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UNAPREĐENJE INFORMACIJSKE PISMENOSTI UPOTREBOM PROCESA CRAAP U KOLEGIJU NAČELA MAKROEKONOMIJE

Sažetak

Ovaj rad prikazuje strategiju razvoja informacijske pismenosti na preddiplomskom studiju na Akademiji obalne straže SAD-a. U radu je predstavljen primjer sekvencijalnog pristupa unapređenju vještina informacijske pismenosti s ciljem poboljšanja sposobnosti studenata da evaluiraju i primjenjuju informacije u posebno dizajniranom okruženju za učenje uz stvaranje novih znanja na preddiplomskom studiju. U radu se naglašava da se informacijska pismenost može razviti u okviru nastave procesom od šest koraka, koji uključuju definiranje, lociranje, odabir, organiziranje, predstavljanje i ocjenjivanje. Štoviše, predloženi proces informacijske pismenosti sastoji se od pet ključnih komponenti s povezanim informacijskim pitanjima koja omogućuju dovršavanje zadataka informacijske pismenosti procesom CRAAP. Taj se proces sastoji od pet elemenata: valute, relevantnosti, autoriteta, točnosti i svrhe, koji se moraju unaprijediti i savladati tijekom četverogodišnjeg preddiplomskog programa. U radu je zaključeno da informacijska pismenost zahtijeva razvoj posebno dizajniranog okvira učenja informacijske pismenosti koji se mora primjenjivati u cijelom kolegiju upotrebom posebno dizajniranih zadataka.

Ključne riječi: preddiplomsko obrazovanje, informacijska pismenost, digitalne informacije, strategija, integracija kurikula

ADVANCING INFORMATION LITERACY USING THE CRAAP PROCESS IN THE PRINCIPLES OF MACROECONOMICS COURSE

Abstract

This paper illustrates the information literacy strategy in an undergraduate program at the U.S. Coast Guard Academy. The paper exemplifies a sequential approach to advancing information literacy skills with the goal of improving students' capabilities to evaluate and apply information in a specifically designed learning environment, while generating new knowledge in undergraduate coursework. The paper emphasizes how information literacy can be developed within coursework through a six-step process, including *defining*, *locating*, *selecting*, *organizing*, *presenting*, and *assessing*. Moreover, the proposed information literacy process consists of five key components with related informational questions allowing completion of the information literacy tasks with the CRAAP process. The five elements of the CRAAP process comprise *currency*, *relevance*, *authority*, *accuracy*, and *purpose*, which must be advanced and mastered across a four-year undergraduate program. The paper concluded that information literacy requires the development of a specially designed framework of information literacy learning that must be applied across coursework using specifically designed assignments.

Keywords: undergraduate education; information literacy, digital information, strategy, curriculum integration

INTRODUCTION

Information Literacy (IL) has been recognized as one of the most important learning outcomes and a lifelong learning skill (Ghaith, 2010; Farkas, 2012; Niedbala and Fogleman, 2010). In *Information Literacy Competency Standards for Higher Education*, the Association of College and Research Libraries (ACRL) (ACRL, 2000) developed accreditation standards to respond to the challenges of enhancing IL initiatives. As a result, IL instruction is considered a standard pedagogical approach that improves students' IL capabilities while mastering required subjects (Carbery and Hegarty, 2011; Foster and Gibbons, 2007). As today's IL instruction is no longer confined to traditional library instruction (Carder et al., 2001; Ghaith, 2010), academic programs create opportunities for independent learning, where students use numerous information sources to develop and master specific skills or knowledge (Huba and Freed, 2000; Wenger, 2014).

In response to this challenge, ACRL established the Framework for Information Literacy (2015). The Framework is organized into six frames, each outlining a concept central to information literacy. Frames are based on the idea of Threshold Concepts; skills that, once understood, change the perception of the learner. IL skills emphasize finding and selecting appropriate information, and critically evaluating the use of information to produce understanding and application of new knowledge. The development of those IL skills must also allow students to complete their IL tasks effectively, legally, and ethically (ALA, 2000).

This paper presents the IL strategy that was advanced in an undergraduate program of the Management Department at U.S. Coast Guard Academy (USCGA). The attainment of the IL educational goals is based on ACRL's Framework for IL and adapted from the IL VALUE rubric developed by the Association of American Colleges and Universities (AAC&U). The paper begins with an overview of the IL process within the undergraduate management coursework at USCGA. The paper provides an example of an IL assignment framework that is implemented across selected management coursework. Moreover, the IL process consists of five key components with related informational questions allowing completion of the IL tasks with the CRAAP Elements

which include *Currency, Relevance, Authority, Accuracy, and Purpose*, which must be advanced and mastered across several courses throughout a four-year undergraduate program. Given the increasing influence of fake news and media in our education and life, the paper argues that the CRAAP instrument is critical in IL instruction.

LITERATURE REVIEW

IL has been accepted as the most important learning outcome of higher education and a lifelong learning skill (Ghaith, 2010). As information is becoming easily accessible fake news and misinformation dominate all media and Internet sources, students must be educated on IL and hence learn how to locate, obtain, assess, and analyze information from numerous academic and popular sources (Barton, 2017). The United States have been regarded as a leader in developing and implementing IL standards and academic programs (Horton, 2008). Academic libraries have been delivering basic library instruction since 1876, but the concept of IL originated in 1914 (Doyle, 1992). The 1970s brought an enormous interest in educating students on library research and stressed the importance of IL as the most critical student learning outcome. IL instruction in the 1980s continued to be based on information retrieval from traditional library catalogues, but also started stressing the value of IL instruction for students' academic success (Kuhlthau, 2013). In the 1990s, IL instruction gradually moved beyond the traditional library instruction to an information-based and resource-centered teaching. Since that time, the definition of IL and its use, application, and assessment have been transformed to bring students' research into the undergraduate classroom, across the curriculum as a tool for development of a lifelong learning skill that is based on the ability to acquire, evaluate, use, maintain, interpret, and communicate acquired information (Ghaith, 2010).

Over the years, undergraduate programs have improved their IL strategies by recognizing that academic faculty, librarians, and administrative staff must work together to address and promote IL instruction (Kuhlthau, 2013). To meet those challenges, the ongoing development of non-traditional learning with the use of innovative technologies and increasing resources of information have

been utilized for learning and research (Hepworth, 2000). Over the last decade, academic faculty have been intensively identifying and developing IL fundamentals in their courses. Instead of creating new courses, the current curriculum with the existing IL instruction can be used for creating a more structured IL initiative (Sefton-Green et al., 2009). A librarian-faculty partnership has been formed to tailor IL instruction more effectively to course projects and assignments in order to make significant contributions to the curriculum (Collis & Van der Wende, 2002).

Today's IL education creates a classroom where reflective, experiential, self-directed, and independent learning engages undergraduate students in finding, selecting, and using specific information to analyze and solve problems, complete assignments, write reports, or conduct undergraduate research projects (Jacobson & Mackey, 2013; Biggs & Tang, 2011; Wenger, 2014). Through those numerous approaches to mastering IL skills, students develop knowledge and practice communication, leadership, critical thinking, and problem-solving skills (Huba & Freed, 2000). These specially designed and employed learning strategies are critical as they enable students to develop the skills necessary to ask questions, frame problems, conduct research to find solutions while becoming active learners who can acquire information through numerous libraries and Internet resources (Foster & Gibbons, 2007).

A number of models have been proposed to increase effectiveness of teaching IL. For example, Jacobson and Mackey (2013) developed a so-called *metaliteracy* model that offers a framework to develop IL skills while students use reflective techniques and practice communication, creation, and distribution of information in an active learning environment. Nichols Hess and Greer (2016) discussed how a *specific design* model, also called the ADDIE model, has been developed and widely utilized in IL exercises where instruction is focused on students' engagement or active participation in IL learning activities. Martin (2013) provided a review of IL models focusing on the importance of improving IL guidelines and developing competency-based structures that deliver successful ways to complete IL tasks. Fennel (2017) argued that enhancing student engagement in learning IL is critical to produce effective learning.

Sam Wineburg and Sarah McGrew of Stanford University, engaged in IL research to observe the information-seeking behavior of forty-five individuals. The authors divided individuals into three different groups to distinguish the differences in seeking information across age groups and disciplines. The three groups were students, historians, and professional fact checkers. All were given the same article on a website to evaluate. The authors observed that historians and undergraduates read *vertically*, staying within a website to evaluate its reliability. Professional fact-checkers, however, read *laterally*, leaving a site after a quick scan, and opening new browser tabs to judge the credibility of the original site. Compared to the other groups, fact checkers arrived at more warranted conclusions in a fraction of the time (Wineburg & McGrew 2017). The research indicated that teaching students IL using the CRAAP Test, as well as reading laterally enables them to evaluate sources much more thoroughly.

Based on literature review, currently there are four major approaches to IL pedagogy. According to Eisenberg (2008), those approaches include: (1) extra-curriculum – a course outside of the academic curriculum; (2) inter-curriculum – a session add-inn to an academic course; (3) inter-curriculum – integrated into a course; and (4) stand-alone – an independent course within academic curricula. According to Black (et al., 2001), a combination of these four approaches provides an effective IL method. Today's IL educational approaches go far beyond library instruction, as faculty across all majors independently or together work with library staff to provide IL education (Scales et. al., 2005; ACRL 2021; Aslan and Zhu, 2017; Argelagós and Pifarré, 2017) Despite numerous approaches and models of IL that have been developed, IL education faces challenges as it lacks practical examples of effective teaching and assessment IL tools (Julien (2016).

This paper was written to provide an effective IL instruction that must be accomplished simultaneously at the institutional level, the program level, and the course level. Regardless of the process selected, the IL approach must be sufficient to meet the goals for students' learning at the levels and in the disciplines for which it is offered. This paper argues that a single course won't satisfy all of an institution's IL goals, as the skills should be addressed and reinforced at various levels of sophistication throughout a student's academic career. If students

take multiple IL courses, the overall curriculum should contain complementary and progressively advanced components. As academic institutions respond to the challenges of their IL initiatives, they must unquestionably identify that faculty, librarians, and other administrative staff are responsible for addressing many aspects of IL together. IL pedagogy must be focused on the development of effective research, critical thinking, and writing or other communication skills. Institutions committed to developing IL must ensure that their faculty works together with library instructors under support of administration toward teaching students to be self-directed learners, critical thinking champions, and skilled problem-solvers.

This paper was written to contribute to the existing literature by demonstrating examples of how IL can be taught at an undergraduate program with the use of coursework assignments. The assignments illustrate step-by-step instruction and requirements for students to find, select, assess, and apply the information retrieved from numerous library and internet resources. The paper also illustrates how to adopt and use the NSW ISP model (New South Wales Department of Education and Communities (2011) for IL advancement. This model illustrates a step-by-step process of IL activity, where learning is accomplished through a so-called *six-step framework*. This model with six steps (*identifying, locating, selecting, organizing, presenting, assessing, and defining*), with some modifications adopted to meet the requirements for the effective learning of IL. The authors of this paper argue that after completing their reports or assignments, students not only gain knowledge, but they also master IL skills. Moreover, the use of the CRAAP process, consisting of five key components with related informational questions, allows completion of the IL tasks where *Currency, Relevance, Authority, Accuracy, and Purpose* must be advanced and mastered across a four-year undergraduate program. The integration of IL within the coursework illustrates how business undergraduate programs can enable students to generate new knowledge by advancing their IL skills while finding, selecting, evaluating, and applying acquired information within a challenging educational process.

INFORMATION LITERACY EDUCATION IN THE USCGA

The USCGA is a public institution that provides an academic undergraduate education, as well as physical and military training to the cadets who will serve as leaders in the United States Coast Guard (USCG). The USCGA strategic plan underlines the goal as: *Ability to Acquire, Integrate, and Expand Knowledge*. CG officers “...must possess the skills and motivation for lifelong learning, including the ability to know when there is a need for information, and to be able to identify, locate, evaluate and effectively use that information for the issue and problem at hand ...” (Source: the U.S. Coast Guard Academy Strategic Plan, 2018-2023).

As a result, the Academy’s mission is to: *educate, train, and develop leaders of character who are ethically, morally, intellectually, and professionally prepared to serve their country and humanity*. In order to meet these goals, the Academy’s holistic education delivers academic, physical fitness, ethical, character and leadership development programs. As military professionals, the USCGA cadets are expected to be responsible for their own behavior, hold others accountable, and to display devotion to the mission of the USCG and the Department of Homeland Security.

The Academy provides undergraduate academic coursework that is supported through required courses within humanities, science, engineering, mathematics, maritime studies, organizational behavior, management, and law. The Department of Management at USCGA delivers an undergraduate management education, where Management majors are expected to develop and master *business competencies, communication, self-leadership, critical thinking, and information literacy skills*. These skills, as illustrated in Table 1, are closely related to the shared learning outcomes across all majors at USCGA.

Table 1. The USCG Academy and Management Department Learning Goals

**United States Coast Guard Academy
Shared Learning Outcomes**

Leadership Abilities: Graduates shall be military and civilian leaders of character who understand and apply sound leadership principles and competencies.

This includes the ability to direct, develop, and evaluate diverse groups; to function effectively and ethically as a leader, follower, facilitator or member of a team; and to conduct constructive assessment of self and others.

Personal and Professional Qualities:

Graduates shall maintain a professional lifestyle that embraces the Coast Guard

Core Values of Honor, Respect, and

Devotion to Duty, includes physical fitness and wellness, and demonstrates the customs, courtesies and social skills befitting members of a maritime military service. Graduates shall also have a sense of Coast Guard maritime heritage and an understanding of the roles that the Coast Guard and the nation play in the global environment.

Communication Effectiveness: Graduates shall be able to write clearly, concisely, persuasively, and grammatically; prepare and deliver well-organized and polished oral presentations; read and understand a variety of written materials; listen thoughtfully to oral arguments; respect diverse opinions; and formulate reasoned alternatives and responses.

**Department of Management
Learning Outcome Areas**

Leadership: Graduates of the Management major shall be leaders of character who understand and demonstrate sound leadership principles and competencies. Graduates shall function effectively as leaders, followers, and facilitators. Graduates shall be able to conduct critical self-reflection and assessment. Graduates shall be able to direct, develop, and evaluate diverse individuals and groups.

Information Literacy: Graduates of the Management major shall be leaders who possess the ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.

Communication: Graduates of the Management major shall be good listeners. Graduates shall be able to write clearly, concisely, and effectively. Graduates shall be able to deliver effective practiced, professional oral presentations and be able to speak confidently extemporaneously.

Ability to Acquire, Integrate and Expand Knowledge:

Graduates shall have developed the motivations and skills for “lifelong learning.” Graduates shall be able to create a working conceptual framework that lends itself to continued expansion. To accomplish this, graduates shall be able to efficiently access a broad range of information sources, locate and interpret desired data reliably, employ appropriate technology, and integrate knowledge. Graduating cadets shall also have acquired and integrated the specific in-depth knowledge required of both an academic major and an entry-level professional assignment. The Leadership Development Center course graduates shall have accomplished all program objectives.

Critical Thinking Ability: Graduates shall be able to accomplish complex tasks in a broad range of contexts by applying the basic skills of critical analysis, systems thinking, quantitative reasoning, risk management, creative problem solving, and value-based decision-making.

Business Competence: Graduates of the Management major shall understand and demonstrate the following business competencies: (a) accounting, (b) economics, (c) management, (d) quantitative analysis, (e) finance, (f) marketing, (g) international issues, (h) legal and social environment issues, and (i) management of information systems.

Critical Thinking: Graduates of the Management major shall be able to effectively integrate their knowledge and skills of/in leadership, communications, technology, and business competencies into a rational decision-making and problem-solving framework.

Source: Developed by Department of Management, USCGA.

The CGA Management department recognizes that IL skills are critical to the success of the Coast Guard as an organization. The USCGA requires all graduating cadets to understand and fully adapt to the characteristics of the information age. The IL strategy has been developed with the assistance of the librarian staff, who implemented training sessions across the USCGA curriculum. Table 2 presents a list of courses that are currently involved with specially designed IL training elements across all majors during four years of undergraduate study at USCGA.

Table 2. A List of Courses Included in the IL Education

American Government	Principles of Macroeconomics
American Social Movements	Management Information Systems
Civil Engineering Design	Marine Engineering
Coast Guard History	Maritime Watch Officer
Design Project Management	Marketing
English Composition and Speech	National Security Policy
Environmental Engineering	Ocean Dynamics
Ethnic Literature in the US	Operations Analysis
Gender and Sexual Orientation in Literature	Organizational Behavior and Leadership
Intelligence and Cyber Operations	Petroleum and Oil Spill Science
Intro to Mechanical Engineering Design	Physics I and II
Introduction to Business	Principles of Ship Design
Introduction to Latin American Studies	Reinforced Concrete Design
Literature of Humanity and Conflict: African-American Literature	Social Science Research Methods
	Soil Mechanics

Source: Management Department, the U.S. Coast Guard Academy.

The Management department at USCGA develops IL skills across its curriculum in addition to all other IL training included in other non-management courses. The goal is to advance IL skills progressively throughout all four years of the undergraduate program, as illustrated in Figure 1. Those courses highlighted have specially designed assignments to advance IL skills.

Figure 1. Management Department at U.S. CGA Academy Shared Learning Outcome and IL



Source: Management Department, the U.S. Coast Guard Academy.

As defined by the National Forum on IL, *IL is the ability to know when there is a need for information, to identify, locate, evaluate, and use effectively that information for the issue or problem at hand.* The Management department faculty has used this definition along with the rubric developed by the USCGA IL Committee while implementing the IL curriculum across the Management major. The goal of the Management Department is to guarantee that IL skills

are developed across the curriculum so that every graduating student becomes IL competent as defined by the National Forum on Information Literacy and the USCGA Information Literacy Rubric.

To integrate IL across the Management curriculum, the faculty must recognize that it is critical to identify potential courses each year for IL integration. IL is integrated into the course content, assignments, and the course lectures. In particular, the integration of IL in coursework projects enables students to recognize when information is needed and to develop a capacity to locate and use information effectively, as stated in the intended assignment. IL must be integrated into the course objectives and class activities, where the objectives of the course introduce students to new methods of gathering, processing, and presenting information. The IL competencies are targeted expectations for freshman, sophomore, junior, and senior levels as presented in Figure 2.

Figure 2. The US Coast Guard Academy IL Competences by Academic Grade

IL Outcomes	Baseline Novice	Progressing Apprentice	Proficient Journeyman	Distinguished Master
Determine the Extent of Information Needed	F R E S H M A N	S O P H O M O R E	J U N I O R	S E N I O R
Access the Needed Information				
Evaluate Information and Sources Critically				
Use Information Effectively to Accomplish a Specific Purpose				
Obtain and se Information Ethically and Legally				

Source: Developed by the IL Committee at U.S. CGA.

In the Management Department, the first IL educational step is presented by the librarians who help students with their research. Library staff offer instruction that allows students to perform hands-on exercises to reinforce IL concepts that were taught during the lecture. Following these exercises, students are required to complete online practice which focuses on developing a topic, searching, and finding resources, and navigating databases. The librarians are invited to co-teach IL concepts to acquaint students with library resources and

how to find specific information. The course research assignments are intended to help students learn how to select and narrow an appropriate topic, conduct research, write a research paper through multiple drafts, and construct bibliographies. Students explore in detail a specific issue within the course while effectively, ethically, and legally using acquired information to become critical thinkers within the topics of their research while developing a final project.

STRUCTURING IL ASSIGNMENTS WITHIN THE MANAGEMENT COURSEWORK

The Management faculty provide IL assignments within their own courses where they expect students to develop an ability to frame research questions and locate, evaluate, manage, and use information in a required context. They also expect students to retrieve information using a variety of media; to demonstrate the ability to interpret information in a variety of forms, such as written, graphs, charts, diagrams, and tables; and critically evaluate information. The IL process and strategy, as illustrated in Figure 3, begins with the students defining their project topic. They conduct a literature review, where they locate credible sources that pertain to their overall project topic. Faculty then provide feedback to the students on the quality of the literature review including the relevancy, credibility, and reliability of the data and sources presented. The information from the literature review is then used to properly scope their project in terms of expectation and needs.

Figure 3. Information Literacy Process and Strategy



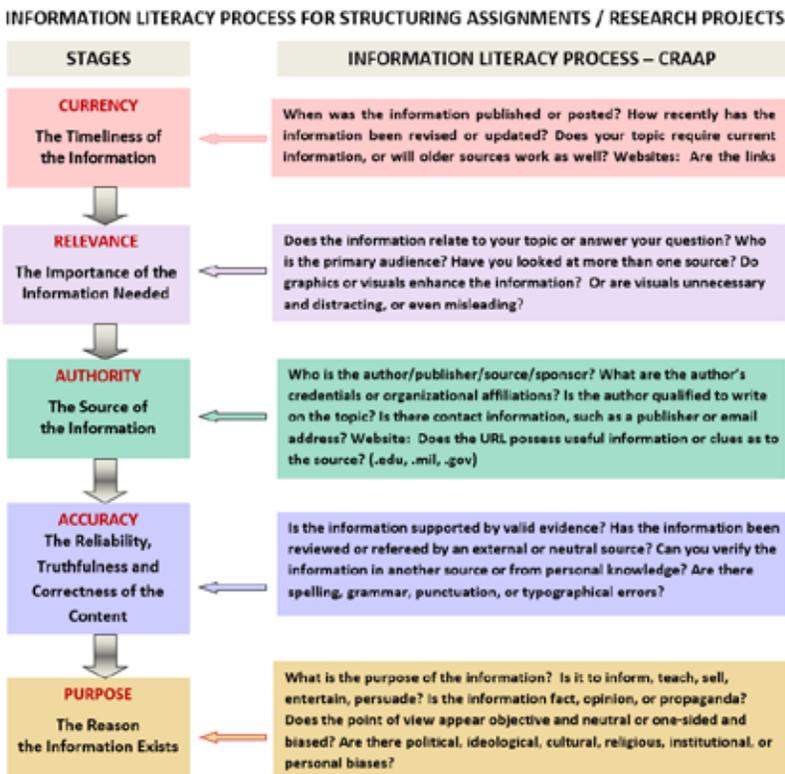
Source: the USCGA Management Department

After selecting the appropriate sources of information, students move forward with relevant and applicable documents and articles. Then, the students interpret and synthesize the information to produce specific recommendations. Finally, they utilize frameworks to organize the data and present it in a logical

format. Once they complete their assignments, students are expected to present their projects to interested parties and USCGA faculty. Throughout the entire process and during the presentation phase, students are assessed by peers and faculty regarding the quality, clarity, and relevancy of their work. This completes the IL cycle for the course. The entire process uses multiple iterations of the IL cycle and ensures high quality work projects from the student groups. This IL skills process can be designed and integrated into assignments and collaborative research projects during all four years of study.

The IL strategy or process consists of six key components with related informational questions allowing completion of the IL tasks that are summarized in Figure 4.

Figure 4. IL The CRAAP Process for Structuring Assignments and Research Projects



Source: Librarians at California State University at Chico (Blakeslee, 2004)

The five elements or steps (*currency, relevance, authority, accuracy, and purpose*) of the CRAAP Test must be demonstrated across a four-year undergraduate program when students complete IL tasks. Students are expected to progress through this five-stage framework and are expected to improve and master IL skills over four years. Lessons are scaffolded; skills taught must overlap each other to build on what was learned before and reinforce those learned skills to learn new skills. At the senior level, students acquire an essential understanding of locating and accessing issues, the research process, critical thinking and evaluation of information, citation, and documentation. The intent is that their senior projects will acquire and demonstrate all abilities through IL Outcomes using the CRAAP Test, which was modified and adapted from the Meriam Library at California State University at Chico (Blakeslee, 2004).

Pedagogical approaches to teaching students how to find and evaluate sources are individualized across the disciplines involved. The essentials on how to find and evaluate sources are addressed through lectures, library discussions and visits, and in-class writing workshops. For example, in introductory courses such as Macroeconomics Principles, in-class and library-assisted workshops illustrate the differences between scholarly and popular sources of information. In this course, students must produce a research assignment while using a range of library and electronic sources focused on the development of a thesis statement and proper documentation using a formal editorial style. At this IL level, these research writing assignments can be challenging when students are expected to examine a range of scholarly and popular sources as they process and develop their own written responses.

In more advanced courses, students start understanding the complex nature of information within other techniques. Students can gain significant insights about IL through their own creation of information in writing assignments. These insights can result from learning opportunities that go beyond lectures or library instruction and require students to make decisions regarding the information they select, organize, apply, and assess while completing term papers. Active learning assignments in research, writing, oral or visual presentation can also challenge students to engage in critical analysis and evaluation of information that is collected and applied. The Management faculty commonly use

short papers that examine specific sources, such as a scholarly journal article, or assignments that require students to compare the structure and content of scholarly and popular sources.

INFORMATION LITERACY - GENERAL TRAINING SESSION

During the first week of classes, all first-year students are introduced to IL in a general training session. For many of them, it is the first time they learn the term IL (Figure 5). Figure 5 illustrates the first step to learning and developing IL skills. During this general IL training session, students are required to conduct “fact or opinion checking” in a selected blog provided in this link: <https://economistsview.typepad.com/economistsview/2019/09/links-92519.html>. Figure 6 presents the top of the blog website indicating that it is the blog *Economist’s View*. As the purpose of this exercise is to learn if the Economist’s View represents a fact or an opinion, students are asked to connect to one of the available links provided on the blog.

Figure 5. General IL Training Session

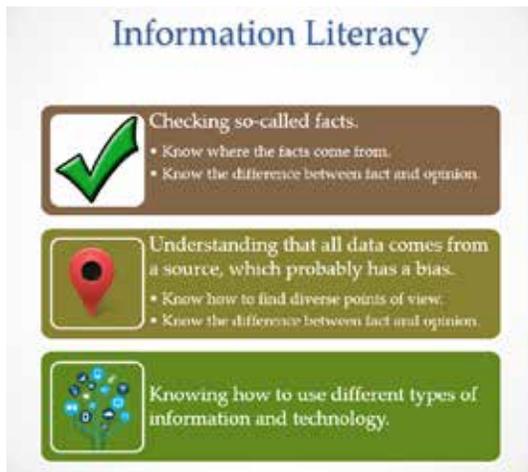


Figure 6. The Economist's View Blog Website



Students connect to the link <https://dallasfed.frswebservices.org/research/papers/2019/wp1906> provided by the FED at Dallas. Figure 7 illustrates the content of the link from the blog which is an abstract of a research paper contacted by the researchers from the Federal Reserve Bank of Dallas.

Figure 7. The FED Dallas Website to Study Fact or Opinion.



At this stage, students must understand where data comes from and whether or not sources are biased. The IL librarian must instruct students on how to identify data and distinguish between diverse points of view on the specific topic they are researching and know the difference between *fact* and *opinion*. As our students are reading the abstract, they can determine whether the article contains facts or opinions. They are expected to come up with answers concerning why the abstract of the article represents fact and/or opinion. The next step is to ask students to download the paper. After the paper is downloaded, students are asked to skim through 3-4 pages because the paper is very long. After they read the first 3 pages of the article, they learn that this paper presents research that was conducted by the researchers at the Dallas FED. The researchers used a decade of daily survey data from Gallup to study how monetary policy

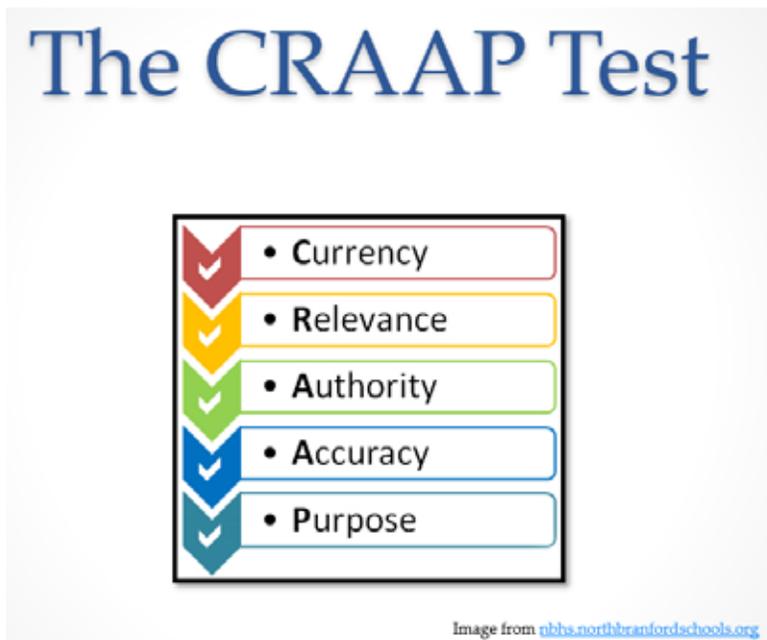
influences households' beliefs about economic conditions. This specific article has been selected as an example to illustrate that the paper presents both *fact* and *opinion*. The *fact* is that monetary policy does affect households' expectations, and in fact, the article's research results indicate the *fact* that an increase in the target rate leads to an immediate decline in household confidence, which is confirmed by using statistical models and tools. Moreover, this example was selected for classroom use as it illustrates that the research results suggest that the Fed's researchers build their *opinion* about households' behaviours in response to monetary policy based on their research results.

The next step of learning IL is to use the CRAAP Test as presented in Figures 5 and 8 (Blakeslee 2004). In this model, each letter in the acronym CRAAP refers to a different element students must use to evaluate their information resources. Students must learn how to assess *the currency, relevance, authority, accuracy, and purpose* of each resource before they determine whether to use it in their assignment or research paper. For example, using Figure 8, the library instructor emphasizes that any information that students plan to use must be *current* unless their research reflects historical analysis. *Relevance* relates to how information searches support the research and the questions students are trying to answer while *authority* confirms that the sources that are being used are written by the experts within a specific subject area within which the research is being conducted. *Accuracy* relates to developing students' abilities related to the assessment of the information or sources utilized in research, confirming that they are accurate, precise, and truthful in times where many sources that are easily available are false, deceiving, and untruthful. The last element that the IL instructor must teach students is the element of *purpose*. At this stage, students must be taught how to find, identify, and select information that is purposeful and valid to the research in question.

Once the different elements of the CRAAP Test have been discussed, students must evaluate the article's *currency, relevancy, authority, accuracy, and purpose*. The following questions are asked based on Figure 4: Is this article current? (When was the article published?); Is the article relevant to the economic study? (Can you use this article for your research?); Is the article written in an authoritative tone? (Are the authors qualified to write about the topic?) Is the

information and data used in the article accurate? (How was the data collected and who collected it?); Is the purpose of the article scientific or not? (Was it written for the purpose of discovering fact and creating opinion?).

Figure 8. The CRAAP Test



Source: Librarians at California State University at Chico (Blakeslee, 2004)

IL SKILL DEVELOPMENT IN THE PRINCIPLES OF MACRO-ECONOMICS COURSE

In the Principles of Macroeconomics course, students are required to complete a term project on the economic assessment of a selected country. Figure 9 shows which tasks the students are expected to complete, and this information is provided to the students in a course syllabus. Once the material progresses throughout the semester, one class is selected to discuss the country project strategy and to answer questions students might have regarding completing the project.

Figure 9. A Country Report Term Project

8115 PRINCIPLES OF MACROECONOMICS - TOPIC: A COUNTRY REPORT

Each student is assigned to individually work on and prepare a written report and deliver a 15-minute presentation at the end of the semester. The report and presentation will be graded in connection to how effectively a student remembers, understands, applies economic concepts, and is able to use and apply those concepts in order to analyze the economic performance of a country in the context of current events. Both the report and presentation should be based on economic concepts, theories, and graphs that were presented in class and in the textbook. Students are encouraged to use articles from national news outlets, official research, or government websites that are available on the Internet, or from a printed newspaper or magazine. After reading and understanding selected articles and sources, students must answer the following questions that are presented below:

QUESTIONS TO BE ANSWERED
What are the macroeconomics concepts that you plan to use while working on your country project? Please list them and define. Do you plan to use graphs? What are those graphs? How do they work in the context of your presentation? What do they illustrate?
Are they all valid economic concepts, graphs, or instruments to be used to evaluate a country's economic performance? How would you use those selected concepts and graphs to explain the current events affecting the economic performance of your country? What is the main idea of using those concepts or graphs? How would you relate economic concepts or graphs to current events?
How would you apply those selected macroeconomics concepts, theories, and graphs to your project? How would you show your understanding of those concepts in your project? What would result if you applied additional concepts or graphs? Did you use the correct graphs and concepts while explaining your points?
Why do you think the selected concepts, graphs, theories are the best to be used, applied, and analyzed? What inference can you make on your country in the context of current events? What conclusions can you draw about your country after having applied your selected concepts, theories, and graphs? How would you categorize each concept, theory, or graph to be applied in order to complete your project: irrelevant, relevant, good, or outstanding ?

Source: *Principles of Macroeconomics*, U.S. Coast Guard Academy.

PURPOSE: This report is designed to (1) increase your understanding of the economic performance of a country; (2) familiarize you with the various sources of data and the problems encountered in economic research, and (3) give you an opportunity to contrast the abstract and theoretical analysis in this course with real-world observations.

SCOPE: You will focus your attention on a single country during this phase of your research. Use the theoretical analysis developed in class to direct your course of research to the relevant data. This phase of the project will be crucial to your ability to complete later phases. Do not underestimate the time constraints imposed by this assignment; it simply cannot be completed adequately in the final week before it's due. Start early.

ASSIGNMENT: You are expected to collect information about aspects and features of relevant domestic economic indicators of the country assigned to you. Do not limit your collection to one year but include as many years as there are available for your country. Data must be collected on the appropriate items/categories and for a period of time sufficient to give an accurate economic portrayal of the country. All country assignments are final. The information you collect should include, but not be limited to the level and relative importance of country's resources, technology base, major trading partners, major export and import commodities, some measure of the overall level and importance of domestic production, economic performance, international trade, summary of the extent of tariffs and other trade restrictions, measures and extent of trade balances and flows, and significant political or cultural economic influences. Please notice you don't have to include all of the above information. Select information and then collect the data that is relevant to project.

FORMAT: All information collected must be presented in a TWO-PAGE report. Reports must be typed (single-spaced) or computer generated. List major sources and include your name on the report. Your finished report should be a concise, clear, economic picture of the country. Content, accuracy, conciseness, relevance of information, and overall appearance all play significant roles in the report's evaluation.

In order to deliver more IL instruction, the instructor dedicates one hour to two hours of instruction on the country project and discusses how to use the sources that are available online and through the library resources. This class time is a second IL instruction for the freshman students as this course is being taught during freshman year. Figure 10 provides detailed expectations what students should do and what is expected that they will learn from this IL assignment. As presented in Figure 10, detailed instructions on IL are provided. Students are required to *determine, assess, evaluate, use, and understand* the Macroeconomics concepts they are expected to learn. The IL Librarian is invited to this class to assist the Economics faculty with IL instruction. Specific USCGA Library resources and website resources are being discussed as well as instruction on evaluating resources is provided to ensure that students are able to distinguish between “scholarly sources” and “popular sources” of information. Students are also provided with proper citation and formatting of their research papers. The purpose of the session is to explain the differences in content between the sources of economic information. As an example, we use the Center for American Progress and the Heritage Foundation as two think tanks in Washington DC for economic research. The students are asked what those those differences are and we specifically emphasize the differences in the analysis, philosophical approach (values), and conclusions. We also analyze how their political approach affects their research results. Through this discussion, we also expect students to evaluate if the analysis is based on fact or opinion, and whether the information they share with the reader is biased or unbiased. In sum, the goal of the project is to make sure that students are able to select unbiased and fact-based sources for their country project. They are allowed to use scholarly sources, government sources, think tank and non-profit sources, as well as popular sources. Working in groups allows interaction and reinforcement in learning while interacting with the library instructor as well as the economic faculty member during the IL session.

Figure 10: IL Assignment in the Principles of Macroeconomics Course

PRINCIPLES OF MACROECONOMICS - COUNTRY PROJECT

Information Literacy Assignment

This assignment will introduce you to the idea of Information Literacy. The purpose of this project is to¹:

- **determine** the nature and extent of the information needed.
- **access** information effectively and efficiently.
- **evaluate** information and its sources critically and incorporate selected information into his or her knowledge base and value system.
- **use** information effectively to accomplish a specific purpose
- **understand** many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

In this assignment you will learn and practice:

- 1) About sources on the Academy's library website to help you conduct research
- 2) How to evaluate sources of information and why this is important
- 3) The distinction between "scholarly sources" of information and "popular" sources.
- 4) Proper citation using APA format
- 5) About some sources of economic data and research

Sources of Information for this Assignment:

- The course guidelines for information sources and, to complete the country project, The Macroeconomics Course Guide: http://libguides.uscga.edu/macroecon_8115
- Evaluating Information Guide (CGA Library)
- Databases (CGA Library)
- Government Sources

1. Use the library's databases (e.g., ABI/INFORM) to find at least 5 articles on the current state of the economy in the country you have chosen. At least one article you cite should be "scholarly" and at least one should be from the "popular" press. For each article you cite, identify it as scholarly or popular.

2. See the description of "scholarly" or "academic" journals in the links on the Macroeconomics Course Guide page, under the heading "Evaluating

¹ American Library Association, www.ala.org/acrl/standards/informationliteracycompetency

Information.” Use these descriptions to explain why academic/scholarly journals represent more trustworthy sources of information. How do you determine whether a publication is academic/scholarly?

Other Sources of Economic Information and Research

The Center for American Progress and The Heritage Foundation are think-tanks in Washington, D.C. (for a list of many important think-tanks for economic research, see the link under the AEA’s “How do you find facts...” link). Both organizations publish a significant amount of information on economic policies in the US (e.g., minimum wages and living wages).

3. Visit the Center for American Progress webpage and review their recent articles. From what you read can you determine any general themes or specific points of view?

4. Now visit The Heritage Foundation webpage and review their recent articles on the economy, do they take on any particular themes or points of view?

5. Why do you think there are such large differences in the analysis and conclusions regarding the same economic issues at these two think-tanks? Learn as much as you can about these institutions: *Do they have political motives?* Use the *CRAAP* test as a guide to evaluate these sources. Does this help explain what you found in questions (1) and (2)?

Government Sources of Economic Data and Research

6. The Federal Government collects and publishes data on the US economy.

The Bureau of Labor Statistics (www.bls.gov) is an important source of economic data. Go to this website and find the mission of the BLS. Who does the BLS work for? Should one consider the BLS information to be unbiased? What evidence do you have for your conclusion? Why is this important to know whether the BLS information is biased or unbiased?

7. The country you are studying collects and publishes data on their economy. Find the government’s economic data website. Should one consider their information to be unbiased? What evidence do you have for your conclusion? Why is this important to know whether this information is biased or unbiased?

Bring It All Together

8. Develop a list of sources you can use for your country project. Organize them into the following categories with at least two sources in each category:

1. Scholarly/Academic Sources
2. Government Sources
3. Think-Tank/Non-Profit Sources
4. Popular Sources

Hint: Use the Macroeconomics Course Guide – You can find all the sources you will need right here

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Working in groups, students must determine and select data and specific events affecting the economy of their designated country to develop an economic assessment report. The IL assignment builds on what students have learned in the IL Introduction. The CRAAP Test is reviewed, and the differences between scholarly and popular resources are discussed. Students learn what a Think Tank is and how to find economic data. Students must evaluate *the currency, relevance, authority, accuracy, and purpose* of each source they identified and selected to complete a list of resources that can be used to complete their country reports. By applying IL skills to a specific larger assignment, students become stakeholders in the IL learning process, as they can use the sources, they have found during class in their larger course assignment.

ASSESSMENT OF IL DEVELOPMENT

The IL assessment initiative includes both direct and indirect means of assessments. There are several assessment methods discussed in the literature, and the recommended tools include checklists, rubrics, conferencing, portfolios, reports, oral and written examinations, and other approaches (Donnahan and Stein, 1999). Assessing IL progress is a major component of IL process at USCGA. The IL skills assessment of individual student learning is completed across selected and designated courses. This assessment process is effective in improving and advancing IL competences among students. The use of a rubric assessment of IL is a valuable tool for both USCGA librarians and faculty seeking to demonstrate evidence of students’ learning.

Table 3. Assessment of IL Skills Across Four-year Undergraduate Program

IL OUTCOMES	IL SKILLS CHARACTERISTICS	Learner’s Self-evaluation			Teacher’s Evaluation		
		(Circle one for each stage)					
Know	Determines the nature and extent of information needed	D	C	E	D	C	E
Access	Efficiently and effectively accesses information sources	D	C	E	D	C	E
Evaluate Sources	Critically evaluates information sources	D	C	E	D	C	E
Evaluate Content	Critically evaluates information content; Considers impact on student’s prior knowledge, value system, and future direction in life	D	C	E	D	C	E
Use	Uses information found to accomplish a specific purpose	D	C	E	D	C	E
Ethically Legally	Understands the economic, legal, and social issues surrounding the acquisition and use of information	D	C	E	D	C	E

(D) – Developing; (C) – Competent; (E) - Exemplary

The instrument to assess IL development in Table 3 illustrates the Academy’s progressive approach on developing IL skills and assessing them. For example, in the first year, students perform IL skills at a *Developing* level, in the sophomore year at a *Developing/Competent* level, in the junior year at a *Competent/Exemplary* level, and in senior year at an *Exemplary* level. The instrument is designed to be used at every stage of students’ progression with their homework or term project. The goal is to implement this instrument across all

other Management courses at the USCGA. Therefore, this instrument is being used in Principles of Macroeconomics course which focuses on IL skills development. As Table 3 indicates, both students and the instructor evaluate information skills based on students' IL outcomes that include *know, assess, evaluate sources, evaluate content, use ethically and legally*. The assessment is conducted at three levels: (D) – Developing, (C) – Competent, and (E) – Exemplary. Self-evaluation results vs. instructor evaluation of IL outcomes are critical as they have a great impact on students' emotional understanding of IL skills and their attitudes regarding mastering IL skills. We found that the assessment process motivates students and produces better results in learning IL skills as well as economic concepts.

CONCLUSIONS

The Management Department at the USCGA recognizes the challenge of conducting research today, due to the increasing volume of information available digitally and in print. It is critical to know how to find, organize, and think critically to evaluate the validity of information available. IL exercises allow students to learn how to select the best information for their research. The USCGA IL educational competencies are based on the ACRL Frameworks for IL and the AAC&U IL VALUE Rubric. Through specifically designed IL strategies, the academic and library faculty together established a learning environment that encourages students to explore the unknown sources of information and find the gaps in the research. The faculty and specially trained librarians provide guidance and monitor students' progress throughout four years of instruction. The curriculum must be structured to introduce IL learning opportunities from a freshman level to a senior level, scaffolding skills with an emphasis on critical thinking and evaluating resources. The six-stage IL process was developed and implemented to enable students to master IL skills. Those stages include *defining, locating, selecting, organizing, presenting, and assessing*. Achieving proficiency in IL requires the development of a fully integrated IL strategy into the curriculum's content, structure, and sequence of coursework. The paper illustrates how the CRAAP process with five elements or steps (*currency, relevance, authority, accuracy, and purpose*) must be advanced across a four-year undergraduate program so students can complete IL tasks. Specific

examples in the Principles of Macroeconomics course are provided to illustrate pedagogical assignments in Economics courses.

In conclusion, the importance of incorporating IL instruction within a course of any academic program serves as a complement to library IL instruction and assists with meeting the academic standards for IL proficiency. Scaffolding lessons reinforce the IL skills taught previously, as students move forward in learning new IL competencies. The IL strategy that was developed benefits the students by advancing them from *Developing* to *Exemplary* levels based on the USCGA IL Rubric. The paper illustrates how to develop confident, self-directed, and independent life-long learners. The academic faculty together with the librarian instructors face an increasing responsibility to adopt the IL structure to facilitate progressive advancement of IL through specially designed assignments, term papers, and research projects. Becoming information fluent makes individuals successful in their studies and prepares them for their lifelong learning as they learn how to navigate information to their best advantage. Other academic programs interested in improving IL skills instruction can adopt the IL development process at the USCGA that has been discussed in this paper.

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