



Teaching Research for Academic Purposes

Teaching the ability to find, analyze, evaluate, and synthesize information is an important part of creating an environment in which ESL students feel empowered in the information age. However, a preliminary search of professional literature shows that there is a lack of research in information-literacy programs for ESL learners in higher education. This article seeks to create a framework for developing the information-literacy skills of college-level ESL students while at the same time teaching them the academic discourse and linguistic requirements they need to become lifelong learners, succeeding as college students and beyond. The author will propose a unit plan that can be used in its entirety in a content-based instruction (CBI) setting or that can be used in a modular manner within any given course. After the general unit plan is introduced, a more detailed lesson plan for 1 of the modules within the unit will follow.

Introduction

We live in an information age in which the ability to access and use information—to be information literate—equals power. It has long been known, however, that:

the very people who most need the empowerment inherent in being information literate are the least likely to have learning experiences which will promote these abilities. Minority and at-risk students, illiterate adults, people with English as a second language, and economically disadvantaged people are among those most likely to lack access to the information that can improve their situations. (Association of College and Research Libraries, 1989)

There is no questioning the fact that we need to empower our ESL students by creating real, relevant learning experiences that will give them the skills they need to access, evaluate, and manage information effectively, efficiently, and ethically, so that they are functional and competitive in our knowledge-based economy.

According to Snow (2000), 70% of language-minority students in the US are native Spanish speakers. The state of California had more than 1.5 million language-minority students in 2007-2008, and of this group, more than 85%

were Latinos (California Department of Education, 2009). Given the demographics of the students in our ESL classrooms, it is essential to note some statistics for California (Schwarzenegger, 2009):

- Less than half of Latinos (48%) have home computers, compared with about 86% for whites, 84% for Asians, and 79% for blacks.
- Only 40% of Latinos have Internet access, and only 34% of Latinos have broadband connections at home, while majorities of other racial or ethnic groups have both Internet access and broadband connections.
- There are indications that since 2000, computer use has grown among whites (79% to 85%) and blacks (76% to 83%), as has Internet use (70% to 81% for whites, 60% to 82% for blacks), but among Latinos, computer use has declined (64% to 58%) and Internet use is unchanged (47% to 48%), while Asians have seen declines in both their use of computers (91% to 81%) and the Internet (84% to 80%).

These data clearly demonstrate an existing (and growing) digital divide among California residents, and the statistics are so shocking that the California governor, Arnold Schwarzenegger, has issued an executive order to establish a leadership council to look into the matter.

To better respond to the information-literacy needs of our students while at the same time giving them the language skills they require to become confident students and lifelong learners, the plans proposed below seek to resolve some of the gaps in the knowledge base of ESL students. Since research vocabulary sometimes seems like a different language, this approach to research instruction will provide students with comprehensible input (Kamhi-Stein, 1996). Furthermore, several of the modules within this unit are meant to take students beyond working with classroom genres and introduce them to actually working with authentic genres: “texts that serve real communicative purposes among professionals in the discipline” (Johns, 1995, p. 283).

While there are some wonderful textbooks designed to help students improve academic writing using sources (Dollahite & Haun, 2006; Spatt, 2007), the unit and modules in this article place significant focus on teaching information-literacy skills along with language content for community college and freshman university students, and they do so by weaving the use of technology through every step. The unit proposed in this article uses the Six-T’s approach, a theme-based approach to content-based instruction (CBI) that encourages student involvement in learning by providing opportunities to incorporate language and content materials (Stoller & Grabe, 1997). The unit can be taught in its entirety in a CBI setting, or the topics within the unit can be used in a modular manner and generalized to fit any given educational setting. After the unit plan is introduced, a more detailed lesson plan for one of the modules within the unit will follow. It is hoped that students who go through the unit will not only better their academic English and research skills, but that they will also take their newly acquired knowledge home to share with friends and family to create a culture of lifelong learning.

Unit Plan

The topics covered in this unit are listed below. Each topic should be given about 1 week's worth of coverage. Note that each topic can be taught individually as a separate module, or the sequence can be taught in its entirety as an 8-week unit.

Module 1: Steps in writing a research paper

This module includes a discussion of the steps usually taken when writing an academic research paper (i.e., finding an interesting topic, doing preliminary research, formulating preliminary research questions, preparing an outline, finding and evaluating information, taking notes, writing a draft of the paper, revision, and documenting sources).

Module 2: How to avoid plagiarism

This module includes a discussion of intellectual property and plagiarism. Exercises include group-work reading of original texts followed by paraphrased versions to recognize an acceptable paraphrase versus an unacceptable one. Independent exercises include giving students original texts and having them create their own paraphrases. Students can compare their paraphrases with one another.

Module 3: Selecting a topic and using it to formulate a focused research question/thesis statement

This module includes a discussion of interest in the topic, manageability of topic, considerations regarding the length and nature of the project, and the availability of research materials on the topic (Bolner & Poirier, 2004, pp. 24-25). Students complete exercises that guide them toward identifying the central theme of their argument and using that theme to create a preliminary outline for their paper.

Module 4: Gaining a working knowledge of a topic using reference sources

This module includes a discussion of the research strategy. Students learn to begin their research by acquiring a working knowledge of their topic using reference sources. This module provides an opportunity for a library visit to investigate general and subject-specific reference sources, both in print and online (they should learn about the different types of reference works available, evaluate the relevancy of general vs. subject-specific works, and learn how these works are organized to help them find needed information). Students also learn how to cite reference materials using a citation style (e.g., MLA, APA, etc.).

Module 5: Finding books using library catalogs, and using them as sources for research

This module includes a discussion and hands-on practice on finding books using library catalogs. Having found books, students learn how to survey books and navigate them to efficiently and effectively find the information they need for their research (reading the book jacket, preface, table of contents, index, chapter titles with the first

and final paragraphs, etc.). Students also learn how to cite books using a citation style (e.g., MLA, APA, etc.).

Module 6: Finding periodical articles and using them as sources for research
See below for a detailed lesson plan for this module.

Module 7: Finding credible Web sites and using them as sources for research
This module includes a discussion and hands-on practice on searching the Web for credible materials for academic purposes. Students learn about the many different tools available for Internet research, and they are once again exposed to the idea of evaluation of materials (made even more important with Internet research). Web-related vocabulary is covered in this module, and students also learn how to cite Internet sources using a citation style (e.g., MLA, APA, etc.).

Module 8: Synthesis of research materials

This module completes the cycle by returning to the beginning of the unit, this time with a more in-depth discussion of the final steps covered in Module 1. Students now learn how to use the outline they created early in this unit to logically organize their paper into a clear work of prose that uses academic discourse, shows critical thinking about the topic, appropriately uses direct quotations and paraphrases to help the argument and draw sound interpretations and conclusions, and correctly documents research materials.

Threads. Within the unit, each topic is linked to the other topics because the ideas of strategy, evaluation (critical thinking), and citation run through the whole unit. Outside of the unit and on a much larger scale, the concepts and skills students learn here will connect to and transfer among all academic genres.

Objectives. Content objectives (Association of College and Research Libraries Information Literacy Competency Standards, Standards 1-5):

Students will:

- Determine the nature and the extent of the information needed;
- Access needed information effectively and efficiently;
- Evaluate information and its sources critically and incorporate selected information into knowledge base;
- Use information effectively to accomplish a specific purpose;
- Understand many of the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally. (Association of College and Research Libraries, 2000)

Language objectives (Standard 3, from TESOL's *Standards for Adult Education ESL Programs*):

- Instructional approaches are varied to meet the needs of adult

learners with diverse educational and cultural backgrounds. Examples of these approaches include, but are not limited to the following:

- Content-based (focus on developing language to support learner success in specific content areas ...).
- Project-based (focus on developing language through collaborative work with the goal of completing a task ...).
- Instructional activities engage learners so that they take an active role in the learning process.
- Instructional activities focus on the development of language and culturally appropriate behaviors needed for critical thinking, problem solving, team participation, and study skills.
- Instructional activities give learners opportunities to use authentic resources both inside and outside the classroom (e.g., newspapers ... library resources ... and the Internet).
- Instructional activities give learners opportunities to develop awareness of and competency in the use of appropriate technologies to meet lesson objectives. (Teachers of English to Speakers of Other Languages, 2003)

Essential content vocabulary and concepts. Vocabulary and concepts to be developed in the unit include academic research, research paper, intellectual property, plagiarism, research question/thesis statement, reference sources, primary sources, secondary sources, popular sources, scholarly sources, periodicals (including journals, magazines, and newspapers), vocabulary related to the Web (e.g., online database, search engine, subject directory, etc.), citation, annotated bibliography.

Essential language forms and functions. Students will learn to read and write academic English through the use of scholarly papers. They will also learn to read and present data using graphic organizers such as outlines, charts, and tables.

Texts. Authentic texts for the unit should be provided by the instructor as needed. Other texts include materials that students find through their research.

Tasks. Students will be taken through the entire research process, from starting with a topic, to narrowing it to a research question, to finding and evaluating sources on the question (and adjusting the research question as necessary), to reading and understanding the sources, and finally to writing a research paper using their sources and using a proper style of citation (e.g., MLA, APA, etc.) for an annotated bibliography. Scaffolding will be provided in that each step in the process builds on knowledge from the previous step. Furthermore, the class will be conducted in a computer lab so that the instructor may demonstrate each step and then have students follow in a guided-practice exercise followed by independent work using hands-on techniques.

Transitions. Having learned to find and use one kind of resource, the class will discuss other types of available resources and use that as a transition to the

next module. Furthermore, students will keep a log of all their research strategies and results. This log will help them reflect on the research process, but it will also allow them to backtrack and find records of the items that they located throughout the unit. Finally, students will see an overall picture emerge as they learn to synthesize their multiple sources and apply them in creating a final project (research paper and annotated bibliography).

Into. The beginning of this unit will introduce students to the concept of information literacy. Students will learn that we now live in what is called the “information age,” and that in today’s society information means power. Those who cannot access and use information are left behind as the digital divide widens the gap between the information-haves and the have-nots, and as employers seek out information-literate employees. As such, it is important for our students to be conversant with research techniques and technology so that not only will they succeed in the academic task of working on research projects, but so that they will also have an edge that will help them get good jobs and become lifelong learners.

Through. The sequence of concepts and learning tasks in this unit follows the logical sequence used in academic research. It is, however, important to note that research in most real-world cases is not a linear process, but that it is usually iterative. As such, some backtracking in the sequence noted above may prove useful as an instructional technique. Graphic organizers will be used in each lesson plan to help create schemata for the methods of information gathering and as a means of interacting with academic discourse.

Beyond. The culminating task for this unit will be a five-page research paper on a controversial topic, along with an annotated bibliography of sources using MLA, APA, or other style. Students will by this time understand that this is a skill they will use for the rest of their careers as students and beyond school when they are part of the working community.

Lesson Plan for the Periodicals Module

The goal of this lesson is to teach students to access, evaluate, cite, and use periodical articles, while at the same time teaching them about the vocabulary and conventions used in academic English within scholarly works.

Lesson topic: Periodical articles

Standards: See the above ACRL and TESOL standards

Content objectives/outcomes:¹

- During the research process, differentiate between and use various types of sources, evaluate the quality and relevance of these sources to the research question, and revise the search strategy, if necessary, to obtain more relevant results to the research assignment criteria.
- Correctly synthesize source materials into a Works Cited or Reference page according to a citation style (MLA, APA, etc.). The citations will each be followed by an annotation that incorporates critical-thinking evaluation criteria about the item.

Language objectives/outcomes:²

- Comprehend and analyze academic reading materials at an advanced level.
- In a given writing task, develop a research paper that states a clear thesis and supports that thesis with adequate and appropriate development and logical rhetorical organization, along with support from research.

<i>Review vocabulary</i>		<i>New vocabulary</i>	
Research	Plagiarism	Database	Index
Research question	Thesis statement	Magazines	Scholarly journals
Evaluation	Citation	Primary source	Secondary source
		Microfilm	Microfiche
		Abstract	Methodology

<i>Materials</i>	<i>Supplementary materials</i>
Authentic texts (provided by instructor)	Web 2.0 educational tools for collaborative work (see the graphic organizer example in the lesson plan)
Research materials (located by students)	

Strategies/activities:

- Graphic organizers
- Jigsaw text reading

Motivation

By this point in the unit, students have chosen a topic that is interesting to them and have formulated a research question/thesis statement to help them focus their research. They have also learned how to search for books using several library catalogs. Books are great for research, but they are only one of many resources academics use. Students are introduced to another great resource: periodical articles. The class discusses how books take a while to publish, but periodical articles take much less time, so they are usually much more current on a topic. Also, because they are shorter than books, articles are much more focused about a topic. Another thing students will like about periodical articles is that they can be found using electronic databases that usually give access to the full text of the articles anytime and anywhere with Internet access. These are some of the exciting reasons the class is now going to learn how to find, read and understand, evaluate, and cite periodical articles.

Presentation

Day 1. Once students are excited about the possibilities for research using periodicals, a discussion follows about the different types of periodicals. Students have hands-on time to investigate different types of periodicals brought

to the classroom by the instructor. They note the similarities and differences (e.g., how often published; types of articles; length of articles; type of language used; types and formats of data included; if there are photos, illustrations, charts, or graphs included; who the authors are; if there are advertisements; what type of paper is used; and so on). A jigsaw method is used to have students move around the room and share their findings with one another. Working in groups of three, students can be assigned roles such as researcher, recorder, and reporter. The researcher looks for relevant information, the recorder notes the information found, and the reporter relays the information to other groups. At the end of the assigned time, students report their findings to the entire class. Once familiar with different types of periodicals, students are introduced to the concepts of primary and secondary sources. Examples are provided by instructor, but students will be asked to join in with their own examples.

Day 2. Students learn about different formats in which periodical articles might be found (electronic, print, microform). They now have a chance to investigate print indices such as the *Social Sciences Index*, *Humanities Index*, and *Readers' Guide to Periodic Literature*. After looking at print sources, the class is given a lesson in using electronic databases. Students are introduced to the different types of searches available electronically, and they learn how to select keywords from their research question/thesis statement to conduct a search. Furthermore, students learn how to use the thesaurus of descriptors within an electronic database as well as vocabulary found within relevant articles to discover broader, narrower, and related terms. Keeping a log of discovered terminology is an excellent vocabulary-building activity. For example, if a student's research topic is *botánicas*, a preliminary search might not turn up many relevant results. Upon further inspection, however, the student will learn that a broader term that might prove useful is *alternative medicine*; a related term might be *folk medicine*; and a narrower term could be *medicinal herbs*.

A variety of Web 2.0 educational tools are freely available for collaborative work on many features of this lesson. For example, at this point, Mindomo mind-mapping tools (<http://www.mindomo.com>) would be a great way to help students create graphic organizers for their concepts on the topic of *botánicas* (see Appendix). Items created in Mindomo can be saved on the Mindomo server, tagged, and shared by saving to the "Public Maps." Properties can be set for different levels of access, granting permission to read only, to copy, to modify, or to delete.

Day 3. Having found a scholarly article, as a class, led by the instructor, students learn how to read the article (i.e., not linear from beginning to end, but start with title, move on to abstract, and then read the introduction, the results, and the discussion. Usually the methodology section of the paper is too technical for students at this point.). This is another opportunity to have students create graphic organizers: one for how a scholarly paper is generally outlined, and one for the order in which it might be best to read the paper. Mindomo would again be useful at this point to help students outline the structure of an academic paper and then share their production with the class for mutual review and editing.

Day 4. The concept of evaluation of the article is now introduced, and a discussion takes place about how to decide whether or not an article is relevant and useful for a certain topic. Concepts such as authority, accuracy, objectivity, currency, and scope are introduced as evaluation criteria. Working in groups of two, students read a scholarly article (assigned by instructor, selected to be readable for ESL students, and exemplifying the scholarly article structure), evaluate it using the discussed criteria, and then write an abstract for it. This is achieved through a guided exercise, using the graphic organizers discussed above, to use article headings and subheadings to move through the article as students write their abstract. Once again, there are a variety of free Web 2.0 resources available for collaborative work on this exercise. Free sites such as Zoho (<http://www.zoho.com>) or Google Docs, for example, allow for creation, editing, storage, and sharing of materials.

Day 5. As a class, student have a discussion about MLA, APA, or other style citations for periodical articles. Students, working in their groups of two, now write a citation for the article that they wrote the abstract for. Groups exchange their abstracts and citations and conduct a peer review, followed by a classroom discussion of the process of summarizing and citing. Student-generated abstracts and citations may now be compared with ones created by the instructor (the abstracts may also be compared to the one written by the article's author or authors).

Practice/Application

The final assignments for this module are for students to find at least one article on their own for their research topic. They will read the article, evaluate it for usefulness for their topic, and write their own abstract for it. They will then write an MLA, APA, or other style citation followed by an annotation that includes aspects of the abstract along with evaluation criteria. This assignment is done individually by each student and is assessed by the instructor.

The assignment for this module will fit perfectly into the plan for the unit. By the end of the module, students will have learned how to do research using periodical articles, and they will have found at least one article for their topic. They will have read and understood this article, and they will have written an MLA, APA, or other style citation and annotation with summary and evaluation criteria for the article. This annotated citation will go into the final annotated bibliography, which will be appended to the final research paper for the class.

Assessment Rubrics

Content outcome 1.³ During the research process, differentiate between and use various types of sources, evaluate the quality and relevance of these sources to the research question, and revise the search strategy, if necessary, to obtain more relevant results to the research assignment criteria.

Assessment. The annotations in the annotated bibliography will be scored according to the evaluation criteria taught in class.

	Strong = 3 (A/B)	Adequate = 2 (C)	Weak =1 (D/F)
Evaluation criteria	Discusses at least five evaluation criteria: Authority, accuracy, objectivity, currency, content	Discusses at least three of the five criteria	Discusses fewer than three of the criteria

Content outcome 2. Correctly synthesize source materials into a Works Cited or Reference page according to a citation style (MLA, APA, etc.). The citations will each be followed by an annotation that incorporates critical-thinking evaluation criteria about the item.

Assessment. Create correct MLA, APA, or other style citations for the items found and used.

	Strong = 3 (A/B)	Adequate = 2 (C)	Weak =1 (D/F)
Citation style (MLA, APA, etc.)	Has all or at least most of the items included and in correct order with correct punctuation	Has most of the items included, but order and punctuation need work	Missing key items; incorrect order; incorrect or missing punctuation

Language outcome.⁴ Comprehend and analyze academic reading materials at an advanced level.

Assessment. On a reading assignment for one of the sources, students will identify and analyze the main idea or ideas by writing an abstract.

	Strong = 3 (A/B)	Adequate = 2 (C)	Weak =1 (D/F)
Main idea	Complete understanding	Partial understanding	No understanding
The thesis is clear	Complete sentence; directly stated central idea with subtopics listed	Complete sentence; indirectly stated central idea	Not a complete sentence and/or missing the topic or central idea
The abstract has adequate development	Two-three unified main points developed in depth; shows critical thinking in reflective inference, evaluation, and judgment of concepts	Two-three main points with some detail; mostly unified; shorter, more simplistic development	Missing a main point; lack of details; little or irrelevant analysis

	<i>Strong = 3 (A/B)</i>	<i>Adequate = 2 (C)</i>	<i>Weak =1 (D/F)</i>
The abstract has logical rhetorical organization	Consistent, logical ordering of ideas; use of transitions; correct rhetorical structures	Consistent, mostly logical ordering of ideas; some transitions; minor problems with rhetorical structures	Inconsistent or illogical ordering of ideas; few or no transitions; lack of control of rhetorical structures

Conclusion

ESL students are at a special disadvantage when it comes to information-literacy skills for a number of reasons, including the lack of access to information sources, lack of knowledge about effectively using such sources, and lack of language skills to evaluate and synthesize any information found (or even to ask for help, in many cases). The use of research skills as a context for learning academic discourse in English allows for the development of language and research skills students need to be successful in their academic careers and professional lives, and to help foster a love of lifelong learning. I hope that the curriculum outlined in this paper will help ESL faculty enrich the learning experience in the classroom by providing hands-on research experience and doing it using collaborative tools.

Having taught classes using this entire unit, or modules within the unit, I have come in contact with a range of students from different backgrounds and with a variety of research and linguistic needs. Some of the many interesting topics that my students have chosen to do research on include health care, economic equality, immigration, and parental roles. In their researching, discussing, and writing about these topics, I always see a vast improvement in vocabulary knowledge, analysis and critical thinking skills, and the use of academic discourse for writing within the genre of research papers.

While the technology aspect of this unit has at times been challenging given the mixed range of computer-literacy skills in any given class, I have always found that by the end of the unit, my students for the most part are thrilled with the ease of access to materials that the Internet provides, and that they have a lot of fun with the social aspect of the collaborative Web 2.0 sites and tools that we use. In the words of one of my former students, "I had so much fun in this class that I didn't realize I was actually learning. I realized how much I had learned when I took English 100 the next semester" (personal communication, May, 2008).

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Notes

¹Content outcomes are adapted from the Student Learning Outcomes (SLOs) for Library 100 at Cypress College.

²Language outcomes are adapted from SLOs for ESL 186 at Cypress College.

³The content outcomes, assessments, and rubrics are adapted from SLOs, assessments, and rubrics for Library 100 at Cypress College.

⁴The language outcome, assessment, and rubrics are adapted from SLOs, assessments, and rubrics for ESL 186 at Cypress College.

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Appendix Sample Graphic Organizer

Below is a graphic organizer on the topic of *botánicas*. This was made using Mindomo (<http://www.mindomo.com>), freely available on the Web. Included are hierarchical relationships of broader terms, related terms, and narrower terms. While these terms are needed for different types of database searching, they also help to build up students' vocabulary on the topic.

