Broadening the landscape: Information literacy in foreign language education

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Abstract

This article reports on the implementation of a Spanish information literacy tutorial and its effects on undergraduate research capacities. Information literacy, which refers to the ability to locate, evaluate, and use information, is key within the wider realm of digital literacy yet has often been overlooked in foreign language education. This article explores the use of an online tutorial to examine the desirability and feasibility of integrating information literacy into the foreign language curriculum. Drawing on concepts of culturally specific information, the tutorial, which was designed in Spanish, focuses on situating learners in an authentic Spanish information environment. Pre- and post-class questionnaires as well as an end of semester reflection illustrate that students showed increased conceptual understanding in finding, evaluating, and citing foreign language information resources. Bibliography grades also demonstrate a successful practical application of these concepts. The overarching goal of the article is to foster an understanding of information literacy and to begin to examine its role in the foreign language curriculum.

Introduction

The development of digital literacy skills is a key educational goal of the 21st century.

The development of digital literacy skills is a key educational goal of the 21st century (Project 21, 2004). Changing information landscapes and technological realities, however, mean that literacy has been re-conceptualized to build upon traditional reading and

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writing skills and to encompass computer, information, and media literacy (Thorne and Reinhardt, 2011). Computer and media literacy have a broad appeal and have been widely written about across the educational sphere. Information literacy (IL), on the other hand, which the Association of College and Research Libraries (ACRL) (1999) has defined as the student's ability to "locate, evaluate, and use effectively the needed information" has been neglected in foreign language research studies. It is often portrayed as a finite academic skill that can be "achieved" in English language writing classes, or that is only relevant to research-intensive classes, such as literature courses. Notwithstanding, in today's information society, the need for IL pervades academia, the workplace, and personal lives. More concretely, information and knowledge cannot be separated from the shared understandings, practices, and languages of a community (Lloyd, 2006), which means that it is vital that students develop IL competencies within foreign language contexts too.

Accordingly, this article will examine the design and development of an online IL tutorial[1] in SP4010, a hybrid advanced Spanish language writing class at the University of Colorado, Boulder. Designed by the author, a librarian, in conjunction with the class instructor, the research tutorial was intended to support the development of student writing competencies through the integration of IL into an authentic Spanish research environment. The article will use a mixed methods design to study the effect of the tutorial. By analyzing student responses on a pre- and post-class questionnaires, and end of semester reflection, as well as research paper bibliographies, the article will facilitate reflection on developing foreign language specific IL competencies. Through the study, readers will gain a basic understanding of IL and its importance in 21st

> *... the research tutorial was intended to support the development of student writing competencies through the integration of IL* [information literacy] *into an authentic Spanish research environment.*

century language learning. The author will also offer recommendations on how to integrate IL instruction into the language curriculum.

Research Questions

The aim of the study is to examine whether the integration of IL into the foreign language curriculum is desirable and feasible. The literature review will provide an overview of the desirability of foreign language IL by looking at research literature from both the foreign language area and the field of IL. The research design will examine the feasibility of this goal.

The major research question examines student IL competencies. What effect does the tutorial have on student IL skills? Previous experience teaching undergraduates had taught the author that students tend to rely on the same limited set of common information sources and have rarely had to search on the Internet for material in Spanish. As such, and in accordance with the ACRL definition, does

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1.   http://ucblibraries.colorado.edu/research/subjectguides/spanish/tutorial/homespa.html

the tutorial successfully help students locate, evaluate, and cite Spanish language resources for their class research papers? More specifically, how does the tutorial help students develop both a conceptual and practical knowledge of the research process in a Spanish context? In addition, are these skills maintained over the semester or transferable to a different context? Considering the high number of University of Colorado graduates entering the Peace Corps or undertaking work with non-governmental organizations and for-profit organizations that operate in Spanish-speaking countries after graduation, what competencies does the tutorial help develop that will enrich students beyond the academic experience? The study will provide an initial examination of student growth.

Literature Review

The literature review will explore the desirability of integrating IL into the foreign language curriculum by examining the changing role of IL in higher education, as well as highlighting examples of foreign language IL from both the library and foreign language literature.

The changing role of information literacy

IL has not been widely studied within the foreign language environment. Misconceptions about the purpose and scope of IL may explain its neglect. First, it could be assumed that IL focuses on finite library-centric skills, such as navigation of the library building. However,

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the move from "Bibliographic Instruction" to "Information Literacy" in the 1990s ensured that IL is not bound to a medium, place, library resources, or holdings. For Grafstein (2002), IL "presupposes the acquisition of the technical skills needed to access digital information, and, crucially, it extends beyond the ability to locate information simply to include the ability to understand it, evaluate it, and use it appropriately" (p.198). In this light, IL is neither concrete nor a terminal skill that can be "acquired;" rather it functions more as a continuum or a process that is constantly being developed.

Second, it may be assumed that IL is just an academic or traditional skill and not relevant to a student's future career. However, ACRL recognizes that individuals are "faced with diverse, abundant information choices—in their academic studies, in the workplace, and in their personal lives" (1999). Similarly, UNESCO states "Information literacy empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals" (2005). For Lloyd (2006), more meaningful IL moves "towards real-world information environments with their multiple and complex sources of information in order to facilitate problem solving and learning that will reflect the problematic process of coming to know in multiple environments" (p.574). Therefore, an IL program that encompasses broad information environments and does not just confine itself to scholarly or textual sources can play a role in actively preparing students for lifelong learning goals.

A third possible reason for the limited IL presence in foreign language education is that traditional IL standards (ACRL, 1999) seem very removed from foreign language learning objectives. The universal process presented in the standards sits awkwardly with the foreign language focus on transcultural competence, for example (Morrison, 2010, p.2). Notwithstanding, librarians are gradually adopting a more critical approach to information literacy. This focuses not only on integrating IL more deeply with disciplinary goals and environments, but also on recognizing and engaging with different cultural perspectives. This parallels developments in foreign language education and the National *Standards for foreign language learning in the 21st century* (2006). For Luke and Kapitzke (1999), two early proponents of a critical approach to information literacy, the focus on cultural IL is rooted in the deeper questions inherent in the information landscape such as "the social construction and cultural authority of knowledge; the political economies of knowledge ownership and control; and the development of local communities' and cultures' capacities to critique and construct knowledge" (p.483). In this way, IL can be understood as a sociocultural practice that is relevant to foreign language educational goals. The Australian and New Zealand Information Literacy Framework (2004), which recognizes the "cultural, physical, or other context within which the information was created and understands the impact of context on interpreting the information" (Standard 3.2) provides a good example of how IL educators are starting to think about the cultural knowledge.

Integration of IL into the curriculum

While IL in a foreign language context is underrepresented, there have been a few relevant studies in both library and foreign language literature. Within the library literature, the topic has been treated very cursorily. Giullian (2009) presents an early example of an integrated Slavic IL program at the University of Kansas while Wang (2008) alludes to a Chinese IL class, but in each case, there is little detail of the class or pedagogy. English as a Second Language (ESL) librarians provide an interesting perspective on language learning and IL. Laskin and Díaz (2009) explicitly use IL as a language-learning tool, though they provide little detail on course specifics. Bordonaro (2006, 2010), in two insightful articles, looks at how the use of the library can improve reading, speaking, listening, and writing skills in ESL learners. These studies provide an interesting focus on language pedagogy that is absent in library studies of foreign language IL research.

Within foreign language literature, there have been a few examples of IL in the foreign language classroom. Edge and Samuda (1981) give an early illustration of how IL can be integrated into the classroom with the development of their Methodial method, which focuses on information search, exchange, and synthesis as part of the core curriculum. Hock (2007) provides one of the most developed approaches of IL in world language contexts in her passionate description of integrating IL throughout the German curriculum. Although her IL class taught by the librarian is in English, she believes that IL can help interpret an essential part of what being German means. This has subsequent major implications for linguistic and cultural understanding, enrollment numbers and the humanities.

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The literatures of IL and foreign language learning therefore suggest that the integration of IL into foreign language studies is underdeveloped yet desirable. Growing emphasis on literacy in foreign language literature, as well as more thoughtful reflection about cultural difference in IL shows a *rapprochement* of ideas and values that would benefit students in many ways. This article will now look at the creation of a Spanish language information literacy tutorial to examine the feasibility of this approach.

Methods

Goals

SP4010 is a three-credit advanced language writing class that introduces Spanish undergraduate majors to presentational, interpretive, and interpersonal writing. Usually taken in the final year of study, it builds upon SP3000, the prerequisite introductory advanced writing class. Five pieces of written work were expected for the course, of which the *reseñas y comentarios de recursos* [summary and commentary of sources] paper and the *exposición* [essay] paper had to include at least 3-4 credible sources in Spanish, cited using the Modern Language Association (MLA) style. Papers were then published on student blogs, which are freely accessible on the web. Accordingly, drawing on the ACRL definition of IL, the learning outcomes for the class research component were designed to ensure students could

- *Locate*: locate information sources in Spanish from the Spanish language web in order to develop evidence that supports arguments in written assignments
- *Evaluate*: demonstrate critical thinking in their writing through the evaluation of a source's credibility
- *Cite*: use an established citation system in order to use information in a legal, ethical way.

Tutorial content

In previous iterations of the class, the librarian was accustomed to teaching one face-to-face class per semester to introduce students to basic Spanish language IL skills. However, the timing of this class was often troublesome and students were not always fully engaged with their research topics when the session was scheduled. Furthermore, by limiting the librarian to just one session, it was hard to meet all the students' research queries and needs. Accordingly, the instructor and the librarian decided to redesign the research component of the class around the flexibility of an online tutorial. As the liaison to the Department of Spanish and Portuguese, the librarian frequently works with language instructors to design IL classes, particularly as the library profession moves to embed research skills within disciplinary learning goals.

The librarian and the instructor also decided to design the tutorial in Spanish, taking advantage of the librarian's fluency in the language. In undergraduate education, a librarian generally teaches IL skills in English. However, in an effort to integrate IL with the immersion and educational goals of the Spanish course, this

tutorial was designed in Spanish. Both the author and the instructor believed that students should be exposed to as much target language as possible, and that the specific vocabulary necessary to use authentic Spanish resources is best acquired through instruction in Spanish.

The tutorial content drew upon the author's and the instructor's previous assessment of the in-person class and assignments as well as class learning outcomes. As the literature shows, foreign language IL is underdeveloped in both foreign language literature and IL standards. This meant that the author had to rely upon prior knowledge and assessment of the class rather than on any previously tested models to design the tutorial.

The tutorial consisted of a series of independent modules to scaffold the three class learning goals of locating, evaluating, and citing material. Modules on locating material included search strategies, finding articles, newspapers, and web resources (including blogs and videos). Search strategies focused on choosing Spanish search keywords, including choice of vocabulary, synonyms, and broader and narrower terms. The three modules on finding articles, newspapers, and web resources introduced students to searching for resources in a mixture of freely available and subscription Spanish databases (such as Dialnet, HAPI, and Ethnic Newswatch). These modules also covered strategies for using search engines optimally, including the Advanced Search, limiting a search by language, region, or domain, and selecting different versions of search engines, for example Google Argentina.

A module on source evaluation supported the second research goal of developing critical thinking through assessing the validity and appropriateness of a source. Source evaluation instruction was also tied into each module on finding material. Lastly, a module on citation help supported the third learning outcome by providing a revision of citation norms, the MLA style, and various appropriate reference resources.

Created with Dreamweaver, modules comprised Spanish text, videos, and images to scaffold conceptual understanding. Short (ungraded) quizzes were also provided during and after each module to enable students to test their practical understanding. Definitions were also provided for key items of vocabulary that students might not have known. The tutorial was introduced to students early on in the semester after they had selected the paper topic but before the first paper was due. Students were asked to study each module as homework and were then encouraged to use the tutorial for reference as often as required, with the expectation that they would look through the tutorial at least once.

Evaluation

The research design encompassed a mixed-method investigation. After consideration, the author decided to measure student IL competencies through the use of three specific evaluations: a pre- and a post-class questionnaire, an end of semester reflection, and by grading student bibliographies. In this way, the author could gather both qualitative and quantitative evidence of learning, as well

as gauge development of student conceptual and practical understanding of core concepts.

The pre- and the post-class questionnaires (see Appendix 1 and 2) were administered prior to the other two assessments. These questionnaires were designed to study the effect of the tutorial on the student's conceptual understanding of the three IL competencies—locating, evaluating, and using information. Accordingly, shortly before the tutorial was assigned, students completed a pre-class questionnaire that elicited prior knowledge and experience of research. After six weeks, a similar post-class questionnaire was administered to students. At this stage, students had received grades for their *reseñas y comentarios de recursos* paper, but they had not yet completed their *exposición.* The post-class questionnaire was designed to help students articulate changes to their information seeking process, enabling reflection on personal change and adaptation. Together, these evaluations permitted qualitative insight into changing student conceptions of research as well as self-assessment of skills learned in the tutorial. Content analysis was subsequently carried out on pre- and post-class questionnaire answers.

The end of semester reflection (see Appendix 3) formed the second evaluation. These open-ended questions were designed to determine whether the tutorial facilitated changes in conceptual understanding of IL that were sustained over the semester. It was also designed to examine perceptions of future transferability of skills. Administered to students in the final week of class, questions were open-ended to facilitate subsequent qualitative and thematic analysis.

Lastly, the third IL evaluation involved author grading of student bibliographies (see Appendix 4). This enabled quantitative insight into practical applications of research skills, and determined whether students had transferred conceptual knowledge gained from the tutorial into their written work. The grading rubric was aligned with the major learning outcomes of the class, with students being evaluated on a three-point scale on the variety of sources (do they show diverse perspectives?), the quality of their sources (are sources appropriate?), and the citation format. In an effort to ensure that papers were graded fairly, 20% were also graded by an external, Spanish reading librarian reviewer, which produced an inter-rater reliability of 0.73. The author then compared all bibliography grades to those of a control group. The control group consisted of student bibliography grades from years when library instruction had not been offered (2007) and when it had only been offered in-person (2008). While the pre- and the post-class questionnaires were not administered in 2007 and 2008, the assignments and bibliography grading criteria were the same, which provided useful statistics for comparison.

Participants

Participants consisted of students enrolled in SP4010, which collectively had an enrollment of 43 students (25% male, 75% female). At the conclusion of the evaluation period, the number of students had fallen to 32 (Fall: 17, Spring: 15) due to student dropout or failure to complete assignments. Most students (44%) had studied Spanish for 5-8 years though 19% had only studied for 1-4 yrs. Roughly

one third (30%) of students had worked with an English language research tutorial of some sort before.

Findings

Locating

When asked how to find reliable information for studying water problems in the pre-class questionnaire, all students mentioned relevant textual sources including a variety of academic and freely accessible sites. Notwithstanding, although Google and Google Scholar were mentioned frequently, when students were asked how to find Spanish resources, less than 25% of students (7/32) realized that Google exists for different countries and only 43% (14/32 students) realized that the advanced search would change the language. In the post-class questionnaire, however, a majority of students recognized that the tutorial had improved their ability to find key material. When asked to describe the major takeaway from the tutorial, the class was fairly evenly divided: 31% of students (10/32) demonstrated increased understanding of Google and how to get more appropriate search results including using advanced search and changing the country domain:

> *"que puedo usar google.es y es totalmente fuentes en español."* [That I can use google.es and it is all Spanish sources]

> *"Como usar Google para obtener recursos en español solamente."* [How to use Google to find only Spanish results.]

Similarly, 22% of students (7/32) indicated that their key takeaway was an improved understanding of how to find Spanish resources:

> *"Que la biblioteca tiene muchos recursos en español compilados de una manera muy organizada"* [That the library has a lot of Spanish resources that are organized really well]

Another 22% (7/32) remarked that it was how to search better overall, for example understanding how to get more relevant results through employing search strategies:

> *"Que se puede usar un "dash" para omitir palabras en una busqueda."* [That you can use a dash to omit words from your search.]

> *"Yo aprendi… como poner un "" enfrente de la palabra."* [I learned… how to put "" in front of a word."]

These takeaways from the tutorial were also highlighted in the end of semester reflection, where 71% of students (23/32) remarked that they now approach research more thoughtfully, citing better ways of searching, new resources, and gaining more confidence in their abilities:

> *"Ahora tengo más paciencia investigando palabras, fuentes y recursos."* [Now I have more patience researching words, sources and tools]

> *"Sí, tengo menos miedo de buscar."* [Yes, I am less scared of searching]

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Many comments focused specifically on search skills including general search tips and how to search in Spanish:

> *"Ahora voy a buscar las fuentes en español en vez de buscar las fuentes en inglés que luego describo en español."* [Now I will search for sources in Spanish instead of searching for sources in English, which I then describe in Spanish.]

Student gains in being able to locate materials were also seen when the author graded final bibliographies. On average, as Table 1 demonstrates, students scored 2.39 out of a possible 3 for the variety of the resources cited in their bibliographies, which included scholarly and popular articles, newspaper reports and blogs in Spanish [see Appendix 4 for the rubric]. In addition, grades for locating sources were also considerably higher than grades from the control groups. A t-test also showed that results were also statistically significant. $(t(50)=-1.29, p <.001)$

Table 1. Grades for Locating Sources

	Average: *Reseñas/ Exposición* (Marks out of 3)	**Average: Fall 2007** (No library instruction) (Marks out of 3)	**Average: Fall 2008** (In-class instruction) (Marks out of 3)
Variety of sources	2.39	1.36	1.9

Evaluating

In the pre-class questionnaire, roughly a quarter of the respondents demonstrated an understanding of how to evaluate research resources. For 59% of students (19/32), it was important to look at the author of the text, although only 28% (9/32 students) mentioned that it was important to look at sources cited or the quality of the research. In the post-class questionnaire, no student noticed a change in his or her evaluation process. Notwithstanding, in the end of semester reflection, about one third of the students indicated that they had changed the way they considered information sources. For a few students, this involved recognizing the importance of evaluating a range of sources to construct an argument:

> *"Leo más que un solo fuente para ver las cosas diferentes." (sic)* [I read more than one source to see different things.]

> *"Después de esta clase trato de encontrar citas variadas."* [After this class I will try to find varied sources.]

Other comments indicated that students generally paid more attention to cited resources:

> *"Soy más consciente en las páginas web que visito."* [I am more conscious about the websites I visit.]

In the final bibliographies, the average grade for the quality of resources was fairly high (2.3/3) and it showed considerable improvement over the results of the control group, as can be seen in Table 2. A t-test shows these results were also statistically significant. (t(50)=-1.12, p <.001)

Table 2. Grades for Evaluating Sources

	Average: Reseñas/ Exposición (Marks out of 3)	**Average: Fall 2007** (No library instruction) (Marks out of 3)	**Average: Fall 2008** (In-class instruction) (Marks out of 3)
Quality of sources	2.31	1.45	2

Citing

Due to the difficulty of designing suitable questions around citation style, the pre-class questionnaire did not look at prior citation knowledge. In the post-class questionnaire, however, while 9 students (26%) found this section useful, only 6% of students (2/32) mentioned that their citation habits had changed as a result of the tutorial. Similarly, in the end of semester reflection citation habits were not mentioned. Finally, while grades for bibliography citation averaged 2.3/3, it can be seen from Table 3 that they were almost identical to control group results. These results were not statistically significant.

Table 3. Grades for Citing Sources

	Average: Reseñas/ Exposición (Marks out of 3)	**Average: Fall 2007** (No library instruction) (Marks out of 3)	**Average: Fall 2008** (In-class instruction) (Marks out of 3)
Citation Format	2.26	2.36	2.4

Transferability

The end of semester reflection also addressed the transferability of IL, or how students thought they could use what they had learned in the tutorial in the future careers. Overall, students envisaged a wide range of occasions when they might use what they had learned from the tutorial in the future. Roughly one-third of students mentioned specific occasions, including specific careers, such as law, medicine, the non-profit sector, and education. Comments indicated how students thought they could specifically apply knowledge from this class in future:

"*Ser una maestra requiere que unos siempre está aumentando su cono-cimiento y estar más habil en la busqueda de información me servirá*

mucho." *(sic)*[To be a teacher one needs to always be improving your language and being more efficient in searching for information will help me a lot.]

Other comments showed how this process might have clarified career aims:

"Espero que tenga un empleo que requiere investigación." [I hope to have a job that requires research.]

Students also foresaw that research ability would be useful in future graduate studies and in the process of getting a career:

"Yo voy a venderme como una persona que investiga y escriba bien." (sic) [I am going to sell myself as someone who researches and writes well.]

Discussion and Implications

Locating

It is clear that the modules on locating material were the most appreciated by students. The post-class questionnaire showed that students demonstrated a much wider understanding of Spanish resources, with almost half of the students remarking that it was learning how to find Spanish resources that surprised them the most.

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Students also showed a new appreciation for strategies, for example, the importance of keywords to find these resources. These changes were not just at a conceptual level either. Bibliography grades also showed that for the most part, students located a wide variety of appropriate resources for their papers. Furthermore, the end of semester reflection showed that for the majority of students, changes made to search habits were sustained over the semester. Of the students who did not notice any change, this was generally because they already knew about many of these resources, possibly through studying abroad. As such, these findings imply that the tutorial had helped students to develop a conceptual awareness of foreign language information realities as well as practical strategies to help locate new materials and resources.

Interestingly, the pre-class questionnaire showed that as expected, students had a limited idea of the functionality of the web, especially to locate non-traditional sources such as blogs. Before taking the tutorial, few students were able to demonstrate advanced search strategies in a search engine. Similarly, few students showed more than a basic understanding of how to search for materials in Spanish from a Spanish-speaking country. Notwithstanding, in the end of semester reflection, many students expressed surprise that they had learned so much about search techniques from the tutorial. It appears that before the class, many students considered themselves expert searchers, although as the pre-class questionnaire demonstrated, this was not the case. This would seem to corroborate evidence from Project Information Literacy (Head and Eisenberg, 2009), a national study of student information seeking behaviors. Their 2009 report (Head and Eisenberg, 2009) found that students often rely on the same small set of common information

sources for research projects, showing "little inclination to vary the frequency or order of use" and that IL instruction can help widen student knowledge. (p.3) As a consequence, it is clear that students may need special help to develop effective foreign language search strategies, particularly because scholarly literature and the Internet in general are so skewed to finding English language sources.

Evaluating

At first glance it would seem that the tutorial had little effect on student evaluation skills. After taking the tutorial, no student mentioned that his or her evaluative skills had improved. Notwithstanding, end of semester survey comments showed a moderate improvement in conceptual understanding of source evaluation. In addition, grades for the bibliography showed statistically significant practical improvement in the quality of selected sources over sources chosen by the control group. Therefore again, it seems that many students did not think that they needed to learn about source evaluation even though the pre-class questionnaire showed that instruction was necessary. Unlike techniques for locating resources, though, this did not seem to be as valued by students. While the end of semester reflection and bibliography grades demonstrated that the tutorial did have a long-term effect on roughly one-third of students, it is clear that treatment of this topic could be improved.

It is possible (although impossible to know as usage statistics were not kept) that because evaluative skills were not seen to be very different between English and Spanish language research, students skipped over this section of the tutorial. Differing concepts of evaluation, trust, and credibility are complex issues in the foreign language information landscape though. It is evident that the diverse political, social, and economic contexts that form the information landscape play a role in how different communities ascribe source respect and authority. This is also inextricably linked to linguistic identity. Low usage statistics for this section of the tutorial may serve as an indication that more work is needed to expand student conception of evaluating material in a foreign language context.

Citing

The tutorial seemed to have the least effect on student citation habits. In the post-class questionnaire, a very small number of students mentioned that learning about citation was the primary conceptual takeaway. In addition, while the average bibliography citation score showed that most students did not have trouble citing sources, scores were comparable with the control group result, which indicates that the tutorial had little effect on student learning for this section. Results could have been skewed because the instructor also covered citing during class time. Furthermore, while the pre-class questionnaire did not ask about citation habits, it was expected that as this class was an advanced-level writing class with several prerequisites, most students would have encountered citation conventions before taking this class. However, evaluation results show that more work could be done to tailor the module for specific citation problems, rather than a general overview.

Transferability

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As a whole, it seems that the tutorial helped students learn skills that were considered transferable to other classes or a future career. Not only does this indicate that in-depth learning has occurred, but it also demonstrates that students have understood the wider context of research skills. This will only become more relevant as the "Information Age" develops. It may also explain some of the motivation behind the positive improvements in IL skills. While evaluation of transferability was limited to the end of semester reflection, the focus of the study meant that it would be hard to examine student learning beyond this class. However, it is clear that generally, students found the tutorial would be useful in a wide range of future scenarios.

> *As a whole, it seems that the tutorial helped students learn skills that were considered transferable to other classes or a future career.*

Limitations and Future Research

Through the analysis of research results, the author identified limitations in the study design. First, the low number of participants means that results from this study are not generalizable. In addition, students who completed this research were all undergraduate students at the University of Colorado and were Spanish majors. Consequently, it cannot be said that participants were representative of all undergraduate language majors. Their responses, however, do offer insights into language student research skills and language competencies. Future research to verify findings from this study could focus on broadening the number of students or integrating participants studying different languages. Furthermore, this study did not attempt to examine disparities between different national cultures within the Spanish language. Varying levels of regional access to information and Internet usage as well as differing political, economic, and social landscapes have an obvious effect on both Internet and physical research, and this study did not differentiate between research in Spain and Latin America. The project was developed through the instructors' personal experiences of Spanish language research, and, as such, takes a broad approach. Future studies could take a more culturally-specific approach to examine differences between different national traditions.

Another limitation was that student behavior or questionnaire answers could have been modified by their awareness that the pre- and post-class questionnaires were not anonymous. Furthermore, student use of the tutorial was mostly reported secondhand and the author did not have direct experience of student tutorial usage. Although Google Analytics provides some insights, the lack of personalized login meant it was hard to track exactly how students used the tool. Logins were rejected in the planning session due to the desire to ensure that the tutorial was seen as accessible to students rather than as an evaluative tool, but future research could use more sophisticated technical tools to provide a better examination of tutorial usage. Finally, it is hard to determine the effect of the tutorial on student learning. The tutorial formed only one component of the class and many other variables could have affected student learning. However, findings show several positive and statistically significant effects on IL competencies. Future research that considered

testing over several semesters would enable a deeper analysis of the effect of the tutorial.

The study also provides several avenues for research on the effect of the tutorial on language acquisition. Did the language of instruction affect the comprehension and development of information literacy skills? How did usage of the tutorial, for example in searching and evaluating activities, affect grammar and comprehension skills? How could further qualitative analysis be used to investigate the complex nature of IL and student learning? Did the tutorial have an effect on student writing competencies or overall course grade? Did the tutorial have an effect on subsequent English-language research students undertook? Further research could build on any of these questions in order to provide greater insight into the role of IL in foreign language education.

Further research could also address the cultural aspects of language learning, as outlined in the National Standards and the 2007 Modern Language Association report, *Foreign Languages and Higher Education: New Structures for a Changed World*. If information is culturally specific, could IL instruction be seen as a key way of knowing another language? In the same vein, could IL then be seen to play a key role in creating what the MLA (2007) refers to as "educated speakers who have deep translingual and transcultural competence" (p.3)? Additional research is needed to explore whether IL could help develop cultural knowledge, thereby contributing to the student's deeper understanding as a target language user.

Recommendations

The role of the librarian is key to any discussion about IL and student learning. In this project, the librarian drew heavily on previous experience to provide support and assistance to integrate IL into the curriculum. While many institutions will not have access to a multilingual or even a foreign language liaison librarian, IL is becoming core to the role and purpose of most academic libraries. As such, many librarians possess broad pedagogical experience, which can lead to effective collaborative curriculum development, and innovative point of need instruction. Alternatively, foreign language graduate students, who need to have excellent IL competencies, could prove central to integrating IL concepts.

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Secondly, many basic literacy techniques can be integrated throughout the foreign language curriculum, from beginning to advanced level. This reflects Kern's 2002 call for broader exposure to "signifying practices" and IL could serve as a coherent vehicle between lower and upper division courses (p.23). Assignments, class discussions, and grading criteria, among other ideas, can focus on IL. The growing focus on personal learning environments (PLE) to support social or situated learning is ideally suited to integrate IL concepts. Discussions and activities around the role of search engines, including advanced search and local strategies are productive. Discussions could also discuss the concept of authority and credibility, and how that differs from country to country. Hock (2007) and Leu, Zawilinksi, Castek, Banerjee, Housand,

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Liu, & O'Neil (2007) among others, report on specific strategies that can be adapted for foreign language IL based on Hock's concept of introducing students to "sources that everyday Germans, everyday Americans interested in things German, and scholars of German Studies frequently consult" (p.51).

Conclusion

This study examined the effect of an online Spanish research tutorial on IL competencies. Pre- and post-class questionnaires, an end of semester reflection, and bibliography grades examined undergraduate Spanish majors' conceptual and practical understanding of research in an advanced language writing class. Findings showed that the tutorial improved students' IL competencies, or the ability to find, locate, and cite Spanish resources. This project also points to the advantages of librarian-faculty collaboration in designing and creating effective learning activities. While this paper did not explicitly set out to examine the instructional collaboration, the supportive relationship between both instructors was key to the success of the project. Support from the Anderson Language Technology Center (ALTEC) at the University of Colorado was also key.

Discipline-specific IL is an essential skill in any area. However, in a multilingual context, IL is even more complex and even more necessary. Beyond the basic premise that information practice is culturally specific and specific instruction is needed to develop these skills, this paper raises the question whether IL can contribute to the development of a student's deeper understanding as a speaker of that language. Further research will attempt to address these bigger questions. Through this study though, it can be seen that the integration of IL into the language curriculum is both desirable and feasible, and it is to be hoped that this project will encourage further investigation into the position of IL within foreign language education.

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Appendix 1: Pre-class questionnaire

1. *¿Cuál es tu nombre?* / What is your name?
2. *¿Cuál es tu sexo?* / What is your sex?
3. *¿Cuantos años llevas estudiando español?* / How long have you studied Spanish?
4. *¿Hiciste un tutorial de investigación bibliotecaria antes?* / Have you ever had a library tutorial before?
5. *Si quisieras encontrar información acerca del tema de tu ensayo, por ejemplo los problemas del agua en Peru, ¿dónde buscarías?* / If you wanted to find information on your topic, for example water in Peru, where would you search?
6. *Cuando usas Google etc, ¿cómo encuentras información en español?* / When you use Google, how do you find information in Spanish?
7. *Cuando usas Google etc, ¿cómo sabes si una página contiene información de confianza?* / When you use Google, how do you know whether a page is trustworthy?

Appendix 2: Post-class questionnaire

1. *¿Cuál es tu nombre?* / What is your name?
2. *¿Te ayudó el tutorial a encontrar buenas palabras claves para tus búsquedas?* / Did the tutorial help you find keywords for your search?
3. *¿Te ayudó el tutorial a en*contrar *artículos de periódicos?* / Did the tutorial help you find newspaper articles?
4. *¿Te ayudó el tutorial a encontrar artículos de revistas académicas?* / Did the tutorial help you find scholarly articles?
5. *¿Te ayudó el tutorial a encontrar sitios web relacionados con tu tema?* / Did the tutorial help you find websites related to your topic?
6. *¿Usaste el tutorial para ver cómo citar tus recursos del formato MLA?* / Did you use the tutorial to see how to cite your sources in the MLA format?
7. *Describe una cosa nueva que aprendiste al usar el tutorial.* / Describe one new thing you learned from the tutorial.
8. *¿Qué cosa que aprendiste en el tutorial fue lo más sorprendente para ti?* / What thing that you learned from the tutorial was the most surprising for you?
9. *¿Cuáles son tus sugerencias para que sea aun más* útil *el tutorial?* / What are your suggestions to make the tutorial even better?

Appendix 3: End of semester reflection

1. *Después de esta clase, ¿han cambiado las maneras en que haces investigaciones (académicas o para otro fines)?* / After this class, have you changed the way you do research (academic or for other purposes)
2. *Después de esta clase, ¿usas Google de una manera diferente? ¿Cómo lo usas ahora en comparación con antes de la clase?* / After this class, will you use Google in a different way? How do you use it now in comparison to before the class?
3. *¿Cómo usarás tu habilidad para investigar en el futuro y/o en tu empleo o carrera?* / How will you use your research abilities in the future and/or in your job or degree?

Appendix 4: Bibliography Grading Rubric

	3 points	2 points	1 point	0 points
Quality of Sources (Appropriate for a research paper, student's topic, to make argument)	At least 3 sources that are mostly reliable, relevant for a research paper and topic	At least 2 sources that are reliable and appropriate for paper, topic	Fewer than 2 sources or sources that are unreliable, inappropriate for topic	No sources
Variety of Sources (Diverse perspectives, etc.)	Sufficient sources that show diverse perspectives	Shows an attempt to include variety of sources, some duplication	Insufficient variety of sources to illustrate paper	No sources
Citation Format (Consistent, can a reader locate source)	Consistent citations in MLA format, cited correctly in bibliography and in-text.	Minor inconsistencies in bibliography or in-text	Limited attempts to document sources or only includes either bibliography or in-text	No citations