ENHANCING STUDENT BEHAVIORAL ENGAGEMENT

IN A THAI EFL WRITING CLASS THROUGH A MULTIMODAL PROJECT

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2022

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BY

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This study aims to examine the effects of implementing a multimodal project in a Thai EFL writing class. The research objectives include the following: (1) to examine the effects of a multimodal project on student behavioral engagement in the context of learning writing; (2) to investigate the effects of the project on student behavioral engagement in different interaction aspects, including interactions with peers, the teacher, and content in class; and (3) exploring the opinions of students regarding the use of the project in writing class. A quasi-experimental mixed-method design was utilized, with 35 Grade 11 students recruited through purposive sampling from a school in Bangkok. The research instruments were composed of a pre-post student behavioral engagement questionnaire, a classroom behavioral engagement checklist, and a student reflection form. The quantitative data underwent analysis using descriptive statistics and t-tests, while qualitative data were thematically analyzed. The study revealed a significant increase in terms of the behavioral engagement of students in the Thai writing class due to the implementation of the multimodal project. The post-survey scores (M = 3.92, SD = 0.77) surpassed pre-survey scores (M = 3.73, SD = 0.72), indicating a statistically significant difference (t = 3.48, p < 0.05). The Cohen's effect size value (d = 0.59) indicated a moderate effect of the multimodal project on enhancing the behavioral engagement of the students. When examining student behavioral engagement in terms of interactions, the results showed the greatest difference in peer interactions, followed by interactions with the teacher and the content, respectively. Classroom observations over four weeks revealed varying levels of student participation, with the highest interaction observed in relation to content, followed by interactions with peers and the teacher. The results of the student reflection form indicated that the majority of students agreed the project enhanced their learning by boosting class participation, improving writing skills, and fostering creativity. Furthermore, students expressed that the multimodal project activities supported their interactions with peers, the teacher, and the content in various aspects.

Keyword : Multimodal project, Student behavioral engagement, Student interactions, EFL writing

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INTRODUCTION

Background of the Study

Throughout history, learning to write has always posed a significant challenge for EFL students. It is widely recognized as a difficult skill that demands students' dedication to repeated practice throughout the writing process (Hyland, 2019). Moreover, writing assignments can be monotonous, rendering them uninteresting and lacking enjoyment for many students (Amogne, 2013). Furthermore, students frequently grapple with maintaining motivation and engagement in writing due to the multitude of skills necessary for effective writing (Erkan & Bengü, 2019).

In a Thai EFL context, where students are required to learn under the national curriculum, several factors contribute to the challenges of teaching writing. One of these factors is the limited opportunities for Thai students to express their ideas and knowledge through writing, as most learning assessments rely heavily on multiple-choice testing (Stone, 2017). Furthermore, Thai students are primarily exposed to academic writing that emphasizes a rigid structure, rather than journalistic or creative writing, which would allow them to express themselves and foster deeper thinking (Sundrarajun, 2020). In addition to these issues, student engagement poses a significant challenge in the context of teaching writing in Thailand, leading to the necessity to employ teaching styles that cater to the demands of students, promoting their active and positive involvement in the learning process (Pratumtong, Channuan, & Suksawas, 2021).

Student engagement refers to the degree to which students are involved, interested, and connected to their learning, peers, and educational institution (Axelson & Flick, 2010). It encompasses behavioral, affective, and cognitive dimensions, encouraging learners to actively participate in classroom activities and transform from passive recipients of knowledge into engaged participants (Fredricks, Blumenfeld, & Paris, 2004). Student engagement is widely recognized as an indicator of effective classroom instruction (Fletcher, 2005).

Among the various dimensions of student engagement, behavioral engagement is the most overtly observable. It is evident through students' active participation in classroom activities, including interactions with peers, instructors, and course content (Coates, 2007). Factors such as participation in class discussions, adherence to classroom rules, involvement in extracurricular activities, and interest in academic tasks are indicative of behavioral engagement (Cooper, Reimann, Cronin, & Noessel, 2014).

While schools have a significant impact on student behavioral engagement, it is important to note that engagement levels can vary across different classrooms within a school (Cooper et al., 2014). The interactions students have with various elements of the classroom, including their peers, teacher, and content, are key instructional factors associated with higher levels of student behavioral engagement (Nguyen, Cannata, & Miller, 2018). The interaction between students and their peers is particularly important, as a positive interpersonal climate has a positive correlation with engagement (Davis & McPartland, 2012). This can be fostered when highly engaged students and their classmates interact with each other while participating in shared classroom activities (Patrick, Ryan, & Kaplan, 2007). Additionally, the interaction between students and the teacher is another influential factor in student behavioral engagement, as a strong teacher-student relationship tends to enhance engagement within (Cooper et al., 2014). Lastly, students' interaction with the content also plays a vital role in increasing their behavioral engagement (Nguyen et al., 2018). One effective approach to promoting student interaction with the content is through the design of group work activities, particularly those that are authentic and challenging in nature (Blumenfeld, Kempler, & Krajcik, 2006).

Various methods can enhance student engagement in writing. For instance, Liu, Liu, and Liu (2018) employed group awareness to increase student engagement in online collaborative writing, leading to improved engagement and the production of higher-quality work. Additionally, Hyland (2007) successfully implemented an ESL writing program designed to enhance student engagement. One promising

approach to increasing student engagement in writing classes involves the use of technology and collaboration, such as incorporating multimodal projects (Yeh & Mitric, 2019). Multimodal projects involve utilizing multiple modes of communication, including linguistic, visual, audio, gestural, and spatial modes, to construct and convey meaning (Jewitt, 2012). By employing various modes of representation, students engage in the design process to convey their intended meaning effectively (Kern, 2000).

To successfully implement multimodal writing projects in a writing class, Arola, Sheppard, and Ball (2013) recommend a step-by-step approach. This involves familiarizing students with various multimodal project types and analyzing the project's audience, purpose, and contexts. Students then select a project genre and their preferred computer program. In collaboration with their teams, students gather necessary information and design the project. Once the first draft is completed, the group presents it to the class, receiving feedback from both the teacher and other groups. The subsequent steps include editing the project and publishing it to suit the intended audience and purpose. Finally, students reflect on the project, considering the obstacles overcome, the project's benefits, and suggestions for improvement. Throughout this process, students collaborate with peers and the teacher, engaging in activities such as group discussions, online research, and presentations (Wikan, Mølster, Faugli, & Hope, 2010). They become knowledge creators, actively producing and presenting their work (Twiner, Coffin, Littleton, & Whitelock, 2010). Furthermore, in the activities of making the multimodal projects, students can have fun as listeners and presenters, which not only increases learning outcomes but also fosters more interaction between the whole class and the group presenting their work (Wikan et al., 2010).

Integrating multimodal projects into writing instruction offers numerous benefits. Firstly, these projects foster student autonomy and provide a sense of enjoyment and challenge (Hafner, 2015). Moreover, they enable students to engage in meaningful real-world tasks, promoting language and technology skills (Hafner & Miller, 2011). Additionally, multimodal projects increase student engagement by allowing learners to interact with the practices and audiences of the projects (Gynne & Bagga-

Gupta, 2015). Overall, the use of multimodal projects in writing instruction offers valuable benefits, including challenge, authenticity, and enhanced engagement.

Several studies have explored the use of multimodal projects to enhance student engagement in writing classes, such as Hepple, Sockhill, Tan, and Alford (2014) Hyland (2007), Liu et al. (2018) and Prasetyawati and Ardi (2020). However, these studies primarily focused on how learners developed multimodal texts while increasing engagement. To gain a deeper understanding of the effects of multimodal projects in EFL writing instruction, it is important to consider EFL students' interactions with peers, teachers, and content throughout the project activities. Therefore, this study aims to examine the impact of a multimodal project on student behavioral engagement in a Thai EFL writing class. It seeks to investigate the effects of the project on different interaction aspects, including interactions with peers, the teacher, and the class content, while also exploring students' opinions regarding the use of the project in the writing class.

Objectives of the Study

This study aims to achieve three objectives:

1. To examine the effects of a multimodal project on student behavioral engagement in the context of learning writing in a Thai EFL writing class.

2. To investigate the effects of a multimodal project on student behavioral engagement in different interaction aspects, including interactions with peers, the teacher, and the class content, during class.

3. To explore students' opinions towards the use of a multimodal project in the writing class.

Research Questions

The study aims to answer the following research questions:

1. How does a multimodal project impact student behavioral engagement in a Thai EFL writing class, considering overall engagement and interactions with peers, the teacher, and the content?

2. What are the effects of a multimodal project on student behavioral engagement during class, specifically in terms of interactions with peers, the teacher, and the content?

3. What are students' opinions on the use of a multimodal project in the writing class?

Conceptual Framework

With the objectives and the research questions above, the conceptual framework of this study can be explained as shown in Figure 1.

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┌─────────────────────────────┐        ┌─────────────────────────────────┐
│ The use of a multimodal project │        │                                 │
│                             ├────────┤ Student behavioral engagement   │
│ in a Thai EFL writing class. │        │                                 │
└─────────────────────────────┘        └─────────────────────────────────┘
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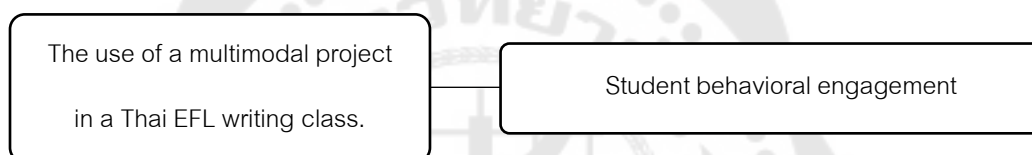
FIGURE 1 Conceptual Framework

Variables in the Study

This study deals with two important variables that may affect the results of the experiment.

1. Independent Variables

The independent variable in the study is the use of a multimodal project in the writing class.

2. Dependent Variables

The dependent variable is students' behavioral engagement, including interactions with peers, the teacher, and the content.

Significance of the Study

The study has the potential to benefit writing instruction in the Thai EFL context in multiple ways. Firstly, it could significantly contribute to the field of teaching writing by advancing understanding of how to incorporate a multimodal project into writing

instruction. Furthermore, the study's findings could be useful for EFL teachers seeking to utilize the multimodal project to enhance student engagement in writing classes. Additionally, the study could highlight the crucial roles of student behavioral engagement and its significance in the context of Thai EFL writing education. Finally, the study's methodological framework could inspire the development of effective approaches to assess student behavioral engagement using the multimodal project.

Scopes of the Study

The researcher conducted a study to investigate the use of a multimodal project, specifically a digital poster, as a final project in a writing class with the aim of enhancing student behavioral engagement. The data were collected from 35 English major students at a demonstration school in Bangkok, Thailand, during the second semester of the academic year 2021, over a period of approximately four weeks. The study focused on examining behavioral engagement, which encompassed interactions with peers, the teacher, and the content, all of which were considered crucial instructional factors. The steps involved in creating the multimodal project for this study were adapted from the approach of Arola et al. (2013), which includes the following stages: 1) understanding and analyzing the multimodal project, 2) assembling technologies and designing, 3) drafting and revising, and 4) implementing the project and reflecting upon it.

Definitions of Terms

There are four important operational definitions in the study.

1. **A multimodal project** is an educational activity where students learn writing by creating projects that incorporate multiple modes of communication and utilize technology to effectively convey their message. In this study, the students engage in collaborative work by utilizing a digital poster as an example of a multimodal project.

2. **Digital poster** refers to the creation of an online poster using available programs. In this study, a digital poster is utilized as a writing product created by students, incorporating different modes of communication and design elements.

3. **Student behavioral engagement** refers to the active participation and involvement of students in the learning activities associated with creating a multimodal project. It encompasses various interaction aspects within the classroom, such as the interactions between students and their peers, interactions between students and the teacher, as well as interactions related to the content of the project.

4. **An EFL writing class** refers to a writing class conducted in an English as a Foreign Language (EFL) context. For this study, the participants were grade 11 students majoring in English at a secondary demonstration school in Bangkok, comprising a total of 35 students.
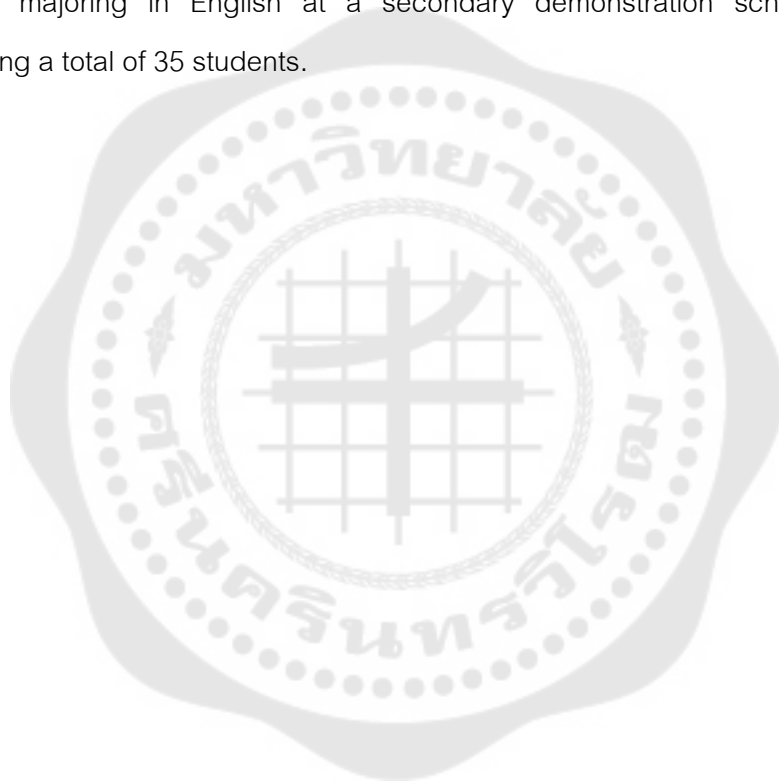
CHAPTER 2
LITERATURE REVIEWS

This chapter presents a review of relevant literature and related studies that form the background of the study including approaches in teaching writing in EFL contexts, multimodal compositions, student engagement, and related studies.

Approaches in Teaching Writing in EFL Contexts

Teaching writing in EFL contexts has witnessed various approaches over time. Iskandar (2020) identified several well-known approaches for teaching English as a foreign language (EFL), including the form-dominated approach, writer-focused approach, content-based approach, reader-oriented approach, collaborative writing, computer-assisted writing, and social media approach to ESL/EFL writing. Each of these approaches is described in detail below:

Form-Dominated Approach

The form-dominated approach to teaching writing emphasizes spoken language and relies on sentence drills to reinforce grammatical rules. Students practice imitating essay forms, completing paragraphs, identifying topic sentences and supporting ideas, and engaging in exercises that involve recognizing and utilizing topic sentences, examples, and illustrations, as well as reordering scrambled paragraphs.

The Writer-Focused Approach

The approach known as the writing process involves several stages that support the growth of language skills and culminate in the creation of a final written output. This approach places emphasis on a range of classroom activities that foster language development, such as brainstorming, group discussions, and rewriting (Steele, 1992). Furthermore, it highlights the understanding that writing is inherently imperfect, but can move towards improvement through the processes of production, reflection, discussion, and revision (Nunan, 1991).

The Content-Based Approach

The content-based approach places emphasis on the subject matter rather than solely focusing on language structures. As students engage with the content, they simultaneously acquire essential vocabulary and grammar skills. This approach is advantageous as it provides an immediate context for English language usage, which is believed to accelerate the rate of language learning.

Reader-Oriented Approach

The reader-oriented approach, also known as writing in English for Academic Purposes (EAP) and English for Specific Purposes (ESP), emphasizes academic discourse genres and a diverse range of writing tasks. Its main objective is to assist students in adapting to the academic context and effectively engage in academic socialization. In essence, writing within this approach is perceived as the creation of written content that meets the standards and expectations of the academic environment.

Collaborative Writing

Collaborative writing entails students collaborating as a cohesive team, following a structured framework that promotes the incorporation of various elements such as time linkers, attitude words, contrast clauses, set phrases, and discourse markers. This collaborative approach has the potential to nurture creativity and enable students to generate informative, reflective, and analytical essays.

Computer-Assisted Writing

The rise of computer-assisted writing in teaching writing can be attributed to the rapid advancement of technology and the dynamic nature of the communication industry. By incorporating Internet activities like email and web browsing into ESL/EFL writing curricula, and by addressing students' needs while fostering an interactive and supportive environment, there is immense potential for students to develop a stronger connection to English as an integral part of their lives (Fox, 1998, as cited in (Iskandar, 2020).

Social Media Approach to ESL/EFL Writing

The advent of social media has revolutionized the way writing is taught, leading to the emergence of fresh writing forms and styles. Studies indicate that social media

holds pedagogical advantages. Students have warmly embraced the use of social media to enhance their writing abilities, as these platforms foster enjoyment and streamline the writing process.

In summary, each approach holds the potential to support students' writing development and address potential obstacles in their learning process. For instance, process writing allows students to enhance their overall writing skills and refine their work through multiple drafts. The content-based approach enables students to become familiar with specific language patterns and conventions while structuring various types of writing. Additionally, the collaborative writing approach fosters communication and cooperation skills through peer learning and feedback exchange, creating a supportive and interactive learning environment. In the digital era, the teaching of writing has been influenced by technological advancements, merging writing approaches with computer assistance and social media platforms. These tools aim to make the writing process enjoyable and exciting for students while increasing classroom interactions to enhance collaboration among peers, teachers, and lesson content.

Multimodal Compositions

Multimodal Compositions (MMCs) have been defined in various ways. According to Kress (2003), MMCs are written texts that utilize not only words but also audio, visuals, video, graphics, drawings, or other modes to effectively communicate meaning. Dallacqua (2018) further adds that MMCs encompass several dimensions, including social interaction, computer interaction, physical coordination, visual design, multiple languages, musical accompaniment, and animation. Similarly, Kenner (2004) remarks that print-based reading and writing are inherently multimodal, requiring the interpretation and design of different modes. In essence, MMCs are written texts that employ multiple modes to communicate meaning through design and interpretation.

Modes of Communication

According to Jewitt (2009), modes of communication refer to a set of semiotic resources that are shaped through the cultural and social interactions of individuals in their daily lives. TheNewLondonGroup (1996) proposed that meaning making involves

several modes, including linguistic, visual, audio, gestural, and spatial. To provide a clearer understanding of these modes, Jewitt (2008) offers examples: linguistic mode encompasses vocabulary, structure, and grammar; visual mode involves the use of colors and visible elements in still and moving images; audio mode relates to the rhythm of music and sound effects; gestural mode encompasses physical movement; and spatial mode includes directions, positions, and organization. It is important to note that different modes have different affordances for meaning making, indicating that meaning is not solely created through language but also through other modes (Archer & Breuer, 2015).

A Multimodal Project

A multimodal project is a form of writing project that incorporates the principles of multimodal compositions (MMCs). It emphasizes the integration of text, images, gestures, or audio in the process of meaning making (Jewitt & Kress, 2010). Selfe and Selfe (2008) emphasize that a multimodal project encompasses a variety of assignments, such as podcasts, collages, videos, blogs, audio essays, comic strips, and digital storytelling. Additionally, Bateman, Delin, and Henschel (2002) suggest that to successfully implement a multimodal project, it is important to create an active educational environment that fosters collaborative work among students throughout the learning process.

There are two types of multimodal projects: technological projects and non-technological projects (Karchmer-Klein & Shinas, 2012). Technological projects encompass digital storytelling and videos, which involve the integration of various modes such as music, visuals, written texts, narration, and sounds (Smeda, Dakich, & Sharda, 2014). On the other hand, non-technological projects refer to three-dimensional representations or the observation of something from different perspectives, often seen in modern times (Quinn, 2007). Examples of non-technological projects include dioramas, which allow learners to express their creativity and construct models based on their surroundings (Quinn, 2007), and posters, which visually convey information and focus on visible content (Hardicre, Devitt, & Coad, 2007). Posters can stand alone or be

combined with other types of presentations to effectively convey meaning through images and messages (Berg, 2005). In this study, a digital poster is used as a multimodal project incorporated into a writing class. It is a flexible online presentation that combines various elements, including text, photos, music, videos, hyperlinks, and data attachments, into a single composition (Dzekoe, 2013). It can also be viewed as a visually rich, short presentation recorded using screen capture technology (Rushton, Malone, & Middleton, 2015).

Digital posters provide various benefits for learners. Firstly, they offer students the freedom to design their posters with fewer restrictions on word count, as well as the size of figures and tables (Fraser, Fuller, & Hutber, 2016). Additionally, creating a digital poster is an engaging and innovative tool that offers a more interesting learning environment compared to traditional lectures (Bozarth, 2010). Furthermore, digital posters enable students to share their knowledge in a multimedia format, allowing them to inform others about a specific topic (Bender & Waller, 2012). In conclusion, digital posters offer students advantages in terms of design flexibility, enjoyment, and the ability to share knowledge.

A Model for Multimodal Project Development

This study adapted the model proposed by Arola et al. (2013) for creating a multimodal project as a framework in the teaching process. These scholars provided an illustration of how to apply this model in developing a multimodal project in the form of a video. The model consists of eight sequential steps, which are outlined below:

Step1: What is multimodality?

The teacher provides students with sources to familiarize themselves with multimodality, including different modes of communication and how they work.

Step2: Analyzing Multimodal Projects

The teacher provides students with examples of work in that medium, including both good and bad examples. Then they guide students in identifying the features of the genre, the target audience(s) of the work, and how and where to use the work. This stage offers a great opportunity to discuss the rhetorical situations for the project, including the audience, purpose, and context of the writing assignment.

Step3: Choosing a Genre and Pitching the Project

The teacher gives students an opportunity to experience different types of writing genres in order to determine their own genre for the writing project.

Step 4: Working with Multimodal Resources

The teacher can present multimodal resources on which students can work to create a writing project. By providing students with various types of resources, the teacher assists them in determining which resource they feel most comfortable working with.

Step 5: Assembling the Technologies and the Team

When students have gained experience with different types of technologies to use for their project, the teacher guides them in determining which available program they are most comfortable with. Students then work in teams or groups using their chosen program. At this stage, the teacher can also assess the students' understanding by providing an overview of the project's topic, genre, goals, planning details, and a justification for why and how the selected media and genre align with the project's goal and intended audience.

Step6: Designing the Project

The students create a rough cut for the project using mock-ups and storyboards, which serve as rough drafts for their multimodal composition project. Both forms provide students with the opportunity to receive feedback and gain a clearer understanding of their work. Mock-ups and storyboards can be identified as follows:

• Mock-ups are visual presentations of static elements, such as web pages or posters. They offer a glimpse into the visual design choices and organizational structure of the project, providing an overview of how different elements are laid out.

• Storyboards are sequences of drawings used to represent the movement in videos, podcasts, or animations. They visually depict the flow of scenes and include descriptions of actions or sounds for each scene.

Step7: Drafting and Revising the Project

Students draft their projects and engage in peer review. Peer review of multimodal compositions provides students with valuable insights into how their project is functioning and where adjustments may be necessary. Following the peer review process, students revise their projects, utilizing the feedback they have received and taking advantage of the time and resources available to them.

Step8: Putting the Project to Work

Upon completion of the project, students have the opportunity to present their multimodal project and consider its intended users, the manner in which it will be used, and the appropriate platforms for its application. Additionally, students can contemplate preserving the project as a file for future users. These reflections serve to elucidate and justify the rhetorical choices they have made throughout the process.

Furthermore, students can engage in reflective analysis of the project, employing evidence-based arguments to assess their accomplishments, challenges encountered, and reasons for achieving or falling short of their goals. This reflective process allows for a deeper understanding of their work and facilitates future improvement.

To make the steps suitable for making a digital poster, the researcher adapted the above steps to comply with the poster's elements and creations as described in Chapter 3

Student Engagement in Classroom

Student engagement has a significant impact on student learning, encompassing the enhancement of student motivation, satisfaction, and the reduction of student isolation in the learning process (Martin & Bolliger, 2018). Additionally, interactions with teachers, peers, and the lessons themselves are vital for cultivating positive relationships that contribute to student engagement (Cooper et al., 2014).

Definitions of Student Engagement

Student engagement is defined from various perspectives. Kuh (2009) defines it as the time and effort students invest in activities related to the expected outcomes of

their college experience, as well as the measures institutions take to encourage student participation in those activities. Furthermore, student engagement is described as the level of involvement and interest students demonstrate in the learning process and their sense of connection to the class, college, and their peers (Axelson & Flick, 2010). Similarly, Skinner and Belmont (1993) propose that engaged students exhibit sustained behavioral involvement in learning activities, accompanied by positive emotions such as enthusiasm, optimism, curiosity, and interest. Barkley and Major (2020) provide a definition of student engagement as a continuous process and outcome resulting from motivation and active learning interaction.

From these definitions, it can be understood that student engagement refers to how students actively participate in and feel connected to the activities provided to achieve desired outcomes, which stem from motivation and active learning.

Benefits of Student Engagement in Learning

Student engagement brings numerous benefits to the learning process. Corso, Bundick, Quaglia, and Haywood (2013) note that increased student engagement in school assignments correlates with improved academic performance, leading to better overall results. Another advantage is that student engagement boosts self-esteem, as students who are behaviorally, cognitively, and emotionally engaged tend to have higher satisfaction with their lives and produce higher-quality work (Gallup, 2013). Additionally, multimodal projects contribute to a positive learning environment where students can unleash their creativity during project creation, while intergroup relations improve through student interactions (Jiang & Luk, 2016). Moreover, creating multimodal projects using digital technology helps students develop effective communication skills, fosters an interactive learning environment, and enhances digital competence (Doumanis, Economou, Sim, & Porter, 2019). Moreover, the application of multimodal projects in the classroom provides students with opportunities to engage with real-world practices related to the lessons and connect with audiences beyond the classroom setting (Gynne & Bagga-Gupta, 2015). Besides, student engagement also benefits teachers. When students actively pay attention, participate, stimulate their minds, and enjoy the learning

process, teachers are more likely to enjoy teaching and dedicate their time and effort to the class (Covell, McNeil, & Howe, 2009). These examples illustrate that student engagement not only benefits students but also teachers and the overall learning environment.

Distinctions of Student Engagement

Fredricks et al. (2004) proposed a conceptual framework that distinguishes student engagement across three dimensions: behavioral, emotional, and cognitive. These dimensions can be described as follows:

Behavioral engagement: This dimension pertains to students' active participation in academic and social activities within the school environment. It encompasses behaviors such as concentration, attention, persistence, effort, active questioning, and involvement in school-related activities. Students may demonstrate positive behaviors, indicating higher levels of engagement, or negative behaviors, indicating lower levels of engagement.

Emotional engagement: As outlined by Fredricks et al. (2004), emotional engagement encompasses students' attitudes, values, and interests, particularly in relation to their interactions with various factors external to the learning process. These factors may include faculty, staff, peers, academics, and the institution itself. Emotional engagement consists of three primary components: students' emotional reactions and affections, which encompass feelings such as interest, boredom, anxiety, sadness, and happiness; emotional responses towards teachers and the college, which can be either positive or negative; and students' sense of identification and belonging within the school community, contributing to their feelings of ownership and significance within the institutional environment.

Cognitive engagement: Fredricks et al. (2004) provide further elaboration on cognitive engagement, which comprises two distinct components: psychological and cognitive. The psychological component centers on students' investment in learning and their motivation to acquire knowledge. The cognitive component encompasses self-regulated learning, metacognition (the awareness and control of one's thinking

processes), and the application of learning strategies to facilitate thinking and studying effectively.

In summary, Fredricks et al. (2004) present a comprehensive framework that highlights the importance of student engagement, covering behavioral, emotional, and cognitive dimensions. These dimensions provide valuable insights into students' active participation, emotional experiences, and cognitive processes within the educational setting. In the context of this study, the focus was specifically on behavioral student engagement, which pertains to students' involvement in the activities provided during the writing class.

Classroom Interaction Activities

As behavioral engagement is fostered through interactions, particularly in the learning process, promoting interactions has the potential to enhance student engagement (Anderson, 2003). Moore (1993) proposed three types of interactions, namely: 1) learner-to-learner interaction, 2) learner-to-instructor interaction, and 3) learner-to-content interaction. These interactions play a crucial role in facilitating active engagement and meaningful learning experiences for students.

Learner-to Learner Interaction

According to Moore (1993), learner-to-learner interaction involves communication and collaboration among peers both inside and outside the classroom. This type of interaction is important as it helps prevent learners from experiencing boredom and isolation within the learning environment.

Various activities can facilitate a sense of connection among students and create an active learning environment. These activities include discussion boards, chat sessions, blogs, wikis, and group tasks, particularly when utilizing web-based applications (Revere & Kovach, 2011).

Learner-to-Teacher Interaction

According to Moore (1993), learner-to-teacher interaction encompasses all forms of communication between teachers and students, including the teacher's guidance, support, and motivational role throughout the course.

Gaytan and McEwen (2007) observed that activities fostering student-teacher engagement include building rapport and collaboration between teachers and students, as well as providing instructive feedback through assigned tasks.

Learner-to-Content Interaction

According to Moore (1993), learner-content interaction refers to the intellectual connections students form with the content they are learning, which can result in changes in perceptions, cognitive structures, and a deeper comprehension of the lessons. This type of interaction lies at the heart of education, as it is through the process of intellectually engaging with the content that learners undergo transformations in their understanding, perspective, and cognitive structures (Moore, 1993).

Various activities can foster student engagement with the content, such as watching videos, interacting with multimedia materials, and conducting further research (Abrami, Bernard, Bures, Borokhovski, & Tamim, 2012).

Furthermore, Lane and Harris (2015) argue that student behavioral engagement can also vary depending on different teaching methods. To address this, they developed the Behavioral Engagement Related to Instruction (BERI) protocol as an observation tool specifically designed to quantitatively measure student behavioral engagement in the classroom. This protocol provides a systematic approach to observe and assess student engagement, enabling educators to gain valuable insights into student behaviors and patterns. Notably, Table 1 within the protocol offers descriptions of the specific engaged behaviors exhibited by students.

TABLE 1 Descriptions of Student in-Class Behaviors Indicating Students Are Engaged.

Engaged	
Listening	Student is listening to lecture. Eye contact is focused on the instructor or activity and the student makes appropriate facial expressions, gestures, and posture shifts (i.e., smiling, nodding in agreement, leaning forward).

TABLE 1 Continued

	Engaged
Writing	Student is taking notes on in-class material, the timing of which relates to the instructor's presentation or statements.
Reading	Student is reading material related to class. Eye contact is focused on and following the material presented in lectures or preprinted notes. When a question is posed in class, the student flips through their notes or textbook.
Engaged computer use	Student is following along with lecture on computer or taking class notes in a word processor or on the presentation. Screen content matches lecture content.
Engaged student interaction	Student discussion relates to class material. Student verbal and nonverbal behavior indicates he or she is listening or explaining lecture content. Student is using hand gestures or pointing at notes or screen.
Engaged interaction with instructor	Student is asking or answering a question or participating in an in-class discussion.

Note: Adapted from Lane, E. S., & Harris, S. E. (2015). Research and Teaching: A New Tool for Measuring Student Behavioral Engagement in Large University Classes. Journal of College Science Teaching, 44(6), p. 85.

Based on ideas of Moore (1993) and Lane and Harris (2015) on student behavioral engagement, it is apparent that interactions, including learner-to-learner, learner-to-teacher, and learner-to-content interactions, play a crucial role in fostering student engagement in the classroom. Building upon these concepts, this study aims to

investigate the impact of a multimodal project on student behavioral engagement by examining their interactions with peers, the teacher, and the course content. Furthermore, the researcher utilized the interaction descriptions provided by Lane and Harris (2015) to develop the research instruments.

Methods for Assessing Student Engagement

According to the emphasis on enhancing student engagement in education, it is important for educators to be able to assess the engagement as a part of overall learning (Barkley & Major, 2020). There are a variety of methods which are widely accepted to evaluate student engagement in learning.

Student Self-report

In this method, students choose any of the various given aspects of engagement that they think can best describe themselves about their learning (Kong, Wong, & Lam, 2003). It is also a practical and simple way to manage in classroom settings even with large classes and costs less payment (Fredricks & McColskey, 2012).

Experience Sampling

Students are provided a self-report with a series of questions consisting of their location, activities, and cognitive and affective responses (Hektner, Schmidt, & Csikszentmihalyi, 2007). Despite its benefits, the method is time-consuming for students and its success depends on participants' ability and willingness to fill out the questionnaire (Fredricks & McColskey, 2012).

Teacher Rating of Students

Teacher Rating of Students is a way of assessing student engagement through teacher's checklists or rating scales. It is also an opportunity to assess students' participation (Finn, Pannozzo, & Voelkl, 1995). This method can be used to make up the self-report method in case there are some students facing literacy problems (Skinner & Belmont, 1993).

Interviews

This assessing method requires students to tell their stories in a more open-ended and unstructured way (Turner & Meyer, 2000). Fredricks and McColskey (2012) remarked that interviews provide insight understanding of the reasons why

students are engaged and detailed descriptive data about student engagement in school experiences. However, when implementing this method, biases, knowledge, and skills of interviewers need to be considered carefully as it can have an impact on the quality and depth of data collected as well as validity and reliability of the questions asked need to be stable and consistent (McCaslin & Good, 1996).

Observations

Observations of both individual and classroom have been employed as an indicator of academic engagement which refers to academic behaviors namely answering questions, participating in classroom tasks, and talking about academics (Greenwood, Horton, & Utley, 2002). This method helps to gain detailed data of students' behaviors at time on task and is effective with observing those who need special attention or at risk for disengagement detailed data (Shapiro, 2010). However, Fredricks et al. (2004) argued that observation is time-consuming to obtain data and depends on various types of academic settings namely group work or seat work to obtain the data.

Surveys and Questionnaires

Surveys and questionnaires are most frequently used in student engagement research studies due to their simple and practical administration especially with students, teachers, and parents (Handelsman, Briggs, Sullivan, & Towler, 2005). Yet, surveys and questionnaires are still found that they lack real-time data collection and bias can occur and cause inaccurate results especially when student participants are uncomfortable and not honest for responding the surveys and the questionnaires which makes it difficult to gain students' actual behaviors or cognitions (Eisenhower, Baker, & Blacher, 2007).

In addition, Mandernach (2015) provides an overview of the advantages and challenges associated with each method for assessing student engagement. The researcher synthesized this information by considering the explanations provided for each method, and then combined and adapted it to align with Mandernach (2015)'s framework, as presented in Table 2.

TABLE 2 Comparing Student Engagement Assessment Methods

Methods	Advantages	Challenges
Student Self-report	- unseeable aspects reported by students' reflections - practical and simple way	- actual behaviors may be not fully reported by students
Experience Sampling	- questions can guide students to provide clear answers. - detailed data can be recalled easier	- time-consuming - depending on students' willingness to complete all questions
Teacher Rating of Students	- assessing both behavioral and emotional engagement - able to see students' participation in class clearly.	- lacking detailed information and reasons - teachers' biases
Interviews	- providing insight understanding of student's reasons - deeper detailed data	- the validity and reliability of the questions used - impacts from the interviewers on students
Surveys and Questionnaires	- practical and simple - suitable for item analysis	- lacking real-time data - depending on students' efforts to answer questions - lacking understanding of survey
Observations	- gaining students detailed data on behaviors at time on task - effective to help those needing special attentions	- time-consuming - able to see in class - needing careful implementation on judging students inside and outside the class.

Note. Adapted from Mandernach, B. J. (2015). Assessment of student engagement in higher education: A synthesis of literature and assessment tools. *International Journal of Learning, Teaching and Educational Research, 12*(2), pp. 4-5.

It can be pointed out from the methods above that the pros and cons of each data collection method regarding student engagement emphasizes the complexity of assessing student engagement. Accordingly, this study employed three methods to assess student behavioral engagement. The first method is survey as it provides data from students' sides which was conducted before and after implementing the experiment. The second method employed is observation owing to its concreteness of assessing students' engaging behaviors in class. However, the observation was conducted by three different raters who were trained for assessing student behavioral engagement in terms of criteria and other necessary conditions before observing to maintain the reliability of the observation method. Another method is students' reflections which were employed to gain students' opinions towards the of the multimodal project after the use of a multimodal project. These three methods were used in this study to examine if the use of a multimodal project could enhance student behavioral engagement.

Related Studies

In teaching writing, multimodal projects have been employed by a variety of studies to enhance student engagement. These projects involve creating writing tasks on social media platforms and in-classroom digital products. Moreover, multimodal projects also help to enhance digital literacies, students' interaction, motivation, and collaboration in the classroom. The examples of these studies can be categorized as follows:

Previous studies on increasing student engagement using multimodal projects have indicated positive results. Many studies have been conducted through social media platforms. For instance, Prasetyawati and Ardi (2020) examined the use of Instagram in EFL writing to enhance student engagement. The study employed a

qualitative research design with 45 university students enrolled in writing courses and a writing lecture. Data were obtained from a semi-structured interview with the lecturer and seven students, classroom observations, and Instagram documentation. The results showed that Instagram could promote student engagement in five ways: increased student involvement in the learning process, the creation of a new learning environment, providing target readers, enhancing collaboration and interaction among students, and giving students a chance to choose their own learning style while learning writing. Similarly, multimodal communication projects have been studied to effectively foster the engagement of college students with a pedagogically focused project design and implementation. This was found by Yeh and Mitric (2019) who studied the incorporation of Instagram as a multimodal digital story telling tool which was aimed to foster the engagement of English language learners. The study employed a qualitative method and was conducted with undergraduate students. Furthermore, Park and Selfe (2011) conducted a study on student experiences in a multimodal composition class. They used a qualitative method to analyze the data gathered from students' experiences after producing multimodal texts. The study found that learning and composing in the class were enjoyable and motivating for students, as it bridged the pedagogical gap between conventional methods and multimodal literacy practices outside the classroom. Similarly, Hung (2015) conducted a study on the use of multimodal video technology feedback to enhance student engagement in a writing class. The study employed a mixed-method approach by comparing feedback provided through multimodal videos and text-based feedback. Sixty students participated in a semester-long video feedback project, where they produced 3-minute speech video clips and 2-minute oral feedback video clips incorporating multiple semiotic modes: visual, verbal, and gestural. The study revealed that video technology feedback can promote greater interaction, foster personalized learning, and enhance attentive engagement. Additionally, Hepple et al. (2014) reported that multimodal communication projects can promote high levels of learning engagement. The study presented reflections from two English teachers who incorporated multimodal communication projects in their classes, assigning students to

create claymation texts to develop their language and synesthetic abilities. This study highlighted two key aspects of multiliteracies: student agency and design. Furthermore, Wolf, Delgado, and Rutar (2015) investigated student satisfaction with the use of multimedia strategies in the classroom. The study involved 154 nursing participants from a private nursing college, and data were collected through questionnaires. The findings revealed that using multimedia in the classroom engages students in the learning process by actively involving them and facilitating the delivery of challenging course content.

Additionally, numerous studies have demonstrated that the application of multimodal projects in classes helps to enhance students' digital literacies. For instance, a study by Maghsoudi, Golshan, and Naeimi (2021) examined the integration of digital multimodal composition (DMC) into EFL writing instruction. The findings revealed that students in the DMC group outperformed those in the monomodal group in terms of content and organization. The DMC group demonstrated the ability to use relevant content to inform their audience and create coherent texts by employing appropriate cohesive devices. Similarly, a study by Arslan (2020) used multimodal writing to promote global competence among EFL learners. The study revealed that multimodal writing practices helped students gain more knowledge about the world, as the assigned topics required them to brainstorm and conduct further research for relevant information to complete the project. In this study, students worked on multimodal writing assignments using digital platforms such as blogs and webpages. These platforms allowed students to interact with each other by asking questions and posting comments on each other's blogs/webpages.

Moreover, previous studies have also indicated that multimodal projects increase students' interaction, motivation, and collaboration in the classroom. For example, Darrington and Dousay (2015) found that multimodal writing projects were more motivating compared to traditional paper-based writing. The study examined how multimodal works increased the motivation of students who struggled with writing, using the theoretical construct of change theory to guide the analysis. In addition, Ganapathy

and Seetharam (2016) conducted a study on the use of multimodal communication projects in a private school in Malaysia. The results showed that MMCs were effective in improving students' English competence, enhancing motivation in learning, and supporting a variety of learning styles. The study also suggested that teachers should integrate MMCs into their classes due to the benefits they offer for student learning. Furthermore, Jiang and Luk (2016) studied the use of multimodal composing in English classrooms and found that MMCs supported inclusive learning environments where students with various interests, abilities, and backgrounds could cooperate with one another. Students had the opportunity to seek help from their classmates in English and worked together to achieve project goals. This interactive and enjoyable approach fostered a positive learning experience in the classroom.

In conclusion, various types of multimodal compositions have been studied to enhance student engagement, interaction, collaboration, and motivation in writing classes. The multimodal projects primarily involved computer-based projects such as videos, blogs, webpages, and claymation texts, allowing students to collaborate with their peers in group settings. The studies employed a combination of qualitative methods, including reflections, interviews, and observations, as well as quantitative methods, such as questionnaire surveys, to gather data. Participants in these studies varied from high school students to college students with both English and non-English majors. These studies highlight the potential positive outcomes of implementing multimodal projects in writing classes to increase student behavioral engagement. Therefore, the aim of this study is to enhance student behavioral engagement through the use of a digital poster, wherein students collaborate and investigate their interactions. The study focuses on a Thai EFL writing class to gain deeper insights into the effects of multimodal projects on teaching writing in Thai EFL contexts.

CHAPTER 3

Methodology

This chapter is an explanation of the research methodology including research design, participants, research instruments, data collection procedure, data analysis, and ethical considerations.

Research Design

This study employed a quasi-experimental mixed method design to investigate the use of a multimodal project to enhance student behavioral engagement in a Thai EFL writing class. A quantitative method was employed to collect the statistical data using pre-and- post survey questionnaires and observations by the raters through checklists to gain behavioral engagement data. Moreover, a qualitative method was employed to gain the data from students' reflections towards the use of a multimodal project to reaffirm the data from the quantitative method. The data from the quantitative method were statistically analyzed through frequency, means, standard deviations, t-test, and Cohen's d. The data from the qualitative method were analyzed by thematic analysis. The methodological framework of this study is shown in Figure 2.
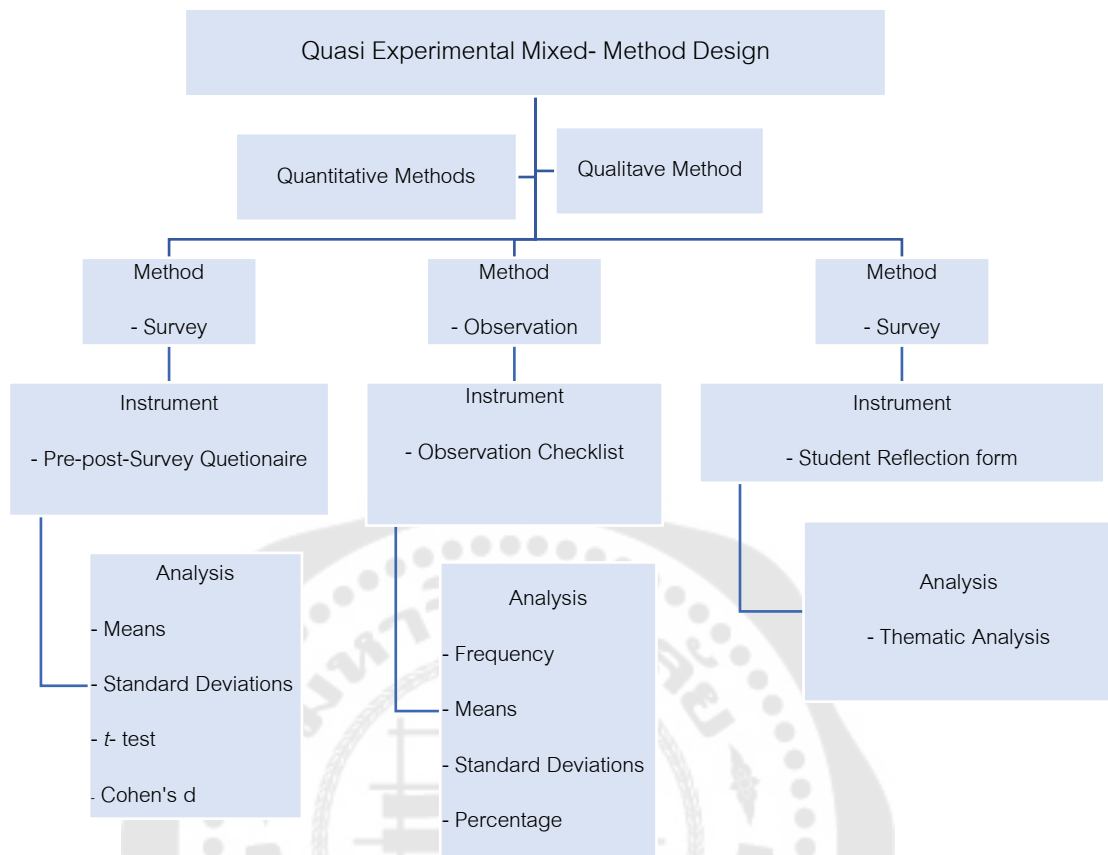
FIGURE 2 Methodological Framework

Participants

The population of this study consisted of 100 EFL eleventh graders who were pursuing majors in English, Innovative English, and ASEAN Language at a demonstration secondary school in Bangkok, Thailand. These students were enrolled in writing courses during the second semester of the academic year 2021.

The students all are native Thai speakers. Their ages range from 16 to 17 years old. Their English proficiency is approximately at B1 CEFR level. On average, they had received formal English education for about 10 years since they were in the first grade. Their English learning focuses on all four main skills which are speaking, listening, writing, and reading with extensive vocabulary, grammatical features, and sentence patterns. Generally, in the writing classes, the students are taught to write through process writing and genre-based approaches.

The participants of the study were selected by means of purposive sampling based on the following criteria. Firstly, the participants were required to have learned how to write writing sentence levels including simple, compound, and complex sentences as well as learning how to use transition words. Moreover, the participants had already passed three writing courses namely Academic Writing 1, 2, and 3 before. In those courses, students learned how to write academically and formally and were assessed by a formal summative assessment namely exam paper or multiple-choice exam. The students have learned to write in sentence levels in Academic Writing 1 and 2. In Academic Writing 3, they were taught to write basic paragraph writing with types of paragraphs including narrative and descriptive paragraphs containing at least 150 words for each type. Another criterion was that the participants were required to study Academic Writing 4 in semester 2 of 2021 academic year. Finally, the participants had never experienced learning writing using a multimodal project before. This would be useful to give a clear picture of how applying a multimodal project influenced a writing class that the students who had not been experienced making a multimodal project before.

From the criteria, the participants selected were 35 students from eleventh-grade students majoring in English in the second semester of the 2021 academic year. The participants were 20 females and 15 males. Some of the students in the class were not familiar with one another as they had been studying online during the outbreak of the COVID-19 pandemic.

They had studied the writing course named Reading and Writing 3 in the first semester of 2021 academic year 2021 which were beneficial for Advanced Reading and Writing 4 which was about paragraph writing with different types including opinion, cause-effect, comparison, and process paragraphs. In addition, when they were in grade 10th, they learned how to form sentences in different types and learn how to use transition words in the courses named Advanced Writing 1 and 2. The participants experienced learning writing through writing process with grammatical correction and

paper-based examinations employed to test their writing skills for midterm and final scores.

Research Instruments

The instruments employed in this study included four lesson plans, a pre-post survey questionnaire, an observation checklist, and a student reflection form.

Lesson plans

The researcher designed four lessons which were under the school's curriculum. The lessons plans were applied to the chapter named "Opinion Paragraph" which was about how to express ideas toward a given topic or situation. Based on the chapter, the topic that the participants were required to complete is "What should city people do to keep the city green?" The lesson plans covered four weeks containing three periods a week which was accounted for 45 minutes each. While teaching, the teacher used learning activities to help students engage with their peers, the content, and the teacher following the multimodal project's steps and activities. These activities included forum, group work, educational applications, presentations, feedback, and games. Each activity was used based on the purpose and the content of the lesson in each week.

The lessons were designed by adapting the model for teaching MMCs proposed by Arola et al. (2013).The lesson plans cover four steps as shown in Table 3.

TABLE 3 The Steps of Creating a Multimodal Project.

Steps	Activities
1: Understanding and Analyzing the Multimodal Project	- The teacher provides examples of posters. - The teacher explains modes of communication, design principles, and rhetorical situations. - The students work in groups to discuss their own sample model.

TABLE 3 (Continued)

Steps	Activities
2: Designing	- The teacher organizes "A Lab Day" to introduce recommended technologies/platforms to the students. - The students plan the project. - The students give a presentation to provide an overview of the project. - The teacher and peers provide feedback for each group's presentations. - The students edit their work.
3: Drafting and Revising	- Students create a rough draft of their digital posters in groups after discussing it with the group members and the teacher. - Students revise their first draft by choosing the elements necessary for the project and start to design. - The teacher lets students do a peer review to share their work with the class and they can give each other positive comments. - Students create the final draft.
4: Putting the Project to Work and Reflecting on the Project	- The students publish the poster to a community that aligns with the purpose of their project. - The students reflect on their project in groups and present it to the class. -The students conduct a peer assessment, and the teacher assesses the students' work and provides them with feedback.

All the steps in making a digital poster were set in the lesson plans for each week as summarized in Table 4.

TABLE 4 Lesson Plans of Each Week

Weeks	Lessons	MMC Steps
1	Let's make the city green	Step 1: Understanding and Analyzing the Multimodal Project
2	Making a poster	Step 2: Assembling Technologies and Designing
3	Let's put it together	Step 3: Drafting and Revising
4	"What should city people do to keep the city green?"	Step 4: Putting the Project to Work and Reflecting on the Project

In order to assess the validity, the lesson plans underwent a review process by three experts, utilizing the Item-Objective Congruence (IOC) Index, before their implementation in the classroom. The IOC rating provided by the experts for the lesson plans was 1, indicating a high level of correspondence between the plans and the lesson objectives. Following this evaluation, the researcher incorporated the experts' feedback to make necessary edits to the lesson plans. The revised versions of the lesson plans can be found in Appendix A.

1. The Pre-Survey and the Post-Survey Questionnaire

A survey questionnaire was utilized for both the pre-survey and post-survey to address the first research question. The questionnaire was developed by adapting the engaging and disengaging behaviors from the on-task behavioral observation protocol of Lane and Harris (2015). Moreover, some of the statements in the questionnaire were specifically designed to be suitable for the steps involved in creating the multimodal project. The questionnaire followed a 5-point Likert scale format, consisting of 19 items encompassing both positive and negative statements. These items were categorized into five levels, ranging from "very characteristic of me" (5), "characteristic of me" (4),

"moderately characteristic of me" (3), "not really characteristic of me" (2), to "not at all characteristic of me" (1).

The statements were also categorized into three sections which were the behaviors when the students were being engaged with peers, the teacher, and the content respectively. The details of the statements were as follows:

- Items 1- 9 were about the interaction of students with their peers.

- Items 10- 13 were about the interaction of students with the teacher.

- Items 14 -19 were about the interaction of students with the content.

In items 15-19 of the questionnaire, adjustments were made to align them with the writing learning activities involved in creating a multimodal project. These modifications aimed to assess the extent of student participation and engagement in the designated classroom activities. The purpose was to determine whether students actively joined the activities and to evaluate their level of engagement throughout the project creation process.

To mitigate potential misinterpretation due to language barriers, the questionnaire was translated into the Thai language. After completing the first draft of the questionnaire, the researcher sought the expertise of three instructional field experts to review it using the Item-Objective Congruence (IOC) Index, ensuring the validity of the instruments. The review resulted in an IOC score of 0.95, indicating an effective instrument for the study. Subsequently, the questionnaire was adjusted based on the experts' suggestions. After completing the questionnaire, its reliability was assessed through a pilot study involving 30 students who were distinct from the experimental group. Cronbach's alpha was utilized to calculate the reliability value. The questionnaire exhibited a Cronbach's alpha value of 0.97, indicating high internal consistency in measuring the variables (Cho & Kim, 2015). The revised version of the questionnaire can be found in Appendix B.

2. Classroom Observation Checklist

The classroom observation checklist was utilized to examine the impact of a multimodal project on student behavioral engagement across various interaction aspects, including interactions with peers, the teacher, and the class content, during class. To mitigate biases and ensure accurate data, three raters were assigned to observe students' behavioral engagement.

The observation checklist was developed by adapting engaging behaviors from Lane and Harris (2015). Specifically, the researcher selected engaging behaviors that reflected interactions with peers, the teacher, and the content, which were readily observable in the classroom. The objective was to investigate whether students demonstrated these behaviors while engaging in project activities. The checklist consisted of 10 behavioral statements designed to assess the extent of student engagement in each aspect: interactions with peers, the teacher, and the content.

Upon completion of the observation checklist, its validity was evaluated by three experts in English teaching using the Item-Objective Congruence (IOC) Index. The review resulted in an IOC value of 1, indicating the high validity of the observation checklist for assessing student engagement in interactions with peers, the teacher, and the class content. The revised version of the checklist can be found in Appendix C.

The researcher enlisted three raters to observe the classroom: two experienced English teachers who had taught writing for a minimum of three years, and a foreign teacher or native English speaker with a degree in English teaching and at least three years of teaching experience. Prior to conducting the observation, the raters received training from the researcher on how to use the checklist effectively, ensuring consistency in scoring frequency and understanding the criteria and other pertinent details. Furthermore, the raters were provided with comprehensive information about the class activities for observation purposes.

3. Student Reflection Form

To explore the students' perspectives on the use of the multimodal project in their writing class, a reflection form was utilized to gather qualitative data. The form consisted of two questions. The first question aimed to gather the students' overall

opinions on the project, while the second question focused on their opinions regarding the activities within the lessons. The students' reflections were collected during the final week of the study, allowing them sufficient time to experience all the activities.

To ensure the validity of the reflection form, three experts were invited to review its content using the Item-Objective Congruence (IOC) Index. The review resulted in an IOC value of 1, indicating that the reflection form effectively investigated the students' opinions on the project's classroom implementation. The researcher made edits to the reflection questions based on the experts' suggestions. The final version of the reflection form can be found in Appendix D.

Data Collection

The study took approximately four weeks to collect the data. Students were asked to do the pre-survey questionnaire in the first week using the questionnaire. The students' engagement during the class were collected using the classroom observation checklist by the raters. The observation was conducted in every class as all the steps of the multimodal project were conducted continuously from Step1 to Step 4 as well as learning activities. The raters counted the number of students participating in each activity. To offer the raters convenience, the researcher provided them the videos recording daily events of the four-week teachings. Therefore, the raters did not have to be in the class all the time. To gain students' opinions toward the multimodal project, students were asked to complete the reflection form in the final week after completing the multimodal project to make students feel more secure in case they have any suggestions regarding the lessons. This helped them express their reflections freely without any anxiety as all the work was already done. The post-survey questionnaire was employed in the final week using the same questionnaire as the pre-survey. All these methods helped with collecting the data for the study. The timeline of the data collection is presented in Table 5.

TABLE 5 Timeline for Data Collection and Process

Data	Time	Process
1. Pre-survey questionnaire	Week 1	The students did the pre-survey questionnaire. The teacher talked about the project and the content of the lessons.
2. Student Reflection Form	Week 4	The students completed the class reflection form after completing the post survey.
3. Post-survey questionnaire	Week 4	The students did the post-survey questionnaire.

Data Analysis

The collected data from the pre-post survey questionnaire, observation checklist, and student reflection form were thoroughly analyzed to examine the extent to which the multimodal project enhanced student behavioral engagement.

1. The Pre-Survey and the Post-Survey Questionnaire

In order to examine student engagement before and after using the multimodal project, mean scores and standard deviations of the pre-survey and post-survey were statically compared using the dependent t-test to see whether the multimodal project could bring a positive result in enhancing student behavioral engagement. Moreover, Cohen's d was employed to see the value of the effect size.

2. Classroom Observation Checklist

The data which were the number of students participating in each activity of interaction aspects observed by the raters were analyzed through descriptive statistics including frequency, means, and standard deviations. After analyzing the data, percentages of the students participating in the activities were employed to see students' behavioral engagement.

3. Student Reflection Form

The data from the reflections were analyzed using thematic analysis. The data from the first question in the reflections were analyzed by allowing themes to emerge. For the second question, the themes were designated based on the interaction aspects by adapting the information from the survey questionnaires to guide the coding. Then the data from the reflections were matched according to descriptions of each interaction aspect guidelines. The coding guidelines are shown in the table below.

TABLE 6 Coding Guidelines of Students' Reflections

Interaction aspects	Descriptions
Peer interaction	- Participating in activities with classmates. - Discussing with the group by giving and receiving ideas from one another. - Asking classmates questions and explaining information about the project. - giving and receiving feedback on their digital posters from classmates.
Teacher interaction	- Asking and answering the teacher's questions about the project. - Receiving feedback from the teacher on the digital poster. - Editing the work based on the teacher's feedback.
Content interaction	- Taking notes while learning. - Writing up the content in the digital poster. - Searching for additional information about the project. - Using internet sources to find information for creating the digital poster. - Participating in the presentation about creating posters. - Studying how to use a program to make the project. - Reading the class worksheet.

Ethical Consideration

To avoid biases and anxiety of students during the experiment, there were ethical considerations employed to avoid the unpleasant effects on the participants. Firstly, the consent form was employed to ensure that the students and parents understood the objectives of the study and the students agreed to attend the study. Before conducting the research, the researcher asked for an ethical approval from Ethics in Human Research, Srinakarinwirot University. It was approved on February 17th, 2022, and its approval document number is SWUEC-G-496/2564E. Another consideration was that the participants were able to refuse to take part in the research. Despite accepting to join the study, they could terminate being a participant any time they want to. Moreover, the participants were not forced to complete the questionnaires. They could freely answer all the questions without any hesitation of the teacher's power over them including scoring their work or grading. Apart from this, all the data derived from the students in the study were kept confidential. Any identifying information obtained from the research methods was concealed. Additionally, the recorded videos of the classes will not be released to anyone outside the study without permission from participants. If there were any concerns, the students could always ask for clarifications from the researcher.

CHAPTER 4

FINDINGS

This chapter provides an in-depth analysis of the study's outcomes, incorporating both qualitative and quantitative data. The quantitative data were gathered through the administration of pre- and post-student engagement questionnaire as well as the classroom behavioral engagement observation checklist. Complementing this, the qualitative data were obtained from the student reflection form.

The study addresses three research questions:

1. How does a multimodal project impact student behavioral engagement in a Thai EFL writing class, considering overall engagement and interactions with peers, the teacher, and the content?

2. What are the effects of a multimodal project on student behavioral engagement during class, particularly in terms of interactions with peers, the teacher, and the content?

3. What are students' opinions on the use of a multimodal project in the writing class?

In what follows, the first section presents the findings for the first research question obtained from the pre-and-post student engagement questionnaire. The second section is for the findings of the second research question which gained the data from the classroom behavioral engagement observation checklist, and the final section presents the data from the student reflection form.

4.1 Research Question 1: How does a multimodal project impact student behavioral engagement in a Thai EFL writing class, considering overall engagement and interactions with peers, the teacher, and the content?

This section presents the results from the pre-post student behavioral engagement questionnaire which consists of overall behavioral engagement and the data in detail of interaction aspects. The results are shown as follows.

4.1.1 The Results of Overall Student Behavioral Engagement

The data from the pre- and post-student engagement questionnaire were analyzed using the mean scores (M), standard deviation (SD), and pair-sampled t-test. The results of overall student behavioral engagement from the pre-and-post student engagement questionnaire are presented in Table 7.

TABLE 7 The Result of the Pre-and Post-Student Engagement Questionnaire

Score	M	SD	t	p	Cohen's d
Pre-survey	3.73	0.72	3.48	0.001*	0.59
Post-survey	3.92	0.77			

*p <0.05

As shown in Table 7, the average mean score of the students' overall behavioral engagement before the experiment was 3.73 and the standard deviation was 0.72 while the mean score of the overall behavioral engagement survey after applying the project was 3.92 and the standard deviation was 0.77. Apparently, the levels of the student's overall behavioral engagement in the writing class increased as there was a higher value of means and standard deviations after the students in the writing class had participated in the multimodal project. Moreover, the results showed that there was a significant difference between the average mean scores of the levels of student's overall behavioral engagement in a Thai EFL writing class (t = 3.48, p<0.05). Besides, Cohen's effect size value (d = 0.59) suggests a moderate effect of the multimodal project on enhancing students' behavioral engagement. The effect size can be considered meaningful, but not large.

4.1.2 Results of the Pre- and Post-Student Behavioral Engagement Questionnaire in Interactions with Peers, the Teacher, and the Content

The pre- and post-student behavioral engagement questionnaire was also employed to investigate the interaction aspects. The data were analyzed using mean scores (M), standard deviation (SD), and t-test for each aspect of interactions

including the interactions with peers, the teacher, and the content. The results of the analysis are shown in Table 8.

TABLE 8 The Result of the Pre-and-Post Student Behavioral Engagement Questionnaire in Interactions with Peers, the Teacher, and the Content

Aspects	Score	M	SD	t	p	Cohen's d value
Peers	Pretest	3.69	.69	3.35	.001*	0.57
	Posttest	3.92	.72			
Teacher	Pretest	3.62	.79	2.71	.005*	0.46
	Posttest	3.81	.84			
Content	Pretest	3.90	.84	2.22	.017*	0.38
	Posttest	4.05	.92			

*p <0.05

Table 8 presents the results of the study, indicating an increase in student behavioral engagement within the three interaction aspects following the implementation of the multimodal project in the writing class. These increases were found to be statistically significant. The most notable difference was observed in interactions with peers, with mean scores of 3.69 (SD = 0.69) in the pre-survey and 3.92 (SD = 0.72) in the post-survey. Similarly, the interaction with the teacher showed a significant increase, with mean scores of 3.62 (SD = 0.79) in the pre-survey and 3.81 (SD = 0.84) in the post-survey. The engagement level with the content exhibited the smallest increase, measuring 3.90 (SD = 0.84) in the pre-survey and 4.05 (SD = 0.92) in the post-survey.

Comparing the mean scores of the pretest and posttest questionnaires, significant differences were observed in the average scores of the three interaction aspects. The interaction with peers exhibited a significant difference (t = 3.35, p < 0.05), as did the interaction with the teacher (t = 2.71, p < 0.05). Additionally, there was a significant difference between the pre- and post-questionnaires regarding the interaction

with content (t = 2.22, p < 0.05). The effect sizes, as indicated by Cohen's d values, were moderate for all three aspects, suggesting a meaningful level of engagement resulting from the multimodal project, although the magnitude of the effect may not be substantial.

4.2 Research Question 2: What are the effects of a multimodal project on student behavioral engagement during class, specifically in terms of interactions with peers, the teacher, and the content?

This section shows the data from the classroom behavioral observation checklist which obtained student behavioral engagement from the interaction aspects including the interactions of the students with peers, the teacher, and the content during the implementation of the multimodal project in class. The observation was conducted every class throughout the four-week teaching by the three raters. They counted the students who performed each of the engaging behaviors while studying. The data were analyzed by descriptive statistics including frequency, means, standard deviations, and percentage. The number of students showing engaging behaviors of each aspect in each week were calculated by means and frequency. The results of the observation of each week are shown in the bar chart presented in Figure 3.
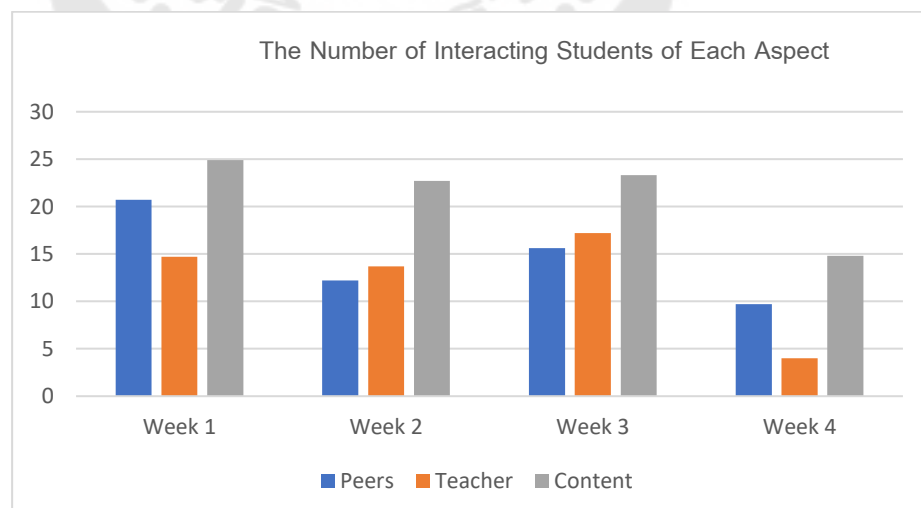

FIGURE 3 The Results of the Observation of Each Week

In general, the findings derived from the raters demonstrate that students displayed a higher level of interaction with the content compared to the other two aspects of interaction throughout the four-week observation period. However, the interaction patterns between peers and the teacher varied across the weeks. Specifically, the largest number of students engaging in interactions with the content was observed in the first week (N = 25), while the lowest number of students engaging in interactions with the teacher was observed in the final week (N = 4). Overall, the last week recorded the lowest interactions across all three aspects.

In order to determine the interaction aspect that yielded the highest level of student engagement throughout the four-week observation period, the total number of students involved in each aspect was aggregated based on the observations of the three raters. Subsequently, the sum was divided by three to calculate the average number of students engaged in each aspect. The data were further analyzed using percentages to ascertain the interaction aspect in which students demonstrated the highest level of participation while implementing the multimodal project in the classroom. The outcomes of this analysis are presented in Table 9.

TABLE 9 Results of Student Behavioral Engagement During the Class in Terms of Interaction Aspects

Interaction Aspects	N	M	SD	(%)
Peers		14.6	0.4	30.41
Teacher	35	12.4	0.3	25.84
Content		21.4	0.6	43.75
Total	35			100

Based on the data presented in the above table, a clear pattern emerges regarding the average mean scores of students' participation over the course of four weeks. Notably, the interaction between students and the content yielded the highest

average mean score (M = 21.4, SD = 0.6), indicating a substantial level of engagement. This was closely followed by students' interaction with their peers (M = 14.6, SD = 0.4), which also exhibited a notable level of participation. Conversely, the interaction between students and the teacher obtained the lowest mean score (M = 12.4, SD = 0.3), indicating comparatively lower engagement levels.

Further analysis entailed calculating the percentages of students engaged in the respective types of interaction. The results revealed that the interaction between students and the content accounted for the highest percentage of engagement, comprising 43.75% of the total. Following this, the interaction between students and their peers constituted 30.41% of engagement, indicating a considerable level of participation. In contrast, students' interaction with the teacher represented the lowest percentage of engagement, comprising only 25.84% of the total.

4.3 Research Question 3: What are students' opinions on the use of a multimodal project in the writing class?

The findings for Research Question 3 were obtained through the analysis of students' reflection forms. Thematic analysis was employed to examine the data gathered from these forms. The data was classified into two sections according to the questions posed in the reflection form, which are as follows:

1. How does making a digital poster help you participate in the writing class?

2. How do activities in the digital poster project help you interact with classmates, the teacher, and the contents? Please explain.

The results of this analysis are presented below.

4.3.1 Results from the first question: How does making a digital poster help you participate in the writing class?

Upon analyzing the data, it was classified into two distinct themes: enhancing class participation and enhancing writing skills and creativity. The findings of the analysis are provided below.

Enhancing participation in the class.

The majority of students agreed that the digital poster facilitated their active participation in class discussions. Additionally, the project provided them with an opportunity to collaborate as a team and enhance their teamwork skills. Examples of the students' reflections can be found in Excerpts 1-8.

Excerpt 1: Student A:

Yes, it [the multimodal project] helps a lot. Making a poster is one of my favorite things, so it makes me want to participate in the class extremely.

Excerpt 2: Student B:

We have to work with others, and this can improve my co-working skills.

Excerpt 3: Student C:

I am becoming more active and paying more attention to answering questions, brainstorming, and discussing to gain the best suitable ideas for my posters. I am being more confident when presenting my work.

Excerpt 4: Student D:

Making posters helped me participate in searching for information needed for the poster and how to make them attractive.

Excerpt 5: Student E:

I paid more attention to the lesson while the teacher was teaching as there were a lot of specific details to make the posters.

Excerpt 6: Student F:

Making posters made me engage in the class more. I searched for further information for my posters. I enjoyed learning how to make my posters more attractive, easy to read. Moreover, the teacher provided me productive feedback to edit my poster.

Excerpt 7: Student G:

I participated in sharing ideas to make posters. I had a chance to work

with others in the class.

Excerpt 8: Student H:

I followed the information and suggestions to make our posters better according to what the teacher provided.

Enhancing writing skills and creativity

Due to the abundance of lesson details covered, the majority of students agreed that the multimodal project significantly enhanced their creativity by applying the design principles learned in class. Furthermore, through the process of creating posters and employing concise language, students found that it deepened their understanding of the content and improved their ability to select appropriate words, structures, and rhetorical situations for the posters. Excerpts 9-13 contain excerpts from the students' reflections.

Excerpt 9- Student I:

It [the multimodal project] helped me with the writing, how to use words or where and when to write.

Excerpt 10- Student D:

By writing all of the information out even if it's in digital poster, we got to think about what we should write out and advertise people about separating trash.

Excerpt 11- Student K:

It [the multimodal project] helped with using a concise and precise language and how to present information on the poster attractively.

Excerpt 12- Student L:

It helps me use my creativity to express my ideas in the poster.

Excerpt 13- Student M:

Me as a (going to be) a design student, this project really helps me enjoy doing digital posters so much. I like it when the teacher uses art in their lesson. It really helps us the students become more active to use our creativity.

4.3.2 Results from the second question: How do activities in the digital poster project help you interact with classmates, the teacher, and the contents? Please explain.

The data gained from the reflection were analyzed using a thematic analysis by coding the data based on the themes: students' interactions with peers, the teacher, and content. The coding guidelines were described in Table 4 in Chapter 3. Any of the students' reflections contained key words or messages as described in the guidelines were coded and categorized into each aspect. The results of the analysis could be found with the following example excerpts.

Interaction with peers

The majority of students agreed that the activities conducted in class facilitated their interaction with peers, enabling them to exchange ideas and be open to opposing viewpoints. They also expressed enjoyment in providing feedback to other groups and receiving suggestions from their peers. Additionally, some students had the opportunity to seek assistance from their classmates while designing and editing the posters. Excerpts 14-17 feature the students' reflections.

Excerpt 14- Student I:

Since it's a group work that we need to interact with others more,
especially when it comes to working and brainstorming, doing the
activities allows me to enjoy learning the contents and asking questions
to my classmates and the teacher.

Excerpt 15- Student O:

The digital poster can help us interact with others by communicating
and designing what we have to do, and everyone has to agree. We
also had to present, which can improve speaking skills too.

Excerpt 16- Student P:

It [The multimodal project] helped me to communicate with friends a lot
especially group members because we had to discuss and create a
poster. Also, I had to listen to what they say carefully. Therefore, I can

know if we both understand in the same point, with teacher as well.

Excerpt 17- Student L:

Moreover, we talk to the other groups to gain more ideas and get better understandings of how to make posters which makes us stay in a better relationship.

Interaction with the teacher

Most students agreed that the activities helped them receive feedback from the teacher and develop a stronger rapport with the teacher through increased opportunities for conversation. Additionally, the teacher was able to provide helpful suggestions to enhance their poster. One student mentioned the need to pay close attention to the teacher during instruction due to the abundance of new and unfamiliar concepts. Relevant excerpts can be found in Excerpts 18-20.

Excerpt 18- Student O:

I could get interesting ideas from the teacher and the other group members.

Excerpt 19 - Student S:

It helped me by talking with friends about what should we write and ask teacher what we should improve in our work.

Excerpt 20 - Student T:

The feedback from the teacher and the classmates helped to improve my poster appropriately for the texts in the poster.

Interaction with the content

The students agreed that the activities helped them comprehend the components of the posters and grasp other relevant details. They also expressed enjoyment of the content and reported an improvement in their presentation skills. Several students mentioned the opportunity to conduct further research to gather information necessary for creating the posters. Furthermore, the activities aided them in selecting compelling content and enhancing the overall attractiveness of the posters. These perspectives are reflected in Excerpts 21-25.

Excerpt 21 - Student M:

Activities in making the poster made me think of a topic to present, how to design and ways to make it attractive and beautiful.

Excerpt 22- Student L:

Making posters is to make a piece of paper perfectly fit the content. Therefore, all members have to discuss how to arrange the texts, search for further information, and find ways for the best decorations by exchanging ideas.

Excerpt 23 - Student W:

We had to present our work and it could improve speaking skills too.

Excerpt 24- Student X:

To make a good poster, we had to know the knowledge about the topic, and we had to search for information about it to put in the poster.

Excerpt 25- Student S:

About the content, my friends and I had to choose which topic we want to do if it's too narrow or too broad. Moreover, I know deeper about the topic I chose to do.

In summary, the analysis of student reflections revealed a generally positive perception of the multimodal project activities. Students expressed their opinion that the project had a beneficial impact on their participation in the classroom, as well as on the development of their writing skills and creativity. Furthermore, the project offered opportunities for collaborative interaction and discussion among students, their peers, and the teacher, thereby facilitating a deeper understanding of the lesson content.

CHAPTER 5
CONCLUSION AND DISCUSSION

This chapter serves as the conclusion and discussion of the study. It begins by providing a summary of the study, which includes the objectives, methodology, and results. Following the summary, the chapter proceeds with a discussion of the research results, implications of the findings, limitations of the study, and recommendations for further studies.

Summary of the Research

This study investigated the use of a multimodal project in a Thai EFL writing class with three research objectives: 1) To examine the effects of a multimodal project on student behavioral engagement in the context of learning writing in a Thai EFL writing class, 2) To investigate the effects of a multimodal project on student behavioral engagement in different interaction aspects, including interactions with peers, the teacher, and the class content, during class, and 3) To explore students' opinions towards the use of a multimodal project in the writing class. There are three research questions:

1. How does a multimodal project impact student behavioral engagement in a Thai EFL writing class, considering overall engagement and interactions with peers, the teacher, and the content?

2. What are the effects of a multimodal project on student behavioral engagement during class, specifically in terms of interactions with peers, the teacher, and the content?

3. What are students' opinions on the use of a multimodal project in the writing class?

The study employed a quasi-experimental mixed method to investigate the use of a multimodal project in a writing class. The participants of the study included 35 students studying in English major at a demonstration school, Thailand. All participants were 11th grade students studying a writing course named Advanced Writing 4 in the

second semester of 2021 academic year. The purposive sampling was employed to select the participants. There were both quantitative and qualitative data. The quantitative data were collected using pre- and post-student engagement questionnaire and the classroom observation checklist. The qualitative data were obtained from employed the student reflection form. The data from the quantitative method were analyzed by using frequency, means, standard deviations, t-test, and Cohen's d value. The data from the qualitative method were analyzed by thematic analysis.

The results of the study indicated that applying a multimodal project in the Thai writing class increased students' behavioral engagement. The post-survey scores from the questionnaires increased (M = 3.92, SD = 0.77) while the pre-survey scores were lower (M =3.73, SD = 0.72).   When comparing the scores of both pre-survey and post-survey, it showed that there was a statistically significant difference (t = 3.48, p<0.05). The Cohen's effect size value (d = 0.59) suggests a moderate effect of the multimodal project on enhancing students' behavioral engagement.

When considering the students' behavioral engagement in terms of student's interactions with peers, the teacher, and the content using three instruments including the pre- and post-survey questionnaire, the classroom observation checklist, and the student reflection form, the results were as follows:

The survey questionnaires showed that the most significant difference was found in the interaction among peers which obtained the mean scores for the pre-survey 3.69 (SD = 0.69) and its post-survey was 3.9. (SD = 0.72), followed by the interaction aspect of students with the teacher which earned the mean score at 3.62 (SD = 0.79) for the pre-survey and 3.81 (SD = 0.84) for the post-survey. The least mean score was found in the interaction with content which gained the mean score 4.05 (SD = 0.92) for the pre-survey and 3.90 (SD = 0.84) for the post-survey.

In examining students' behavioral engagement within the classroom, including their interactions with peers, the teacher, and the content, a classroom observation checklist was employed. Throughout the observation period, the students' behavioral engagement checklist revealed that, on average, students displayed the

highest level of interaction with the content among the three aspects assessed. Mean scores, standard deviations, and percentages were considered to analyze the findings.

An examination of students' participation over the course of four weeks revealed a distinct pattern in average mean scores. Overall, the interactions varied from week to week, and the last week had the lowest recorded interactions across all three aspects. Significantly, the interaction between students and the content demonstrated the highest average mean score (M = 21.4, SD = 0.6, 43.75% of total engagement), indicating a substantial level of engagement. Close behind was students' interaction with their peers (M = 14.6, SD = 0.4, 30.41% of total engagement), which also exhibited notable participation. In contrast, the interaction between students and the teacher received the lowest mean score (M = 12.4, SD = 0.3, 25.84% of total engagement), suggesting comparatively lower levels of engagement.

The results of the student reflection form on the use of the multimodal project in the writing class revealed that the majority of students agreed that the project facilitated their learning in two main ways: by enhancing class participation and improving writing skills and creativity.

Regarding students' interaction with peers, the activities in class fostered idea exchange and acceptance of diverse viewpoints. Students provided feedback and received suggestions from their peers. Some students received assistance from classmates during poster design and editing.

In terms of interaction with the teacher, most students appreciated the feedback and developed a closer rapport. Engaging in conversations with the teacher provided valuable insights to enhance poster creations. Students recognized the importance of attentive listening due to new and complex concepts.

Concerning interaction with the content, students found the activities beneficial for understanding poster elements. They enjoyed exploring the content, enhancing presentation skills, and conducting additional research. The activities aided in selecting relevant and visually appealing content for the posters.

Discussion

This section is a discussion of the research results which are divided into three parts based on the three research questions.

Research Question 1: How does a multimodal project impact student behavioral engagement in a Thai EFL writing class, considering overall engagement and interactions with peers, the teacher, and the content?

The first research question aimed to examine the impact of a multimodal project on overall student behavioral engagement and engagement within the aspects of interactions with peers, the teacher, and the content in an EFL writing class. The findings indicated that the implementation of the multimodal project resulted in increased student engagement in general, as well as in all three interaction aspects. However, the effect size, as measured by Cohen's d, was determined to be moderate across the overall level of engagement and in the engagement of interactions with peers, the teacher, and the content. The moderate effect size observed in this study suggests that the multimodal project had a meaningful impact on student engagement, albeit not a substantial one. Students who participated in the project exhibited higher levels of engagement compared to their engagement before the project. This finding aligns with previous research highlighting the potential of multimodal projects in promoting student engagement, for example, the studies of, Hepple et al. (2014) Hung (2015), Prasetyawati and Ardi (2020), and Yeh and Mitric (2019). These studies incorporated in the writing class social media or digital tools as multimodal composition/projects which yielded a positive effect on student engagement.

While the effect size is not large, it is important to recognize the practical significance of the observed increase in student engagement. In educational settings, even moderate improvements in student engagement can have valuable implications. Increased engagement is associated with a range of positive outcomes, including enhanced motivation, satisfaction and decreasing student isolation in learning improved academic performance (Xie et al., 2021). Thus, the moderate effect size suggests that the implementation of multimodal projects could be a worthwhile strategy for educators

aiming to foster student engagement and can imply certain aspects of the multimodal project implementation in an EFL writing class.

One potential explanation for the study's findings is that multimodal projects possess the capacity to enhance student behavioral engagement in the writing process. In the teaching steps of the present study's multimodal project, students were asked to collaborate with others in various activities such as discussion, drafting, editing, designing, and presentations throughout the project. These activities allowed them to become familiar with the writing process, create the writing project, and perform their roles as required at each step of learning, which helped enhance class participation. This aspect is also reflected in the study of Prasetyawati and Ardi (2020), which revealed that multimodal compositions could promote student engagement in terms of their involvement in the writing process. As a result, the more engaged students are in assigned work, the better they perform academically (Corso et al., 2013).

The findings also indicated that the implementation of a multimodal project in the writing class resulted in the highest increase in engagement in interactions with peers, followed by interactions with the teacher and the content. This suggests that incorporating multimodal projects into the classroom can create a new learning environment that effectively promotes collaboration and communication among students, fostering an engaging and interactive space. These findings align with the perspective put forth by Jiang and Luk (2016) who highlight the potential of multimodal projects in cultivating a conducive learning environment. In the present study, students were required to work collaboratively with their group members to create a digital poster that catered to their intended audience and purpose. They also engaged in discussions with their group members to reach a consensus, departing from their previous individual work on assignments. This new environment appears to function as a zone of proximal development (ZPD), as proposed by Vygotsky and Cole (1978). It provides students with an opportunity to collaborate and progress together in their learning journey. According to Vygotsky's sociocultural constructivism, social experiences play a significant role in

influencing the development of individual knowledge. Thus, the multimodal project has the potential to cultivate a learning environment that supports these social experiences.

Similarly, the interaction with the teacher demonstrated a significant increase in student engagement. This finding suggests that the multimodal project had a positive impact on student-teacher interactions, potentially resulting in improved guidance, feedback, and support from the teacher. As a result, this fostered greater student engagement and active participation. It is worth noting that teachers also benefit from this aspect of engagement. As highlighted by Covell et al. (2009), when students actively engage in the classroom, teachers are more inclined to enjoy the teaching experience and invest their time and efforts into it.

However, it is important to note that the increase in student behavioral engagement with the content was relatively smaller compared to interactions with peers and the teacher. According to the findings, the level of student behavioral engagement in the interaction with the content demonstrated the lowest increase among the three interaction aspects. This observation could potentially be explained by the fact that students were already attentive to the content of the study prior to the implementation of the multimodal project.

Nonetheless, the project successfully captured the attention of the students, including those who were already attentive. This finding aligns with the observation made by Van Donge (2018) that students can establish meaningful connections between their classroom activities, leading to a more authentic learning experience.

Research Question 2: What are the effects of a multimodal project on student behavioral engagement during class, specifically in terms of interactions with peers, the teacher, and the content?

The second research question aimed to assess the influence of a multimodal project on student behavioral engagement in the classroom, with a specific focus on interactions with peers, the teacher, and the content. The findings obtained from the classroom observation checklist indicated that student interaction with peers, the teacher, and the content varied from week to week, with the lowest interactions in all

three aspects occurring in the last week. However, over the four-week observation period, students consistently exhibited a higher level of engagement with the content compared to the other two aspects of interaction. Their highest level of engagement was observed in interactions with the content, followed by interactions with peers, and finally, interactions with the teacher. These observation results appear to align with the findings from the student self-assessment questionnaire. The questionnaire indicated that the highest mean score for interaction with the content was consistently observed in both the pre-survey and post-survey, with a slight increase in student behavioral engagement.

The observation results can be potentially attributed to the lesson plans and steps of the multimodal project. In this study, the multimodal project was implemented using lesson plans adapted from the model for teaching MMCs proposed by Arola et al. (2013). It offered various activities at each step of the project, fostering different aspects of interactions. Among the three aspects of interaction, the interaction with the content was observed the most frequently, surpassing the interactions with peers and the teacher. This is understandable, as content interaction tends to be more prevalent in classroom settings, since it forms the essence of education (Moore, 1993). The engaging activities that facilitated students' interaction with the content included taking notes, presenting the project, seeking additional information, and reading teaching materials, which were incorporated into step of the multimodal project. These behaviors were more commonly observed in class compared to interactions with peers and the teacher. This suggests that students were attentive to the class content and actively participating in the learning activities.

To provide further clarification, the weekly lesson plans incorporated steps that encouraged collaborative work among students and facilitated interaction with each aspect. Certain activities within the project prompted students to conduct detailed research in order to create visually appealing posters for their audience. Additionally, since the students had not previously engaged in a writing project of this nature, certain lesson content helped them maintain focus and concentration. They were also required

to reflect on the content covered in each class. For instance, during class presentations by their peers, students were expected to actively listen and provide constructive feedback. Offering effective feedback necessitated a comprehensive understanding of the presented project, underscoring the importance of paying attention to the class content. As a result, this engagement is likely to foster students' confidence in presenting their project plans and sharing ideas with others. As noted by Gallup (2013), when students are actively engaged in their lessons, their self-esteem tends to increase.

Students may not interact with their peers as frequently as they do with the content, as they have the opportunity to engage with their group members outside of class to continue working on the project. Furthermore, the findings indicated that interaction with the teacher was the least prevalent among the three aspects. This finding is not surprising, given that the multimodal project emphasizes active learning. As suggested by Doumanis et al. (2019), multimodal projects utilizing digital technology can create an interactive learning environment. Moreover, as highlighted by Barkley and Major (2020) interaction through active learning can promote sustained student engagement. Consequently, students in the multimodal project were likely to take an active role in their learning process. This shift in the classroom dynamic reduced the teacher's involvement, resulting in lower interaction between students and the teacher compared to their interactions with the content and peers.

Research Question 3: What are students' opinions on the use of a multimodal project in the writing class?

From the analysis of the students' reflections, it was found that the students agreed that implementing the project in the classroom helped enhance their class participation, creativity, and writing skills. Additionally, the students expressed that working on the project provided them with opportunities to interact with their peers, the teacher, and the content. These results can be explained as follows.

First, students believed that creating a multimodal project in the form of a digital poster could enhance their class participation and foster their creativity, as indicated by the results of student reflection forms. This perception may stem from the nature of multimodal projects, which involve the use of various modes such as texts,

images, gestures, or audios to construct meaning (Jewitt & Kress, 2010). Ultimately, students realized how their projects could be applicable in their daily lives as they published their work with an authentic purpose. Additionally, the incorporation of computer programs like Canva and PowerPoint, which might be new to students, could contribute to increased engagement in the lesson (Wolf et al., 2015). Consequently, students could demonstrate creativity by utilizing different functions and design knowledge acquired in class while working with these programs. This aligns with Bozarth (2010) observation that creating a digital poster serves as a fun and innovative tool that fosters a more engaging learning environment compared to traditional lectures.

The students' reflections on the multimodal project also revealed that they perceived it as enhancing their writing skills, specifically in the context of designing digital posters. However, their focus was more on the visual and design aspects rather than linguistic or language proficiency. For instance, the project allowed them to use concise language and consider the rhetorical situation. This observation can be attributed to the nature of the multimodal project, which originated in Western culture. Its primary objective is to teach writing skills to native language (L1) learners rather than specifically improving the language proficiency of English as a Foreign Language (EFL) learners.

Furthermore, the findings from students' reflections on the multimodal project highlight the positive impact of the project on students' engagement with peers, the teacher, and the course content. Interactions with peers fostered idea exchange and acceptance of diverse viewpoints, aligning with collaborative learning principles (Slavin, 2014). Students appreciated the feedback and rapport developed through interactions with the teacher, enhancing their poster creations. This reflects the importance of feedback in the learning environment (Hattie & Timperley, 2007). Engaging with the content facilitated understanding, selection of relevant information, and improved presentation skills, reflecting active learning practices (Prince, 2004). Overall, the findings suggest that the multimodal project effectively promotes student engagement through these interactions, creating a collaborative and supportive learning environment.

Implications of the Research Findings

The findings of this research contribute to the understanding of the benefits of multimodal projects in promoting student engagement and interaction in the context of EFL writing classes. The results suggest that educators can effectively utilize multimodal strategies to foster collaborative interactions, facilitate meaningful engagement with content, and strengthen student-teacher relationships. By implementing multimodal projects, educators can create an engaging and interactive learning environment that promotes active participation and enhances the overall learning experience for Thai EFL students.

This study also provides pedagogical implications for teaching writing in Thailand in various aspects. Firstly, in a writing class where students lack behavioral engagement and feel isolated while studying the subject, the multimodal project has the potential to support students' interaction with their peers and enhance peer collaborations. Creating a class environment that is meaningful and comfortable among peers can contribute to a better learning atmosphere, ultimately leading to improved learning outcomes. Secondly, teaching writing with a focus on individual work may cause students to become bored and struggle with writing alone. Therefore, if possible, teachers can employ multimodal projects in the class to help students become more engaged with the lessons. This new method would also create a learning environment that integrates technological tools, which can enhance students' excitement. Lastly, the incorporation of the multimodal project has shown potential in enhancing students' creativity and fostering collaborative work. However, it is important to note that, based on the findings, the project may not prioritize the linguistic aspect of writing proficiency significantly. Therefore, teachers should carefully consider this aspect when making decisions about integrating the project into their writing classrooms. It is essential to strike a balance between promoting creativity and collaboration while also providing explicit instruction and targeted practice to develop students' writing skills effectively. By taking this into consideration, educators can make informed decisions that align with their instructional goals and ensure a comprehensive approach to writing instruction.

Limitations of the Study

Although this study effectively implemented a multimodal project to enhance students' behavioral engagement in an EFL writing class, there are certain limitations that should be acknowledged. Firstly, the study was conducted with a specific group of participants consisting of 35 students enrolled in the Advanced Reading and Writing 4 class. Therefore, caution should be exercised when generalizing the findings to other student populations. Additionally, it is important to note that the results of student behavioral engagement in this study are based on the short-term effects observed from the implementation of the digital poster project. While the findings provide valuable insights into the immediate impact of the project on student engagement in the specific context of the Advanced Reading and Writing 4 class, caution should be exercised when generalizing these results to other EFL writing classes or educational settings. Lastly, it is worth mentioning that this study focused specifically on the use of digital posters as a form of multimodal project. This choice was made based on the availability of appropriate computer programs and the relevance of the content being studied during the research period.

Recommendations for Further Studies

Here are some recommendations for further studies related to the use of multimodal projects in the writing class: Firstly, the study included 35 participants who were English-major students with an acceptable English background but no prior experience with multimodal projects. It would be beneficial to conduct research on the use of multimodal projects with non-English-major students to explore different aspects of the research results that could contribute to teaching English. Moreover, in this study, the focus was on behavioral engagement to examine the effects of multimodal projects. It is highly recommended to conduct studies that examine other aspects of student engagement, such as affective or cognitive engagement, to gain a more comprehensive understanding. Additionally, this study solely focused on the use of multimodal projects and its impact on students' behavioral engagement. To gain a broader perspective, conducting a comparative study between the use of process writing or other teaching

approaches and multimodal projects may reveal new insights for teaching writing. Furthermore, the specific characteristics of multimodal projects, including the choice of modalities and instructional design, could have influenced the extent of their impact on student behavioral engagement. Further investigation into the optimal combination of modalities and instructional strategies would be valuable in enhancing the effectiveness of multimodal projects in promoting student engagement. Future studies should also continue to explore the factors that influence the effectiveness of multimodal projects and investigate their long-term effects on student engagement and academic outcomes.

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APPENDICES

Appendix A

Research Instruments

Lesson Plans

Lesson Plan Week 1

Unit 5: Opinion paragraphs   **Class**: Grade 11th English Major

Course: EN 32210   **Time**: 120 minutes

Lesson Topic: Let's make a poster!

Learning objectives:

After learning this lesson, students will be able to:

- analyze the rhetorical situations and modes of communication.

- give reasons for choosing a model poster.

Learning contents:

-Writing focus:

Rhetorical situation analysis

Learning concept

Learning English for communication through a writing project is crucial. It can be employed to express ideas and thoughts through words and sentences and presented in a form of a writing task. By discussing in groups about rhetorical situations of authentic materials and presenting it to the class, students will gain benefits for learning English in a more advanced level and improves students' communicative ability through writing.

Learning activities

Steps	Learning Activities	Teaching materials	Evaluation
Step 1: Understanding and Analyzing the Multimodal Project	1.Teacher asks students about the environment and pollutions they can see in the city. Teacher and students discuss them together. 2. Teacher has students read a passage about environmental problems and list the problems as well as suggestions from the passage. 3. Teacher asks students what people can do to help raise more environmental awareness and discuss whether which opinion is agreed by most of the students. 4. Teacher shows students a few example posters and has them identify what are in the posters they can see. 5. Students analyze the posters by discussing them in group of 4-5 people and complete the worksheet about group's poster analysis. Then students present their analysis to the class.	-Passage -Example posters - Worksheet -PowerPoint Presentation	-Check Ss's answers -Answers in the exercises -Students' presentations

Steps	Learning Activities	Teaching materials	Evaluation
	6. Teacher explains modes of communications and the students analyze modes of communication in more provided posters. Then teacher asks students to compare their answers If students have questions, the teacher will clarify them. 7. Teacher explains rhetorical situations including audience, purposes, and context, and students analyze the posters by identifying the purposes and the audience of each poster. After that, each group presents their analysis. 9. Students discuss in group to determine their purpose and audience and choose their own model poster with reasons why they choose this model. 10. Students present their model to the class.		

Lesson Plan Week 2

Unit 5: Opinion paragraphs   **Class**: Grade 11th English Major

Course: EN 32210   **Time**: 120 minutes

Lesson Topic: Making a poster

Learning objectives:

> After learning this lesson, students will be able to:

> > - design posters based on rhetorical situations and a chosen model.

Learning contents

-Writing focus:

> -outlining and designing

Learning concept

> Learning English for communication through designing a writing product suitable for particular audience and purposes benefits learning to write in English. It can also help build a firm foundation for a more advanced level and improves students' communicative ability through writing and other skills.

Learning activities

Steps	Learning activities	Teaching materials	Evaluation
Step 2: Assembling Technologies and Designing	1.Teacher asks students if they have known any programs they can create posters with and discuss it. If some of the students have experienced any programs, ask them to share their experiences of the programs they have	-PowerPoint presentation -Programs for making posters	-Check Ss's answers
Steps	Learning activities	Teaching materials	Evaluation

	used to the class.		
	2. Teacher shows students available programs that they can make a poster with.		
	3.Teacher teaches students how they can design their posters using different modes of communication and design principles.		
	4. Teacher explains what students have to put in their design proposal and asks students to discuss in group to prepare for their poster design proposal.		
	5. Students present their proposal. Teacher may give suggestions if necessary for improving their work.		
	6. Students edit their proposal.		
	7. Students work in group to design their writing task.		
	8. Students present their work to the class. Teacher as well as peers may give feedbacks for improvement.		
	9. Teacher reviews what has been learned today and asks if students have any questions.		

Lesson Plan Week 3

Unit 5: Opinion paragraphs   **Class**: Grade 11th English Major

Course: EN 32210   **Time**: 120 minutes

Lesson Topic: Let's Put It Together

Learning objectives:

      After learning this lesson, students will be able to:

         - make a digital poster based on rhetorical situations.

Learning contents

-Writing focus:

      -drafting and Revising

Learning concept

      Learning English writing through drafting a writing product suitable for the rhetorical situations using an available computer program benefits learning to write in English. Moreover, students' revision of the draft using peer assessment and self-assessment will be help them gain a better understanding which helps improve their work. It can also help build a firm foundation for a more advanced level and increases students' communicative ability through writing and other skills.

Learning activities

Steps	Learning activities	Teaching materials	Evaluation
Step 3: Drafting and Revising	1. Teacher reviews the concepts of modes of communication by showing students posters and ask	PowerPoint presentation -Programs for making	-Check Ss's answers

Steps	Learning activities	Teaching materials	Evaluation
Step 3: Drafting and Revising	them to answer the questions using Kahoot!. 2. Teacher explains what students have to do in this class and asks if they have any questions before starting working. 3. Students spend 40 minutes working on their digital posters while the teacher goes around the class to give advice and clarification in case that students need it. 4. Students do self-assessment after they finish the draft using a self- assessment form. 5. Students present their work to the class and each group gives feedback to each other using a peer-assessment form. 6. Students give the peer-assessment form they have made for each group. If any groups have a question, they need to clarify each other. 7. Teacher gives feedbacks to each group so that students can take them to improve their work.	posters -Self-assessment form -Peer-assessment forms	

Steps	Learning activities	Teaching materials	Evaluation
Step 3: Drafting and Revising	8. Teacher wraps up the lessons the students have learned today and randomly chooses some students to express their feelings or opinions towards giving and receiving feedbacks from peers. 9. Teacher asks if students have any questions to be explained.		

Lesson Plan Week 4

Unit 5: Opinion paragraphs   **Class**: Grade 11th English Major

Course: EN 32210   **Time**: 120 minutes

Lesson Topic: Putting the Project to Work and Reflecting on the Project

Learning objectives:

After learning this lesson, students will be able to:

- do a presentation for their work.

- publish their work to the community which is suitable for their work.

- reflect on how they work on the project.

Learning contents

-Writing focus:

- publishing and reflecting on the project

Learning concept

Learning English writing through presenting a writing product as well as publishing the work according to the rhetorical situations benefits students in learning writing in terms of the value of the work they have done and realization of how the work authentically functions. It can also help build a firm foundation for a more advanced level and increases students' communicative ability through writing and other skills.

Learning activities

Steps	Learning activities	Teaching materials	Evaluation
Step 4: Putting the Project to Work and Reflecting on the Project	1. Teacher informs students that they need to publish their work. 2. Students publish their work in two versions: printed and online posters. The printed version will be published on school's notice boards around school which will be done during the class. The online posters will be posted on school's monthly electronic journals. 3. When students get back to the class again, teacher asks students to reflect on the problems they have encountered during the process of making the project and how they have overcome them, and students' suggestions for improving the implementation of the project in the future. 4. Teacher concludes what students have done throughout the project and gives overall comments about making project.	- PowerPoint presentation	Criteria for assessing students' work

Appendix B

Research Instruments

Pre-Post Survey Questionnaire

Student Behavioral Engagement Questionnaire

The questionnaire is used to explore your behaviors in the writing class before and after making the digital poster. It contains 19 questions. You can freely express your ideas because there will be nothing influencing your grade results of the subject. Your participation is voluntary. If there are items you do not feel comfortable answering, please skip them.

Directions: Choose how well the following behaviors describe you by marking (✔) in the scale.

Behavioral statements	(5) Very really characteristic of me	(4) Really characteristic of me	(3) Moderately characteristic of me	(2) Not really characteristic of me	(1) Not at all characteristic of me
1. I actively participated in-class discussion about making a digital poster with my classmates.					
2. I led a discussion when discussing with the group.					
3. I contributed ideas about environmental problems and solutions to the group.					
4. I could state and defend my ideas about making poster to my group.					
5. I actively helped others in the group to make the digital poster.					

6. I comfortably asked my classmates questions when I did not understand lessons.				
7. I comfortably explained about making poster to the group.				
8. I gave my classmates' feedback on their digital posters.				
9. I received feedback on making poster from my classmates.				
10. I asked the teacher when I did not understand the lessons.				
11. My teacher gave me both oral and written feedback on our digital poster.				
12. I answered the teacher's questions while learning.				
13. I did not answer the teacher's questions.				
14. I took notes while learning.				
15. I wrote up the content in the digital poster.				
16. I read the information about modes of communication, rhetorical situations, elements of design and poster making provided in the class materials.				
17. I used the Internet sources to find information for making the digital poster.				
18. I took part in the presentation about making posters.				
19. I designed the digital poster using modes of communication, rhetorical situations, and elements of design.				

แบบสอบถามการมีส่วนร่วมเชิงพฤติกรรมในชั้นเรียน

แบบสอบถามนี้จัดทำขึ้นเพื่อสำรวจพฤติกรรมการมีส่วนร่วมในชั้นเรียนการเขียนก่อนและการทำ
หลังการใช้ดิจิทัลโปสเตอร์ แบบสอบถามนี้ประกอบด้วย 19 คำถาม ผู้ตอบแบบสอบถามสามารถ
แสดงความคิดเห็นได้อย่างอิสระ โดยไม่มีผลกระทบต่อผลการเรียนหรือคะแนนในรายวิชาการ
เขียน   อนึ่ง ถ้าหากมีข้อความใดที่ผู้ตอบไม่ประสงค์ให้ข้อมูล ผู้ตอบสามารถเว้นข้อดังกล่าวได้

คำชี้แจง: เลือกระดับที่ตรงกับพฤติกรรมท่านมากที่สุด

พฤติกรรมการมีส่วนร่วม	(5) ฉันมีพฤติกรรมนี้มากที่สุด	(4) ฉันมีพฤติกรรมนี้มาก	(3) ฉันมีพฤติกรรมนี้ในระดับปานกลาง	(2) ฉันไม่มีพฤติกรรมนี้มาก	(1) ฉันไม่มีพฤติกรรมนี้เลย
1. ฉันอภิปรายเกี่ยวกับการทำดิจิทัลโปสเตอร์กับเพื่อนร่วมชั้นด้วยความกระตือรือร้น					
2. ฉันเป็นผู้นำการอภิปรายเมื่อมีการอภิปรายร่วมกับสมาชิกในกลุ่ม					
3. ฉันร่วมเสนอความคิดเห็นเกี่ยวกับปัญหาสิ่งแวดล้อมและการแก้ไขต่อกลุ่ม					
4. ฉันสามารถแสดงความเห็นและโต้แย้งเกี่ยวกับการทำดิจิทัลโปสเตอร์กับสมาชิกในกลุ่มได้					
5. ฉันช่วยสมาชิกคนอื่นๆในกลุ่มทำดิจิทัลโปสเตอร์ด้วยความกระตือรือร้น					
6. ฉันถามคำถามเพื่อนร่วมชั้นเมื่อไม่เข้าใจบทเรียนด้วยความสบายใจ					

7. ฉันอธิบายเกี่ยวกับการทำดิจิทัลโปสเตอร์ให้กับกลุ่มด้วยความสบายใจ				
8. ฉันให้ข้อเสนอแนะกับเพื่อนร่วมชั้นในการทำดิจิทัลโปสเตอร์				
9. ฉันได้ข้อเสนอแนะเกี่ยวกับการทำโปสเตอร์จากเพื่อนร่วมชั้น				
10. ฉันถามครูเมื่อไม่เข้าใจบทเรียน				
11. ครูให้คำแนะนำเกี่ยวกับการทำดิจิทัลโปสเตอร์ทั้งผ่านทางการพูดและการเขียน				
12. ฉันตอบคำถามครูขณะเรียน				
13. ฉันไม่ตอบคำถามครูขณะเรียน				
14. ฉันจดบันทึกขณะเรียน				
15. ฉันเขียนเนื้อหาในดิจิทัลโปสเตอร์				
16. ฉันอ่านข้อมูลเกี่ยวกับ modes of communication, rhetorical situations, องค์ประกอบการออกแบบ และการทำโปสเตอร์ในสื่อการสอน				
17. ฉันใช้แหล่งต่างๆในอินเตอร์เน็ตเพื่อหาข้อมูลเกี่ยวกับการทำดิจิทัลโปสเตอร์				
18. ฉันร่วมนำเสนองานเกี่ยวกับการทำดิจิทัลโปสเตอร์				
19. ฉันออกแบบดิจิทัลโปสเตอร์โดยใช้ modes of communication, rhetorical situations and องค์ประกอบการออกแบบ				

Appendix C

Research Instruments

Classroom Observation Checklist
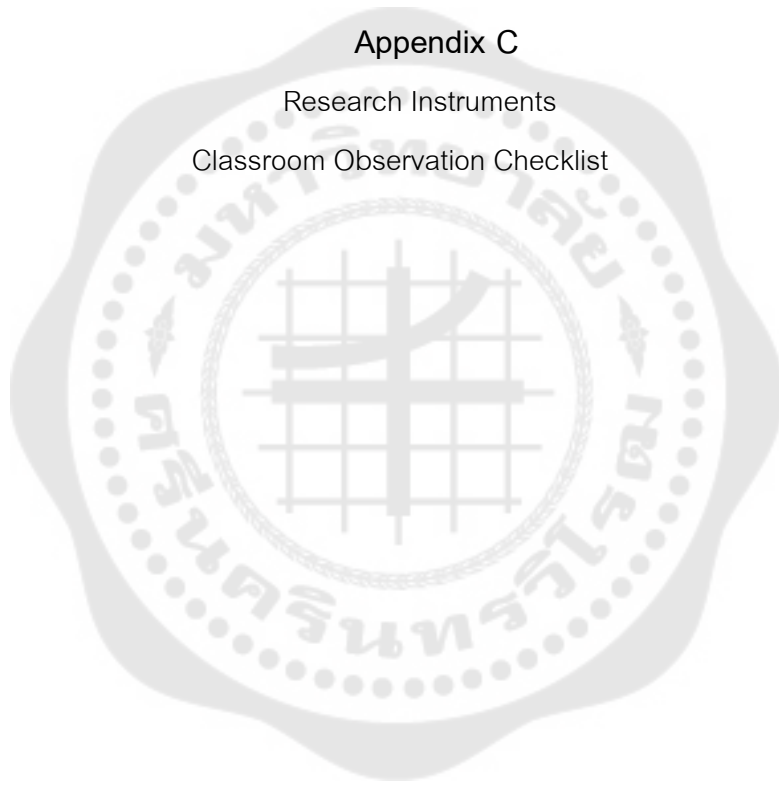
Classroom Behavioral Engagement Observation Checklist

Name of the rater: _____Number: _____

Directions: Write the number of students participating in each activity.

Interaction Aspects	Behaviors	Numbers of Students	Total
Peers	1. Students actively participate in -class discussion with their peers.		
	2. Students actively collaborate with other classmates to do tasks.		
	3. Students contribute ideas to their groups.		
	4. Students actively give feedbacks to each other's work.		
The teacher	5. Students ask the teacher questions about the lessons.		
	6. Students answer the teacher's questions about the lessons.		
	7. Students follow the teacher's directions to do tasks.		
Contents	8. Students take notes while learning.		
	9. Students read the information provided in the class materials.		
	10. Students actively pay attention to lecture contents.		
Total			

รายการการสังเกตพฤติกรรมการมีส่วนร่วมในชั้นเรียน

ผู้สังเกต: _____ ครั้งที่ : _____

คำชี้แจง: ระบุจำนวนนักเรียนที่ร่วมมือในแต่ละกิจกรรม

ประเภทของปฏิสัมพันธ์	พฤติกรรม	จำนวนนักเรียน	รวม
เพื่อน	1. นักเรียนให้ความร่วมมือในการอภิปรายในชั้นเรียนกับเพื่อนร่วมชั้น		
	2. นักเรียนทำงานร่วมกันกับเพื่อนร่วมชั้นอย่างกระตือรือร้น		
	3. นักเรียนแสดงความคิดเห็นร่วมกับเพื่อนขณะทำกิจกรรมกลุ่ม		
	4. นักเรียนให้ผลสะท้อนกับผลงานของเพื่อนด้วยความกระตือรือร้น		
ครูผู้สอน	5. นักเรียนถามคำถามครูเกี่ยวกับบทเรียน		
	6. นักเรียนตอบคำถามครูเกี่ยวกับบทเรียน		
	7. นักเรียนปฏิบัติตามคำแนะนำของครูในการทำชิ้นงาน		
บทเรียน	8. นักเรียนจดบันทึกขณะเรียน		
	9. นักเรียนอ่านข้อมูลที่มีในเอกสารการเรียน		
	10. นักเรียนให้ความสนใจต่อเนื้อหาของบทเรียน		
รวม			

Appendix D

Research Instruments

Student Reflection Form
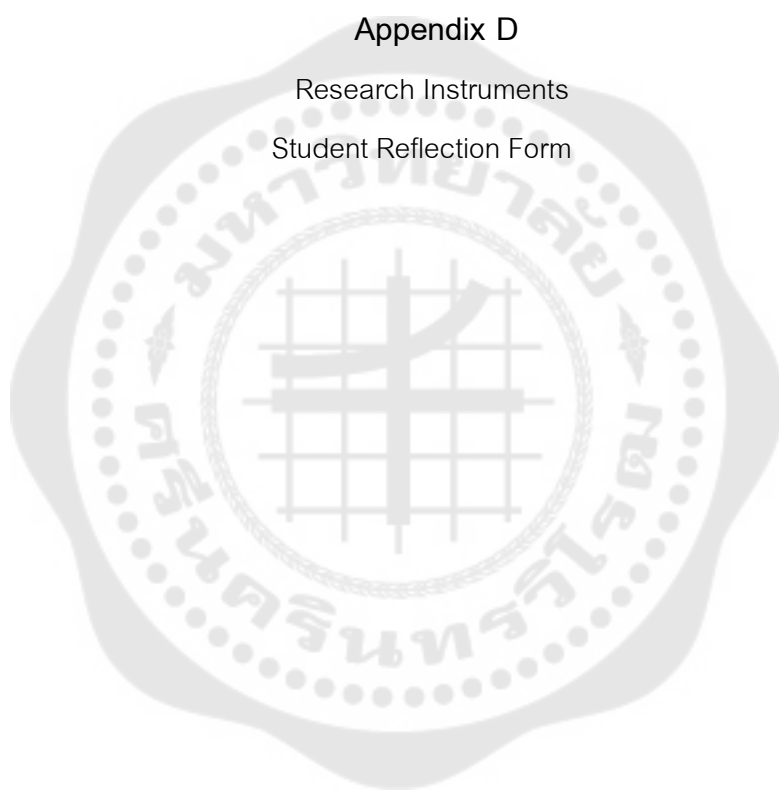
Students' Reflection Form

The reflection form is used to explore your ideas after making the digital poster. It contains two questions. You can freely express your ideas because there will be nothing influencing your grade results of the subject. Your participation is voluntary. If there are items you do not feel comfortable answering, please skip them.

Directions: Kindly write your opinions on these following questions.

1. How does making a digital poster help you participate in the writing class?

_____

_____

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_____

2. How do activities in the digital poster project help you interact with classmates, the teacher, and the contents? Please explain.

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แบบสะท้อนคิดของนักเรียน

แบบสะท้อนคิดนี้จัดทำขึ้นเพื่อสำรวจความคิดเห็นของนักเรียนหลังการใช้ดิจิทัลโปสเตอร์ในชั้น
เรียนเขียน แบบสะท้อนคิดนี้ประกอบด้วย 2 คำถาม ผู้ตอบแบบสอบถามสามารถแสดงความ
คิดเห็นได้อย่างอิสระ โดยไม่มีผลกระทบต่อใดๆต่อผลการเรียนหรือคะแนนในรายวิชาการเขียน
อนึ่ง ถ้าหากมีข้อความใดที่ผู้ตอบไม่ประสงค์ให้ข้อมูล ผู้ตอบสามารถเว้นข้อดังกล่าวได้

คำชี้แจง: โปรดแสดงความคิดเห็นของนักเรียนจากคำถามต่อไปนี้

1. การทำดิจิทัลโปสเตอร์ช่วยส่งเสริมนักเรียนให้มีส่วนร่วมในชั้นเรียนการเขียนอย่างไรบ้าง

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2. กิจกรรมในการทำโปรเจคดิจิทัลโปสเตอร์ช่วยให้นักเรียนมีปฏิสัมพันธ์กับเพื่อน, ครูผู้สอน และ
บทเรียนอย่างไรบ้าง

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VITA

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