Canadian Journal of Educational and Social Studies
Vol. 5(6), 2025, pp.28-46

The Crucial Interplay of Information Literacy and Writing Skills in College

David Blasco[1]

[1] Ling Tung University, Ling Tung Rd., Taichung, Taiwan
Email: dblasco1970@gmail.com

DOI: 10.53103/cjess.v5i6.423

Abstract

This research paper examines the crucial interplay of information literacy and writing skills among college students, highlighting their integral role in academic success and lifelong learning. As the educational landscape becomes increasingly complex, students must not only master their disciplines but also navigate vast and varied information sources proficiently. Information literacy, defined as the ability to identify, evaluate, utilize, and ethically manage information, is essential for students to engage meaningfully with academic discourse. This study examined the interconnectedness of information literacy and writing skills, emphasizing how they collectively foster critical thinking and effective communication and uphold academic integrity. A survey was conducted with undergraduate students at Ling Tung University of Science and Technology. The research investigates key differences in information literacy competencies between American and Taiwanese college students. It also evaluates how integrating AI tools into research tasks affects students' motivation and confidence in writing. The findings reveal that while Taiwanese participants rely heavily on search engines like Google, they also recognize the value of research tools in enhancing their writing abilities. Notably, the study identifies challenges faced by students, including the difficulties in assessing the credibility of sources and adapting writing to meet disciplinary conventions. Overall, the results underscore the need to incorporate both information literacy and writing skill development into higher education curricula.

Keywords: Information Literacy, Writing Skills, Academic Success, Critical Thinking, Higher Education

Introduction

The contemporary educational environment necessitates that college students achieve proficiency in their respective disciplines and develop the capacity to navigate an increasingly complex and voluminous information landscape effectively. Zimmerman and Ni (2021) examined various ways in which information literacy differs across different cultures. They note that "information literacy skills are requisite to fulfilling one's potential

and are highly connected to a good quality of life." In addition, the American Library Association (ALA, 1989)'s Presidential Committee on Information Literacy defines information literacy as the ability "to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information." The ALA also noted that "to be information literate, one needs skills not only in research, but in critical thinking." Finally, the Google search engine defines it as "the ability to recognize when information is needed, locate, evaluate, and effectively use that information responsibly and ethically. It is essential to master the use of information for lifelong learning, informed decision-making, and active society participation." Thus, this essay examined the interconnectedness of these competencies, emphasizing their role in fostering critical thinking, effective communication, and the protection of academic integrity within higher education contexts. In light of the Taipei Times' 2025 article, "Doctored Images Common Chinese Tactic, MAC Says," which highlights the Taiwanese government's efforts to "enhance our people's literacy of online information, particularly those from China," this research paper seeks to contribute empirical data on how Taiwanese college students engage in research practices. Furthermore, this study aims to evaluate and implement more effective information literacy instruction methodologies, as proposed by Taylor and Dalal (2014), while critically assessing their applicability and relevance from the students' perspectives. By doing so, this research endeavors to bridge the gap between theoretical frameworks and practical applications, ultimately enhancing the information literacy skills of students in an era characterized by rapid technological advancements and the proliferation of digital information.

Literature Review

Information Literacy: A Scholarly Compass

Information literacy transcends the mere act of locating information; it encompasses a multifaceted set of competencies that enable individuals to navigate, evaluate, and utilize information effectively and ethically. In the academic context, information literacy serves as a foundational skill that underpins scholarly inquiry and intellectual growth. It involves several critical components:

1. **Source Evaluation**: A cornerstone of information literacy is the ability to assess the credibility and reliability of sources. This process involves applying evaluative criteria such as authority, accuracy, currency, relevance, and objectivity, often encapsulated in frameworks like the CRAAP (Currency, Relevance, Authority, Accuracy, Purpose) test. For instance, students must distinguish between peer-reviewed journal articles, which undergo rigorous scrutiny, and opinion pieces or blog posts, which may lack scholarly rigor. This discernment ensures that the information used in academic work is trustworthy and appropriate for the context

(Burkhardt, 2010; Purdue).

2. **Research Tools Mastery**: Effective information literacy also requires proficiency in utilizing a variety of research tools and platforms. These include library databases, academic search engines, and specialized repositories such as JSTOR or PubMed. Mastery of these tools involves understanding advanced search techniques, such as the use of Boolean operators (AND, OR, NOT) to refine search results and locate relevant materials efficiently. This technical skill is essential for conducting comprehensive and targeted research, particularly in an era characterized by information overload (Burkhardt, 2010; Purdue).
3. **Ethical Information Use**: Ethical considerations are integral to information literacy. This includes adhering to proper citation practices to avoid plagiarism, understanding and applying various citation styles (e.g., APA, MLA, Chicago), and respecting intellectual property rights. Ethical information use ensures that students contribute to the academic community with integrity, acknowledging the work of others while advancing their own scholarly contributions (Burkhardt, 2010; Purdue).

Writing Skills: The Art of Scholarly Discourse

Writing in college is a complex and nuanced endeavor that extends beyond mere composition. It involves the blending of ideas in a manner that is clear, coherent, and persuasive, tailored to the expectations of academic discourse. Key aspects of academic writing include:

1. **Clarity and Structure**: Effective academic writing demands a logical structure, with ideas presented in a coherent and organized manner. This includes the use of clear and concise language, adherence to academic conventions in formatting and style, and the ability to construct well-defined arguments. A well-structured paper guides the reader through the writer's reasoning, ensuring that the argument is both accessible and compelling (Lunsford, 2015).
2. **Argumentation and Rhetoric**: At the heart of academic writing is the construction of arguments supported by evidence. This involves not only presenting facts but also interpreting them in a way that advances a thesis or central claim. Understanding the audience and employing rhetorical strategies—such as ethos (credibility), pathos (emotional appeal), and logos (logical appeal)—are essential for persuading or informing readers effectively (Lunsford, 2015).
3. **Disciplinary Writing**: Academic writing is not monolithic; it varies significantly across disciplines. For example, scientific writing often prioritizes conciseness and objectivity, while humanities writing may embrace a more narrative-driven approach. Adapting one's writing style to fit the norms and expectations of a

specific discipline is a critical skill for academic success. This adaptability reflects an understanding of the epistemological and methodological differences that characterize various fields of study (Lunsford, 2015).

The Synergy between Information Literacy and Writing

The interplay between information literacy and writing skills is a dynamic and mutually reinforcing relationship that enhances both academic performance and intellectual development. This synergy manifests in several key ways:

1. **Informed Writing**: Information literacy ensures that writing is grounded in rigorous research and evidence. For example, in a literature review, students must synthesize information from multiple sources, critically evaluating how each piece contributes to the broader academic conversation. This process not only enriches the content of the writing but also demonstrates the writer's ability to engage with and build upon existing scholarship (Krause, 2007).
2. **Critical Analysis**: The evaluative skills developed through information literacy directly enhance critical thinking, which is essential for effective writing. The ability to assess the credibility of sources, identify biases, and recognize gaps in research translates into the ability to perform a critical analysis of texts. This is an important skill in academic writing because students are often required to deconstruct arguments, evaluate evidence, and propose original insights (Eisenberg & Berkowitz, 1990).
3. **Originality and Synthesis**: Information literacy empowers students to combine information from diverse sources to produce original work. This synthesis is a hallmark of scholarly writing, as it demonstrates the ability to integrate different theories, methodologies, or perspectives into a cohesive argument. For instance, a research paper might draw on historical data, theoretical frameworks, and empirical studies to propose a novel interpretation or solution to a problem. This process not only avoids plagiarism but also contributes to the advancement of knowledge (Macrorie, 1980).
4. **Effective Communication**: Writing skills enable students to communicate complex ideas derived from their research in a manner that is accessible and engaging. This involves not merely reporting facts but also interpreting and contextualizing them within the broader academic discourse. Effective communication is crucial in interdisciplinary contexts, where the ability to translate specialized knowledge for an audience is highly valued (Head & Eisenberg, 2010).
5. **Adaptability Across Disciplines**: Information literacy equips students with the tools to gather and evaluate discipline-specific information, while writing skills

enable them to present this information in a manner that aligns with disciplinary norms. For example, a psychology student might need to interpret statistical data and present it in a research paper, requiring both the ability to analyze data and the skill to write about it clearly and persuasively. This adaptability is crucial for success in diverse academic and professional contexts (Macrorie, 1980).

Taylor and Dalal's (2014) study titled "Information literacy standards and the World Wide Web: results from a student survey on evaluation of Internet information sources" found that:

A. The Google search engine is the most commonly used tool for academic research among participants, although they also reported utilizing other sources.
B. Participants expressed a high level of trust in search engine results, with 60% believing that the information provided by search engines is generally accurate.
C. Many participants struggled to identify the author of a webpage, with 45% stating they were unable to determine who the author was.
D. Assessing the credibility of a source proved challenging for participants, with nearly 25% unable to evaluate the authoritative characteristics of a site and a similar percentage unsure of what the concept meant in that context.
E. Evaluating the qualifications of an author was also difficult, as 63% of participants believed it was not possible to assess an author's credentials.
F. A quarter of respondents (25%) felt it was impossible to determine the objectivity of a webpage, while over half (62%) relied on the URL and domain to gauge objectivity.
G. Upperclassmen (juniors and seniors) demonstrated greater discernment in evaluating online sources, showing a reduced reliance on Google and an increased preference for library databases.

The integration of information literacy and writing skills is crucial for academic success and lifelong learning. Information literacy provides the tools to navigate the complex information landscape, evaluate sources critically, and use information ethically, while writing skills enable the effective communication of ideas and arguments. Together, these competencies foster critical thinking, originality, and adaptability. Students were engaged meaningfully with academic discourse and contributed to their fields of study. As the educational landscape continues to evolve, the synergy between information literacy and writing will remain a cornerstone of scholarly achievement and intellectual growth.

Method

Context and Participants

In the Spring Semester of 2025, a convenience sample of 110 undergraduate students from Ling Tung University of Science and Technology, Department of Applied Foreign Languages, participated in a study. Unfortunately, half of them did. Most subjects were female (80%). The participants' English courses, which included two hours of English instruction per week, were structured around two primary components. First, students were required to be engaged in online research to produce short paragraphs in English. Second, they were tasked with reading text narratives and anecdotal accounts and constructing sentences using vocabulary derived from the text and directly related to the course activities. The overarching objective of these tasks was to enable students to produce AI-generated texts and images, thereby fostering the development of critical thinking and creative skills. This study aimed to investigate the influence of information literacy on the participants' writing proficiency. Specifically, it sought to address the following research questions:

1. What are the key differences in information literacy competencies between American and Taiwanese college students?
2. Does the integration of ludic AI tools enhance your motivation to write short texts?
3. Does the search for online information increase your confidence in your writing abilities?

By examining these questions, the study aimed to provide insights into the intersection of information literacy, technological tools, and academic skill development, particularly within the context of Taiwanese higher education. The findings are expected to contribute to the broader discourse on pedagogical strategies that leverage AI tools to enhance student engagement, creativity, and academic performance.

Data Collection

The participants answered the first research question based on Taylor and Dalal's (2014) questionnaire, which included seven questions regarding the students' search habits and evaluation of objectiveness, site authority, credibility, accuracy, and page quality. The survey questions were based on the Association of College and Research Libraries' information literacy competency standards for higher education, published in 2000. Questions were based primarily on the standard three from this publication, indicating that '*the information literate student evaluates information and its sources critically and incorporates selected information into their knowledge base and value system.* The respondents answered the questionnaire questions by checking all the answers that applied

to them. After that, the participants wrote their answers to research questions two and three in Chinese. Most participants completed the questionnaire within 20 minutes. Although they were not directly compensated for their participation, they were rewarded with extra points on their final exam score for their voluntary participation in this study.

Data Analysis

The raw data consisted of the answers provided by the participants on the questionnaire. The teacher-researcher counted the participants' answers for each research question and translated them into percentages. The teacher-researcher used ChatGPT to calculate the mean difference between Taylor and Dalal's findings and the results of this study. Finally, a short analytical text was provided to explain each item of the research questions.

Results

The results of this study include three research questions. To answer the first research question, "What are the key differences in information literacy competencies between American and Taiwanese college students?*"* the respondents answered 7 questions about their search habits and evaluation of objectiveness, site authority, credibility, accuracy, and page quality.

Table 1: Information search habits (1)

Consider the papers that you have written. How often have you used research tools beyond Google or Ask.com to do your research?	Results
Never.	12%
Infrequently- less than 25 percent of the time.	28%
Often- about 75 percent of the time.	51%
Always.	7%

Chat GPT shows that the mean difference in the number of responses between Taylor & Dalal's findings and the results of this research is 91.6. The difference indicates that responses are higher in Taylor and Dala's study. They also imply different response behaviors between American and Taiwanese students. Table 1 shows that 51% of the participants have used AI research tools most of the time. While only 7% of them have always used them, 28% sometimes use research tools, and 12% of the participants have never used AI research tools to conduct their research. In conclusion, most students have used AI research tools to conduct their academic research.

Table 2: Information search habits (2)

When a search engine returns a list of pages, I select a page from the list based on the following criteria.	Results
The format of the site	53%
Whether or not the site has video	44%
The site has pictures	66%
The site has a lot of information	61%
The site is understandable	78%
I am familiar with the author of the site	15%
I can verify the information on the site	48%
The credentials (qualifications) of the author are good	9%
The site is current	65%
The quality of the writing on the site is good	64%
There are reviews and comments on the site	69%

Table 2 shows that the most common selection was that the Website was understandable and current. Results also show that the website must include pictures with enough explanations and descriptions to be interesting. The criteria for the *author's credentials* and the *amount of information* were selected less commonly than the criteria of *understandability* and *currency* of the information, suggesting that the author's credentials were perceived as less of a concern for some of the subjects.

Table 3: Evaluating the objectiveness of content

How do you decide whether or not a source retrieved from the Internet is objective and provides fair and equal treatment of all sides of a topic?	Results
I do not understand what is meant by objective in this question.	3%
I believe that the pages returned by my search engine are objective.	18%
I look at the URL of the site, and based on the domain (.com, .edu, .org, .net.). I use that information to help me determine whether or not the site is objective.	44%
I will check with the library staff or a professor.	42%
I ask a friend if they think the site is objective.	38%
If the document provides a fair discussion of all sides of a topic or issue and acknowledges other viewpoints, then I consider it objective	64%
I do not evaluate the objectiveness of a site.	15%
I do not believe it is possible to determine the objectiveness of a page returned by a search engine.	19%

As can be seen in Table 3, the evaluation of the objectiveness of an Internet source reveals a more nuanced perspective on the part of the subjects. For this multiple-select question, 64% of respondents indicated that a fair and balanced discussion of the topic indicates the site was objective, a standard definition of the term, but an almost equal percentage (44%) indicated that they used the URL of the site and the domain to determine whether or not the source was objective. Fifteen percent of respondents do not verify the objectiveness of a site, and an almost equal number (19%) do not believe it is possible to check the objectiveness of a site. Interestingly, 18% of the respondents felt that all pages returned by a search engine are objective.

Table 4: Evaluation of author qualifications and site authority text

How do you evaluate the authority of a page and determine the ability to comment or write about a particular topic?	Results
I do not understand what is meant by authority in this question.	14%
I do not believe it is possible to determine the authority of a page returned by a search engine.	15%
I check to see if the author of the page has published other pages, articles or books about the topic.	50%
I look for information about the author of the page - their qualifications, their degrees or certifications, their profession, their background, and other pages/documents they have authored.	31%
I look at the URL of the site, and based on the domain (.com, .edu, .org, .net, etc.) I use that information to help me determine whether or not the site has authority.	36%
I do not examine the authority of a site.	28%
I check with someone with knowledge of the site or topic, for example, library staff or a professor.	32%

Table 4 shows that some students are confused about the concept of a website's authority (see Table 4). Subjects appeared to be confused by the meaning of authority, with 14% of respondents indicating they did not understand what was meant by the term "regarding Websites". Twenty-eight percent of respondents do not evaluate the authority of a site, and 15% do not believe it is possible to examine the authority of a site. The total of these three selections indicates that almost 50% of respondents do not evaluate the authority of a site for some reason, whether it is a lack of understanding or the belief that it is impossible to verify the authority of a site. Thirty-six percent of respondents use the URL of the site to determine authority (perhaps not the best indicator of authority). Thirty-two percent confer with someone knowledgeable in the subject domain, and 50% check if

the author has published other content.

Table 5: Evaluation of content credibility

How would you evaluate the credibility of a site or document and determine that the information is truthful and trustworthy?	Results
I do not understand what is meant by credibility in this question.	2%
I look at the URL of the site, and based on the domain (.com, .edu, .org, .net, etc.), and use that information to help me determine whether or not the site is credible.	48%
I look at the background of the author of the page - their professional affiliations, their college degrees, what else they have written.	45%
I check to see who published the information on the site.	50%
I believe that the pages returned by my search engine are credible.	28%
I do not evaluate the credibility of websites.	3%
I do not believe it is possible to evaluate the credibility of pages returned by a search engine.	14%
I evaluate the information on the site against what I know about the topic.	64%

Table 5 shows that when students were asked a multiple-choice question about how they determined the credibility of a document and whether or not the document was trustworthy, most subjects (64%) reported that they evaluated the information on the site against their knowledge about the topic. Half of the participants (50%) checked to see who published the information, while the other half of them (48%) looked at the URL of the site. Approximately 30% believed all pages returned by a search engine are credible, 5% do not evaluate the credibility of a site, and another 5% do not understand what is meant by credibility. Therefore, a total of 40% (9+5+2) of subjects in this sample appear not to be evaluating the credibility of Web content.

Table 6: Evaluation of content accuracy

How do you decide whether or not information on a page is accurate and contains truthful and correct information?	Results
I do not understand what is meant by accurate in this question.	2%
I believe that the pages returned by my search engine are accurate.	20%
I look at the URL of the site, and based on the domain (.com, .edu, .org, .net, etc.), and use that information to help me determine whether or not the site is accurate.	42%
I check with someone with knowledge of the site or topic, for example, library staff or a professor.	30%
I believe that sites with a more current date are more accurate.	29%
I do not check the accuracy of information on a website.	14%
I evaluate the information on the page in relation to what I know about the topic.	67%
I do not believe it is possible to determine the accuracy of pages returned by a search engine.	4%
I ask a friend if they think the page is objective.	45%

Table 6 shows the students' responses to evaluating the accuracy of information on a page. Only 20% of the subjects indicated that search engine results are accurate. Less than half of the respondents (42%) checked the URL to evaluate accuracy, and 14% do not check the accuracy of the information provided online. Surprisingly, 67% of the participants checked the content on the site against their prior store of knowledge (what they know about the topic), and 45% of the respondents usually ask a friend if the page is objective.

Table 7: Evaluation of page quality

How do you evaluate the quality of a page returned by a search engine?	Results
I do not understand what is meant by quality in this question.	5%
If the page includes pictures and charts, it is a quality site.	30%
If the page is free from spelling and typographical errors and the author uses good grammar, I consider it a quality site.	44%
If the information presented on the site is comprehensive and covers the topic in considerable depth, I consider it a quality site.	66%
I look at the URL of the site, and based on the domain (.com, .edu, .org, .net, etc.) I use that information to help me determine whether or not the site is a quality site.	34%
I do not evaluate the quality of pages returned by a search engine.	5%
If the information on the page is interesting and presents a clear, well-reasoned explanation of the topic, I consider it a quality page.	67%
I do not believe it is possible to determine the quality of a page returned by a search engine.	48%
I check with someone with knowledge of the site or topic, for example, library staff or a professor.	22%

Table 7 shows that nearly 70% of the respondents (67%) estimated that the information contained on the page must be interesting with a clear presentation. Most (66%) of the subjects based the quality of a website on a determination of whether the page is comprehensive and covers the topic in considerable depth. While 48% of the respondents believe that it is not possible to determine the quality of a page, fewer students (44%) were able to check spelling and typographical errors to consider the quality of a site.

Table 8: Evaluation of information sources about years in college

Which search engines or library databases do you use for your research?	Results
Yahoo	30%
Bing	22%
Google	98%
Other (Blekko/Lycos etc.)	4%
Cross-search engine aggregator	0
General library	13%
Subject specific library	3%
Book catalogue	5%

Table 8 shows that respondents in the later years of college indicated a high preference for Google. While they sometimes use Yahoo, they may also use Bing AI to do research. Very few students use other tools (4%), as they may look up some information at the general library (13%).

Regarding the second Research Question, "*Does the integration of ludic AI tools enhance your motivation to write short texts*?" m**a**ny students find that AI tools enhance their motivation and make English essay writing more enjoyable. They report that AI tools offer quick assistance, improve grammar, provide information, and spark creativity. The participants' responses overwhelmingly suggest that AI makes writing more engaging, easier, and faster. Gamified AI tools are perceived as effective in making the writing process interactive and rewarding. However, a minority of students do not perceive a difference in their motivation, finding English still challenging, or that they use the tools solely for convenience. Most participants agreed that while beneficial, careful review of AI-generated content is still necessary for accuracy and fluency.

Regarding the third and last research question, "*Does the search for online information increase your confidence in your writing abilities*?" most participants believe that online resources and AI tools boost their English writing confidence. They find it easier to construct sentences, access diverse information, and correct errors quickly. This access improves their understanding of grammar and expands their vocabulary. Others feel empowered by the ability to find examples and references, leading to enhanced writing abilities and a sense of correctness. However, a few participants expressed concerns about dependence on AI tools and errors in the information they provide, which may hinder independent writing skills, demonstrating varied perceptions of online support.

Discussion

Students use different methods to write English texts. According to the first research question, "What are the key differences in information literacy competencies between American and Taiwanese college students? The results of this study show the participants' search habits. Taylor & Dalal found that nearly 60% of their participants searched for information on the Web most of the time. While 25% of them use the Google search engine most often, 23% sometimes use other search engines, and 5% of the participants only rely on Google to conduct their research. In short, most students use the Google search engine to conduct their academic research. In contrast, the results of this study show that 51% of the participants prefer using AI research tools most of the time to search for information online. While only 7% of them have always used them, 28% sometimes use research tools, and 12% of the participants have never used AI research tools to conduct their research. In short, most students have used AI research tools to conduct their academic research. Nevertheless, Table 2 shows similar results to Taylor &

Dalal's findings. The participants prefer websites that are interesting and easy to understand, with pictures and enough explanations and descriptions. The criteria for the *author's credentials* and the *amount of information* were selected less commonly than the criteria of *understandability* and *currency* of the information, suggesting that the author's credentials were less of a concern for some of the subjects. However, students must distinguish between peer-reviewed journal articles, which undergo rigorous scrutiny, and opinion pieces or blog posts, which may lack scholarly rigor, and that discernment is vital for ensuring that the information used in academic work is trustworthy and appropriate for the context (Burkhardt, 2010; Purdue), it is worth noting that the participants' responses overwhelmingly suggest that AI makes writing more engaging, easier, and faster (See RQ 1), which is in line with effective communication: Writing skills enable students to communicate complex ideas derived from their research in a manner that is accessible and engaging. This involves not merely reporting facts but also interpreting and contextualizing them within the broader academic discourse. Effective communication is crucial in interdisciplinary contexts, where the ability to translate specialized knowledge to a general audience is highly valued (Head & Eisenberg, 2010).

Regarding the evaluation of the objectiveness of content, both Taylor and Dalal's study (68%) and the results of this study (64%) indicated that most of the participants tried to determine whether a site presented a balanced discussion of all perspectives on a topic, suggesting they made a genuine effort to evaluate content objectivity. Secondly, compared to Taylor and Dalal's results, less than half of Taiwanese students (44%) reported using the site's URL to gauge the source's objectivity, and an almost equal number of students (42%) consulted someone more knowledgeable about the source. Finally, compared to Taylor & Dalal's results, very few students (8%) sought advice, which might indicate that almost all the students prioritize speed over conducting a thorough evaluation of a source's objectivity and felt that all pages returned by a search engine are objective (18%).

According to the second Research Question, "*Does the integration of ludic AI tools enhance your motivation to write short texts*? The participants wanted to determine whether a site presented a balanced discussion. The results of this study show that half of the participants (51%) said they often use research tools besides the Google search Engine because they offer quick assistance, improve grammar, provide information, and spark creativity. They not only find it easier to construct sentences, access diverse information, and correct errors quickly but also feel empowered by the ability to find examples and references, leading to enhanced writing abilities and improved rhetorical strategies (Lunsford, 2015). Compared to American students, Taiwanese college students believe that AI tools provide them with disciplinary norms (Macrorie, 1980), which means that the feedback received from research tools is sufficient to match the discipline writing requirements.

When evaluating how participants assessed the authority of a website, Taylor &

Dalal's found that many participants were unclear about the concept of authority. Seventeen percent of respondents stated they did not understand what "authority" meant in the context of websites. Ten percent admitted they do not evaluate a site's authority, and 6% believe it's impossible to assess a site's authority. These three groups combined make up one-third (33%) of respondents who either lack understanding or think it's not feasible to evaluate a site's authority. By contrast, these three selections indicated that almost 50% of respondents revealed that it is impossible to check the website's authority. Besides, compared to Taylor & Dalal's findings that 39% of respondents rely on the site's URL to determine its authority, this study presented similar findings, with only 36% of students who can do so, which may not be the most reliable indicator. Finally, Taiwanese college students tend to consult an expert in the field (32%) and check if the author has published (50%) more than American students do. It appears that Taiwanese students adapt their writing style to fit the norms and expectations of a specific discipline is a critical skill for academic success. This adaptability reflects an understanding of the epistemological and methodological differences that characterize various fields of study (Lunsford, 2015).

In line with these findings, many Taiwanese feel empowered by the ability to find examples and references, leading to enhanced writing abilities and a sense of correctness, which may take away the need to evaluate the authority of a site. However, a few participants expressed concerns about erroneous information. It is worth noting that Information literacy empowers students to combine information from diverse sources to produce original work. It is crucial to check the site's authority to integrate different theories, methodologies, or perspectives into a cohesive argument. That way, students can propose a novel interpretation of previous research or a solution to a problem (Macrorie, 1980).

Regarding the evaluation of content credibility, American and Taiwanese students lack critical thinking in assessing the information they find online; they mostly rely on superficial measures, such as the site's URL, to judge credibility. While 57% of Taylor & Dalal's participants relied on the URL, and 55% considered the site's author, only 5% did not seem to evaluate a site's credibility. This study found that even fewer students are relying on the URL (48%) and considering the site's author (45%). On the other hand, Taiwanese college students tend to compare the site's content with their existing knowledge of the subject (64%), significantly more than what American students do (36%).

The third and last research question is, "*Does the search for online information increase your confidence in your writing abilities*?" Most participants believe that online resources and AI tools improve their confidence in English writing. They find it easier to construct sentences, access diverse information, and correct errors quickly. Therefore, they do not spend extra time evaluating content credibility, which would help analyze texts critically, assess the credibility of sources, identify biases, and recognize research gaps. These skills are crucial in academic writing, where students are often required to

deconstruct arguments, evaluate evidence, and propose original insights (Eisenberg & Berkowitz, 1990).

Regarding the evaluation of content accuracy, Taylor & Dalal found that most respondents believed that the pages returned by search engines generally contain accurate information. They expressed high levels of confidence in the accuracy of search engine results. Conversely, this study found that only 20% of the participants believe that search engine results are accurate. Nevertheless, compared to American students (60%), only 42% of the respondents looked at the URL to evaluate accuracy. On the other hand, unlike 64% of American students, 67% of Taiwanese college students tend to evaluate the content on the site against their prior knowledge of what it should be. It is highly likely that, even though they do not believe in the accuracy of research engines, Taiwanese college students will still use the online information if it seems to be the right choice. Fortunately, 45% of these students would also ask a friend if the page is objective. This finding matches Taiwanese students' comments (See Research Question 01) that they use the tools solely for convenience, even though most agree that, while beneficial, careful review of AI-generated content is still necessary for accuracy and fluency. Although students' information literacy may increase with various sources they use due to their methods of reading selections, and contribute to the advancement of knowledge (Macrorie, 1980), they lack critical thinking to evaluate how each piece contributes to the broader academic conversation. This impedes the writer's ability to engage with and build upon existing scholarship (Krause, 2007) and contradicts Burkhardt's (2010) and Purdue University's statement that mastering research tools to refine search results and locate relevant materials efficiently is essential for conducting comprehensive and targeted research.

Regarding the evaluation of page quality, the results of this study differ from Taylor & Dalal's research findings. Although an equal percentage (66%) of Taiwanese students and American students consider the depth and comprehensiveness of the site as a key indicator, only 34% of Taiwanese students viewed the URL and domain as quality indicators, against 51% of American students. Second, few Taiwanese students (44%) considered the spelling and grammar on the site as a measure of quality, and 67% of the Taiwanese participants stressed the importance of a topic presented in a well-reasoned manner, which conflicts with Taylor and Dalal's findings that 51% of American students rely more on spelling and grammar than the presentation of a topic (38%). The participants' answers to research question 2 support these findings, as most Taiwanese students reported that AI tools offer quick assistance, improve grammar, provide information, and spark creativity. The participants' responses overwhelmingly suggest that AI makes writing more engaging, easier, and faster. Gamified AI tools are perceived as effective in making the writing process interactive and rewarding. Thus, it is highly likely that Taiwanese students prefer topics with a clear presentation rather than topics focusing on spelling and grammar correctness. Likewise, Lunsford (2015) wrote that effective academic writing demands a

logical structure, with ideas presented in a coherent and organized manner. This includes the use of clear and concise language, adherence to academic conventions in formatting and style, and the ability to construct well-defined arguments. A well-structured paper guides the reader through the writer's reasoning, ensuring that the argument is both accessible and compelling.

Regarding the evaluation of information about years in college, Taiwanese students' responses are in sharp contrast to those of American students. Although Taiwanese students enjoy using AI tools, they still prefer using Google over all other applications. Yahoo comes second (22%), and Bing AI is ranked third (22%). Very few students use different AI tools (4%), as they may look up information at the general library (13%). Research question 1 shows that students likely use the Google search engine to look for online resources and AI tools to help them write English with more confidence; Research Question 2 shows that the same participants' responses overwhelmingly suggest that AI makes writing more engaging, easier, and faster, and **g**amified AI tools are seen as especially effective in making the writing process interactive and rewarding, which can increase Taiwanese students' confidence (Research Question 3), but may undermines the ability to assess the credibility and reliability of sources (Burkhardt, 2010; Purdue). Taiwanese students may distinguish between peer-reviewed journal articles, which may lack scholarly rigor. This discernment is crucial for ensuring that the information used in academic work is trustworthy and appropriate for the context, which can

Conclusion

In conclusion, the study reveals distinct differences in how Taiwanese and American students approach academic research and writing. Taiwanese students tend to favor AI tools and search engines like Google, appreciating the convenience, speed, and interactivity they offer in the writing process. These tools not only assist in constructing sentences and improving grammar but also inspire creativity and enhance writing confidence. Nevertheless, Taiwanese students spend less time focusing on critically evaluating sources for objectivity, authority, and credibility, relying more on superficial measures such as the site's URL or comparing content to their prior knowledge. This contrasts with American students, who tend to place more emphasis on evaluating the credibility of the sources they use. Although both groups of students express a preference for websites that present information clearly and are up-to-date, Taiwanese students tend to prioritize ease of use and relevance over evaluating the depth and credibility of the content. Their reliance on AI tools may inhibit the development of critical information literacy skills necessary for thoroughly assessing sources and integrating diverse perspectives into academic writing. The study also emphasizes the importance of fostering information literacy and critical thinking among students to ensure the use of trustworthy,

peer-reviewed sources, especially in academic writing, where the ability to engage with and build upon existing scholarship is crucial. Ultimately, while AI tools and search engines provide significant support in improving writing skills and increasing efficiency, students, especially in Taiwan, must learn to balance this convenience with a more discerning approach to evaluating the quality and credibility of the information they use. Mastery of these skills will not only enhance their academic writing but also ensure they contribute meaningfully to scholarly discourse.

Limitations

The teacher used a convenience sample to investigate the impact of information literacy on college students' writing skills in Taiwan. Although the teacher-researcher initially had 110 students registered in his classes, only 64 students returned valid questionnaires that were thoroughly completed. Further in-depth studies must be conducted as action research.

Acknowledgments

Thank you to all the participants who took time out of their busy schedule and studies to complete the survey needed for this study.

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