria used to make information decisions and choices

Standard Two

The information literate student accesses needed information effectively and efficiently.

Performance Indicators:

1. The information literate student selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.

Outcomes Include:

- Identifies appropriate investigative methods (e.g., laboratory experiment, simulation, fieldwork)
 - Investigates benefits and applicability of various investigative methods
 - Investigates the scope, content, and organization of information retrieval systems
 - Constructs a search strategy using appropriate commands for the information retrieval system selected (e.g., Boolean operators, truncation, and proximity for search engines; internal organizers such as indexes for books)
 - Implements the search strategy in various information retrieval systems using different user interfaces and search engines, with different command languages, protocols, and search parameters
 - Implements the search using investigative protocols appropriate to the discipline
2. The information literate student retrieves information online or in person using a variety of methods.

Outcomes Include:

- Uses various search systems to retrieve information in a variety of formats b. Uses various classification schemes and other systems (e.g., call number systems or indexes) to locate information resources within the library or to identify specific sites for physical exploration

- Uses specialized online or in person services available at the institution to retrieve information needed (e.g., interlibrary loan/document delivery, professional associations, institutional research offices, community resources, experts and practitioners)
 - Uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information
2. The information literate student refines the search strategy if necessary.

Outcomes Include:

- Assesses the quantity, quality, and relevance of the search results to determine whether alternative information retrieval systems or investigative methods should be utilized
 - Identifies gaps in the information retrieved and determines if the search strategy should be revised
 - Repeats the search using the revised strategy as necessary
4. The information literate student extracts, records, and manages the information and its sources.

Outcomes Include:

- Selects among various technologies the most appropriate one for the task of extracting the needed information (e.g., copy/paste software functions, photocopier, scanner, audio/visual equipment, or exploratory instruments)
- Creates a system for organizing the information
- Differentiates between the types of sources cited and understands the elements and correct syntax of a citation for a wide range of resources
- Records all pertinent citation information for future reference
- Uses various technologies to manage the information selected and organized

Standard Three

The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

Performance Indicators:

1. The information literate student summarizes the main ideas to be extracted from the information gathered.

Outcomes Include:

- Reads the text and selects main idea
- Restates textual concepts in his/her own words and selects data accurately
- Identifies verbatim material that can be then appropriately quoted

2. The information literate student articulates and applies initial criteria for evaluating both the information and its sources.

Outcomes Include:

- Examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias
- Analyses the structure and logic of supporting arguments or methods
- Recognizes prejudice, deception, or manipulation
- Recognizes the cultural, physical, or other context within which the information was created and understands the impact of context on interpreting the information

3. The information literate student synthesizes main ideas to construct new concepts.

Outcomes Include:

- Recognizes interrelationships among concepts and combines them into potentially useful primary statements with supporting evidence
- Extends initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information
- Utilizes computer and other technologies (e.g. spreadsheets, databases, multimedia, and audio or visual equipment) for studying the interaction of ideas and other phenomena

4. The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.

Outcomes Include:

- Determines whether information satisfies the research or other information need
- Uses consciously selected criteria to determine whether the information contradicts or verifies information used from other sources
- Draws conclusions based upon information gathered

- Tests theories with discipline-appropriate techniques (e.g., simulators, experiments)
 - Determines probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions
 - Integrates new information with previous information or knowledge
 - Selects information that provides evidence for the topic
5. The information literate student determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.

Outcomes Include:

- Investigates differing viewpoints encountered in the literature
 - Determines whether to incorporate or reject viewpoints encountered
6. The information literate student validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.

Outcomes Include:

- Participates in classroom and other discussions
 - Participates in class-sponsored electronic communication forums designed to encourage discourse on the topic (e.g., e-mail, bulletin boards, chat rooms)
 - Seeks expert opinion through a variety of mechanisms (e.g., inter-views, e-mail, listservs)
7. The information literate student determines whether the initial query should be revised.

Outcomes Include:

- Determines if original information need has been satisfied or if additional information is needed
- Reviews search strategy and incorporates additional concepts as necessary
- Reviews information retrieval sources used and expands to include others as needed

Standard Four

The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

Performance Indicators:

1. The information literate student applies new and prior information to the planning and creation of a particular product or performance.

Outcomes Include:

- Organizes the content in a manner that supports the purposes and format of the product or performance (e.g. outlines, drafts, story- boards)
 - Articulates knowledge and skills transferred from prior experiences to planning and creating the product or performance
 - Integrates the new and prior information, including quotations and paraphrasing, in a manner that supports the purposes of the product or performance
 - Manipulates digital text, images, and data, as needed, transferring them from their original locations and formats to a new context
2. The information literate student revises the development process for the product or performance.

Outcomes Include:

- Maintains a journal or log of activities related to the information seeking, evaluating, and communicating process
 - Reflects on past successes, failures, and alternative strategies
3. The information literate student communicates the product or performance effectively to others.

Outcomes Include:

- Chooses a communication medium and format that best supports the purposes of the product or performance and the intended audience
- Uses a range of information technology applications in creating the product or performance
- Incorporates principles of design and communication
- Communicates clearly and with a style that supports the purposes of the intended audience.

Standard Five

The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

Performance Indicators:

1. The information literate student understands many of the ethical, legal and socio-economic issues surrounding information and information technology.

Outcomes Include:

- Identifies and discusses issues related to privacy and security in both the print and electronic environments
 - Identifies and discusses issues related to free vs. fee-based access to information
 - Identifies and discusses issues related to censorship and freedom of speech
 - Demonstrates an understanding of intellectual property, copyright, and fair use of copyrighted material
2. The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.

Outcomes Include:

- Participates in electronic discussions following accepted practices (e.g. “Netiquette”)
 - Uses approved passwords and other forms of ID for access to information resources
 - Complies with institutional policies on access to information resources
 - Preserves the integrity of information resources, equipment, systems and facilities
 - Legally obtains, stores, and disseminates text, data, images, or sounds
 - Demonstrates an understanding of what constitutes plagiarism and does not represent work attributable to others as his/her own
 - Demonstrates an understanding of institutional policies related to human subjects research
3. The information literate student acknowledges the use of information sources in communicating the product or performance.

Outcomes Include:

- Selects an appropriate documentation style and uses it consistently to cite sources
- Posts permission granted notices, as needed, for copyrighted material

INFORMATION LITERACY FOR TEACHERS AND TEACHER TRAINEES

Teachers play a key role in providing students with diverse opportunities to learn how to use information wisely. Those preparing to become teachers require a comprehensive understanding of information literacy to guide their own knowledge creation activities that will ultimately affect their future students. Information literacy competence enables pre-service teachers to develop a robust understanding of the role of information in their lives.

Charudatta (2011) advocated an Information Literacy model, developed on the foundation of psychological dimensions of skill development. It will improve the thinking process about various dimensions of information. He suggested that, in teacher education context the definition of information literacy needs to be modified as, “Library and Information Literacy”, consisting of a set of abilities to

- identify the need of information
- be familiar about the resources available in the institutional libraries
- be able to find the resources available in the institutional libraries
- to suggest new resources as per the requirement
- to evaluate the resources
- to handle computers and the Internet
- to access information from all the resources
- to make use of accessed information according to level of students to who it is to be transferred.

Kamatchi and Balasubramanian (2011) reported that, information literacy skill is an essential skill to every discipline, especially for the teacher education students. It is an essential skill, to be instilled in the student community to make them competent to face future challenges of the information over-flow.

Conclusion:

Information Literacy education is an important one like environmental education, value education, peace education, etc., to teacher education students. The educationists, librarians, teachers, universities and regulatory body as National Council for Teacher Education should take collaborative decisions and efforts to start the Information Literacy movement in India. Without concerted efforts in this direction, a mass of teachers will be produced without Information Literacy who, in turn would create a whole range of doctors, engineers, accountants and above all information illiterate citizens. Such a mass of people will make up an information illiterate society which will stay cut off from the mainstream of global life, the participation in which requires a higher level of Information Literacy.

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