

A TOOLKIT TO INTEGRATE MEDIA & INFORMATION LITERACY INTO ENGLISH LEARNING FOR HIGH SCHOOL STUDENTS: THE DESIGN THINKING PROCESS METHOD

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Abstract. Media and information literacy (MIL) is crucial for Gen Z students in learning English especially when they access diverse information. However, MIL training is quite limited at school [1]. Research on MIL has primarily focused on students' skills, and little attention has been given to solutions integrated into a school subject. Utilizing the design thinking model with five stages - empathize, define, ideate, prototype, and test - this article aims to develop a toolkit for high school students to practice their MIL skills in English project-based learning within the Vietnamese educational context. The toolkit focuses on four fundamental skills including locating relevant information, evaluating information, ensuring online protection, and synthesizing information. The findings from the test phase show that students' awareness of MIL has improved, and the toolkit's contents have positively influenced students' MIL skills. The toolkit, aligned with learning outcomes in the General Education English Curriculum 2018, will be a valuable resource for high school students, English teachers, and pre-service English teachers.

Keywords: media & information literacy (MIL), digital literacy, design thinking, critical reading skills.

1. Introduction

In an era marked by the overwhelming abundance of information and media for young people, when 79% of people worldwide use the Internet [2], the importance of equipping them with media and information literacy (MIL) skills cannot be overstated. High school students, Gen Z with digital natives, are constantly exposed to media, which increases the risk of encountering bias and misinformation [1,3] as there are considerable differences between their digital literacy practice and their perception [4]. Many students in Vietnam often resort to platforms like Wikipedia for research, neglecting to cross-reference or assess source credibility. This reliance heightens the urgency to equip them with skills for critical evaluation and responsible information use to approach the information they come across with a more critical mindset [5]. Teaching students essential MIL skills to ensure their success in digesting multiple online information is the key to dealing with misinformation and using information critically.

Vietnam has been implementing the General Education English Language Curriculum 2018 since 2020, in which English is a compulsory subject from grade 3 to grade 12. The main objective is to enable students to communicate in English at Level 3 in the Vietnam 6-level language proficiency framework [6]. By the end of high school, students will be able to gain a deeper

understanding of the people and cultures of English-speaking countries and other countries in the world, and introduce the values of Vietnamese culture when communicating in English [7]. To help students achieve these learning outcomes, English textbooks for students from grade 10 to grade 12 include a variety of research and presentation activities where students must collect information from various online resources to prepare for their presentations or to complete projects. To this end, students need to research and select suitable online resources; however, the textbooks provide little guidance on how to collect credible information, find reliable resources, evaluate information, or synthesize information for such activities. Students, therefore, may feel confused or encounter misinformation or low-quality resources, potentially leading to inadequate learning outcomes.

MIL studies focused on four main strands. First, educational organizations have proposed digital literacy frameworks as life competencies for learners. UNESCO provided a list of competencies for educators and learners to navigate the complicated digital world [1]. European Commission issued the digital competence framework DigComp 2.2 to define the abilities to collect, evaluate, and process digital information [8]. Likewise, Cambridge University Press recognizes digital literacy as one of the essential life competencies that students must develop to navigate an increasingly complex world [9]. Researchers also attempted to construct a literacy framework [e.g. 5]. Second, increasing research attention has been put on the investigation into the students' self-assessment of their MIL skills or their perceptions of MIL [e.g. 4, 10, 11, 12]. Third, the research investigated the digital divide as a factor to hinder digital literacy [e.g. 13, 14, 15]. Fourth, studies have investigated challenges when incorporating media literacy into education [e.g. 16, 17]. However, little attention has been given to solutions integrated into a school subject to help students practice and improve their MIL skills in their learning process. The integration of MIL skills into education remains a general guideline with numerous technical terms. There is a noticeable lack of detailed guides for integrating MIL skills into specific subjects such as English, especially for high school students with hands-on learning tasks and examples in a specific educational context. Therefore, this is the research gap our team attempts to fill, inspiring us to create a toolkit to integrate media & information literacy into learning English. This article aims to develop a toolkit for high school students to practice and improve their MIL skills in English learning within the Vietnamese educational context.

2. Content

2.1. Media and Information Literacy

UNESCO is a leading advocate for Media and Information Literacy. Their first definition proposed in 2007 emphasizes the general and comprehensive nature of MIL consisting of information literacy, media literacy, and digital literacy [1]. It emphasized several key aspects of MIL, including accessing information from various sources; analyzing and evaluating information critically; utilizing information effectively for different purposes; and creating and communicating information responsibly. UNESCO [1] put more emphasis on critical and effective engagement with communication content though it still unifies three areas of media, information, and digital literacy in the MIL umbrella. UNESCO [1] outlined the MIL curriculum for educators and learners as encompassing knowledge of information, media, and digital communications, as well as the evaluation, production, and use of content.

Similar to UNESCO's efforts to define MIL, the European Commission proposed several versions of the digital competence framework in 2012 with Digital competence in practice [18] to DigComp 2.2 [8]. Digital competence, one of the key competencies for lifelong learning, comprising of knowledge, skills, and attitudes, is defined as the "confident, critical and responsible use of, and engagement with, digital technologies for learning, at work and for

participation in society” [19;10]. In the European Commission’s definition, media literacy is one of the components of digital literacy, whereas UNESCO’s definition, digital literacy is an area in the umbrella term of media literacy.

Other definitions try to limit the terms for learners in educational contexts. For example, the Cambridge digital literacy framework defines digital literacy as the ability to use digital tools for searching and creating digital content, the ability to converse and interact with others online, and the ability to maintain online safety in communication [9]. Housand [5] identifies five fundamental skills that students need to effectively navigate their interaction in the digital age namely formulating guiding questions to determine the need for information, locating relevant information, evaluating its credibility, synthesizing the gathered information, and effectively communicating it.

In this article, the term “media and information literacy” as defined by UNESCO is adopted because its framework not only outlines the comprising components but also identifies the learning outcomes for learners. It provides a list of knowledge, skills, and attitudes that students should develop to become more proficient in MIL. Specifically, 19 pairs of learning outcomes that link knowledge to their corresponding skills, along with 6 values and attitudes [1] are identified for students to master. These outcomes range from recognizing the need for information to selecting and evaluating information, media, and digital content to creating communicative products as well as ensuring online safety.

2.2. Media and information literacy in English language teaching

English education in Vietnam has been innovating in diverse aspects of teaching and learning with the implementation of the General Education English Language Curriculum 2018. To achieve the aims of deepening students' understanding of the cultures of English-speaking and other countries, while also allowing them to share Vietnamese cultural values through English communication [7], English textbooks for Grades 10 to 12 include various research and presentation activities that require students to gather information from online sources for their projects. Working on a project is typically the final task in each unit, offering students opportunities and context to apply what they have learned in a meaningful way. For instance, in English 10 – Global Success, Unit 1, students are required to research Family Day in Vietnam and around the world to present their findings in class. The information they need to gather is information on various aspects such as the location, activities, timing, and significance of Family Day in different countries. Similarly, in Unit 3, students need to search for information about a form of traditional music in Vietnam. In these tasks, students are expected to search for and select digital information, evaluate the resource and information credibility, and synthesize the information into a digital presentation. However, the textbooks offer limited guidance on how to gather credible information, identify reliable sources, evaluate content, or synthesize information effectively. As a result, students may become confused or encounter misinformation and low-quality resources, which could negatively impact their learning outcomes. This type of learning task highlights the need for the integration of MIL into English lessons. As essential lifelong learning skills, MIL can help students select and evaluate information, media, and digital content, create communicative products, and ensure their online safety throughout their learning process.

To teach 25 learning outcomes of MIL including 19 pairs of learning outcomes that connect knowledge and equivalent skills and 6 values and attitudes to achieve, UNESCO suggested 12 teaching methods that teachers can integrate into the MIL curriculum. Those methods include issue-inquiry learning, problem-based learning (PBL), empirical approach and scientific inquiry, case study, cooperative learning, textual analysis, contextual analysis, translations, production, critical inquiry, and inquiry. These 12 methods are general instructions for all subjects. However, to apply to the Vietnamese high school curriculum, especially in English teaching, a critical

selection is needed. While many studies focused on MIL components, students' awareness, and self-assessment of MIL, little research has focused on the integration of MIL into a specific subject in detail to help students practice and improve their MIL skills in their learning process. Instead of the general guidelines as suggested by UNESCO [1], hands-on learning tasks with specific examples and step-by-step guidance in a specific learning context are supportive. To keep this research gap in mind, this article aims to develop a toolkit for high school students to practice and improve their MIL skills in English learning within the Vietnamese educational context. The learning activities in the toolkit are developed from UNESCO [1] suggested teaching methods.

In English language teaching, the integration of MIL is one of the current trends. Lessons about the credibility of information sources to promote critical thinking have been more common in ELT contexts [20]. MIL-related challenging learning materials tend to bring potential motivation and engagement when students can get access to authentic input [20].

2.3. Research Methodology

This study employed the design thinking method which consists of five stages: empathize, define, ideate, prototype, and test [21] to design the MIL learning toolkit. In the first stage, Empathize, we conducted an online survey using Google Forms with 30 high school students and held in-person semi-structured interviews with five English teachers. The aims were to properly understand their teaching methods, the learning tasks students completed in unit projects, and the challenges they encountered in exploring and using information, media, and digital resources. The survey included 15 Likert-scale items and five open questions which were grounded on 25 MIL learning outcomes in UNESCO's framework [1]. Respondents selected the option that best reflected their views on each statement.

In the second stage, based on the data from the Empathize stage, we identified four specific MIL competencies to focus on to enhance their learning outcomes. After that, in the Ideate stage, grounding on the MIL framework, we brainstormed potential content, learning activities, and strategies for integrating MIL competence into English learning tasks. This process led to the development of a toolkit structure, teaching methodology, and essential components.

In the Prototype stage, we created the MIL learning toolkit, structured into four chapters corresponding to four MIL competencies. We also devised a plan to integrate this toolkit into the learning process. To design the learning tasks, we incorporated five out of twelve teaching methods recommended by UNESCO's 2021 framework [1]. These methods included problem-based learning, case studies, cooperative learning, textual analysis, contextual analysis, and simulation. We then developed step-by-step learning tasks that were aligned with unit projects in English textbooks, such as collecting and analyzing pieces of media and creating digital presentations. By the end of this stage, the MIL learning toolkit was ready for testing in the final stage.

In the final stage, we aimed to assess the effectiveness of the MIL learning toolkit by addressing two main questions: first, to what extent the MIL toolkit improved students' ability to critically evaluate and analyze media texts, and second, what was the student's attitudes towards the use of the MIL toolkit. To investigate this, we structured the stage with a pre-test, a teaching intervention, and a delayed post-test. Both the pre-test and the delayed post-test required students to complete the same task - researching an ASEAN member and tracking the used information sources to complete the Unit 4 project in Tieng Anh 11 Global Success. Students were given two days to collect the information for the project. After that, students participated in a two-period MIL lesson focused on evaluating the credibility of information sources within a class of six grade-10 students. All the activities follow the prepared lesson plan based on the MIL toolkit (chapter 2). We chose the project lesson in Unit 7 – Tieng Anh 10 Global Success to integrate the MIL toolkit. The delayed post-test took place one month after the MIL intervention lesson, during

which time students were asked to self-study by following the activities in the MIL learning toolkit. The students' pieces of work in the pre-test and the delayed post-test were compared to evaluate their progress. After the teaching intervention, a small discussion was conducted to collect feedback from students about their experiences with MIL-integrated activities in the toolkit.

2.4. Findings and Discussion

2.4.1. Students' perceptions and awareness of MIL

The data in the empathize stage show the students' perceptions and awareness of MIL. There is a heightened awareness among participants regarding the necessity of Media and Information Literacy (MIL) for effective functioning within a digital society. 73.3% of respondents (22 out of 30) rated MIL skills as "Extremely important" (score of 5), while 16.7% (5 respondents) rated them as "Very important" (score of 4). A minority of 10% (3 respondents) rated MIL as less important (score of 3). The mean score is 4.63, and the mode is 5, indicating that the majority of students view MIL skills as highly important. The standard deviation (SD) is 0.657, showing a relatively low spread of responses around the mean.

Table 1. The importance of MIL skills from students' perspective

Items	1	2	3	4	5	Mean	Mode	SD
How important do you think MIL skills are in general?	0	0	3 (10%)	5 (16.7%)	22 (73.3%)	4.63	5	0.657
How do you perceive the importance of MIL skills in English language learning?	0	0	9 (30%)	15 (50%)	6 (20%)	3.9	4	0.7

n=30, 1: not important, 5: extremely important

50% of students (15 respondents) rated the importance of MIL in English language learning as "Very important" (score of 4), while 20% (6 respondents) considered it "Extremely important" (score of 5). A larger group, 30% (9 respondents), rated it as somewhat important (score of 3). The mean score is 3.9, and the mode is 4. The SD is 0.7. The mean score and mode for the importance of MIL skills in general (Mean = 4.63, Mode = 5) are higher than those for the importance of MIL skills in English language learning (Mean = 3.9, Mode = 4), indicating stronger perceived importance of MIL skills overall than within the specific context of English language learning, but both data sets show the importance of MIL in learning. Indeed, MIL has been recognized as one of the important skills for academic success and lifelong learning in the diverse information society [1, 3, 5, 8]. The embracing of MIL in English education is a tendency. [20] also includes critical thinking with MIL-related activities one of thirty trends in ELT.

Table 2. Students' self-assessment of their MIL skills

Item	1	2	3	4	5	Mean	Mode	SD
How would you rate your Media and Information Literacy skills?	5 (16,7%)	13 (43,3%)	11 (36,7%)	1 (3,3%)	0	2.67	2	0.77

n=30, 1: Poor, 5: Excellent

The table presents students' self-assessment of their Media and Information Literacy (MIL) skills, using a scale from 1 (Poor) to 5 (Excellent). While a significant portion of students, 43,3%, rated their MIL skills as Fair and 36,7% rated Good, a minority rated their skills as Poor. The mean score for MIL self-assessment is 2.67, with a mode of 2, indicating that the most common

self-rating was "Fair." The SD is 0.77, showing moderate variability in responses. Students who rated their MIL skills as poor also shared many difficulties they encountered when searching for information on the Internet. I don't know which website offers neutral information and is unbiased, especially on sensitive topics like politics and religion" (Student 4, grade 10). Porat et al. [4] findings show that students' MIL practice is still lower than their self-assessment. This showed the need for tailored support, guidance, and practice in MIL.

Table 3. Students' selection of MIL skills by their importance

	MIL skills	The number of respondent selections	%
1	Finding good information	29	96,7%
2	Thinking smart about things you see online	29	96,7%
3	Staying safe online	28	93,3%
4	Organizing, sharing, and keeping track of things online	29	96,7%
5	Combining ideas from different sources	28	93,3%
6	Using computers to make things and solve problems	28	93,3%
7	Keeping your privacy safe online and offline	27	90%
8	Understanding how people interact in society	26	86,7%
9	Playing games safely, even with AI	29	96,7%
10	Recognizing and reacting to hate speech or violence	26	86,7%
11	Solving problems and working with others	11	36,7%
12	Using computers to make products that help people or make money	3	10%
13	Understanding how libraries, museums, news, and others give us information	1	3,3%
14	Knowing when you need information online to help you or your community	4	13,3%
15	Using the information wisely, sharing knowledge clearly	7	23,3%

The data collected from the survey also illustrated the ranks of MIL skills students want to learn in order from high to low owing to their importance. Some of the most desired skills to learn are finding good information (96,7%), thinking critically about online content (96,7%), staying safe online (93,3%), and combining ideas from different sources (93,3%). Such MIL skills belong to the domains of information literacy and media literacy [1].

Based on the responses gathered from the English teachers, all participants demonstrated an awareness of the significance of Media and Information Literacy (MIL) skills. "MIL skills are indispensable in teaching English because they help students spot trustworthy information and avoid fake news. This makes it easier for them to understand and use the language correctly and think more critically about what they read and write" (Teacher 2). They also suggested a few ways to incorporate MIL skills into English lessons such as article analysis, project lessons, and website evaluation. For example, in a speaking lesson, a teacher asks the students to research their topics and gather evidence from various sources under her guidance (Teacher 1). Another teacher asks her students to look at current events or controversial topics to identify the author's perspective (Teacher 2).

2.4.2. The proposed MIL toolkit for students

Based on the students' selection of the MIL skills by importance in Table 3 and the suggestion by teachers, we decided to focus on 4 MIL sub-skills out of 19 sub-skills and 6 values in the MIL framework [1]. Then, we created a toolkit that can serve as a method to address the issues faced by students and teachers and to meet their needs for effective use of the internet in learning and teaching purposes.

Table 4. Selected MIL skills for the toolkit

	Selected MIL skills
1	The ability to locate and assess relevant information:
2	The ability to critically evaluate information, media, and digital content
3	The ability to be able to protect oneself from risks online
4	The ability to synthesize or operate on the ideas abstracted from information and media content

This selected set of MIL skills is integrally connected to English language learning and teaching methodologies. Within the frameworks of project-based and task-based learning, students can employ the ability to locate and assess relevant information to research English-language topics in a meaningful context [22, 23]. Moreover, by critically evaluating information, media, and digital content, learners would develop reading comprehension skills, and distinguish credible information, thereby picking up incidental vocabulary in context [20]. This critical engagement also supports extensive reading for specific purposes, encouraging learners to go beyond mere reading comprehension exercises and apply their understanding to real-world tasks [24]. Additionally, synthesizing information from various articles or media further strengthens their ability to articulate ideas in writing, facilitating a deeper integration of language skills. Finally, the ability to protect oneself from online risks is crucial in guiding students to safely navigate resources and information during their learning journey. These MIL selections are aligned with Housand's findings [5].

The proposed toolkit integrates Media and Information Literacy (MIL) teaching into English lessons for high school students. It is structured into four chapters, each focused on a specific MIL skill: locating relevant information, critically evaluating information, protecting oneself from online risks, and synthesizing ideas from media and information.

Each chapter consists of three sections, including step-by-step instructions, sample examples, and suggested answers. Throughout the toolkit, eye-catching images and diagrams enhance understanding and engagement. Each chapter begins with student-friendly instructions that outline the target MIL skill. This is followed by practical exercises drawn from English lessons in current high school textbooks in Vietnam. For instance, Chapter 1 includes the exercise "Exploring traditional Vietnamese crafts for a high school project," taken from Unit 6 of the Grade 11 "English Global Success" textbook. The third section of each chapter provides detailed suggested answers, breaking down each step for easy student comprehension. Additional resources, including worksheets and QR codes, are provided for further study. The toolkit concludes with a list of references and resources for students seeking more in-depth learning.

2.4.3. The effectiveness of the MIL Toolkit

For both tests, students could finish their research with information aligned in 5 categories in the project; however, the information resources are significantly different in terms of credibility. In the pre-test, students selected the resources for their project from Wikipedia.org, YouTube, TikTok, and ChatGPT for immediate response to finding information about Singapore to accomplish the task of researching an ASEAN member. However, they did not carefully verify the collected information. The references were listed at the end of the document.

After the intervention, in the post-test, students found information about another ASEAN member, Thailand, and they searched for information from more reliable sources, such as the governmental website of Thailand or an encyclopedia such as Britannica, which is one of the trusted encyclopedias in the world, in which every article is written, and continually fact-checked, by experts. Students also search for information on university websites such as CGP (German-Southeast Asian Center of Excellence for Public Policy and Good Governance) of Thammasat University, Thailand. They referred to the information on mfa.go.th/index (the website of the Ministry of Foreign Affairs, Kingdom of Thailand) to get credible information about political structure. References were attached to each section and at the end of the document. Other credible sources are from .gov sites. The information was more informative with credible sources. Therefore, students showed improvement in media information literacy skills, evidenced by their selected information sources. The students tended to use more trustworthy sources, compared to their practice in the pre-test. It is promising that with the MIL toolkit, students could show improvement in media information literacy, evidenced by their used information sources.

The observation during the lesson showed that students were actively engaged in the presentation and activities. They actively participated in the warm-up, the “Locate and Assess information” presentation, teamwork, and presentation. The students also demonstrated a positive attitude towards the information of some search tools such as Boolean operators or the CRAAP (Currency, Relevance, Authority, Accuracy and Purpose) test. Furthermore, the students were provided explanations and comments on their work, which stimulated further discussion and reflection. Overall, the students showed a high level of motivation and engagement in the Media and information literacy learning activities and demonstrated positive attitudes toward the use of these strategies in their information intake.

The data from the interview after the MIL intervention lesson showed that all students expressed positive attitudes towards MIL applications in Tieng Anh 10 Global Success and acknowledged its benefits in terms of information evaluation, responsibility, and self-confidence.

“After the lesson, I know more ways to check the information sources, which is helpful to my study. I also know that not every website on the internet is reliable”. (Student 1, grade 10)

However, some students were also skeptical when cross-checking steps could be quite time-consuming, or the search filters may eliminate some important information or interesting search results. Thus, it should be aware of both advantages and disadvantages, in our toolkit, we would add some additional information to solve the existing minus points. First, add notes reminding students to check information accuracy when using Wikipedia. Second, make sure to use qualified information sources from the beginning so that there’s no need to check the authorities of those sources later. In this case, cross-checking could be optional. Third, try to use precise and efficient searching keywords along with filters to get the most suitable results.

3. Conclusion

This article has applied the design thinking method and progressed through three key phases to develop the final product “Media and Information Literacy: A Toolkit for students”. In the first phase, students’ perceptions and awareness about MIL were recorded so that we could determine which MIL skills students wanted to study most. In the second phase, a MIL toolkit was created, focusing on four key skills based on student preferences. The toolkit consists of four chapters, each containing instructions, examples, and solutions for students to follow. In the third phase, the effectiveness of the MIL toolkit was evaluated by a pre-test, a teaching intervention, and a delayed post-test with a group of students. The collected results demonstrated improvement in students’ information searching and evaluation skills, along with suggestions for further refinement of the toolkit.

We suggest some directions for further research relating to this field. Firstly, the study suggests that educators could integrate Media and Information literacy (MIL) into the broader curriculum framework, making it accessible to different types of English textbooks. They can adapt the design thinking process method to integrate MIL competencies into different English curriculum standards and learning objectives. Secondly, the study emphasizes the importance of integrating MIL competencies into different subjects. Aligned with the General English curriculum, all subjects should promote students' critical thinking and creativity through different types of projects. To achieve that goal, the toolkit can also be further developed to integrate into other subjects by adding more relatable examples of other subjects besides English. Thirdly, the research aims to make this toolkit accessible to all grades by applying the theory in the product to textbooks in different grades, rather than merely focusing on high school textbooks. Last but not least, on further research, the toolkit can be added to more Media and Information literacy skills to help students navigate information in the digital world more wisely and efficiently.

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