



Unlocking Student Behavioral Engagement in a Thai EFL Writing Class with a Multimodal Project Approach: Students' Perspectives

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ABSTRACT

The effects, from a students' perspective, of implementing a multimodal project in a Thai EFL writing class were studied. The research objectives included: 1) examining the effects of the multimodal project on student behavioral engagement, both overall engagement and various interactions, including with peers, the teacher, and the course content, and 2) exploring students' opinions on the use of a multimodal project in the 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 comprised a pre-post student behavioral engagement questionnaire to gauge changes in engagement, as perceived by the students themselves, and a student reflection form to gather qualitative insights from the students regarding their experiences. Quantitative data underwent analysis using descriptive statistics and *t*-tests, while qualitative data were thematically analyzed. The study revealed a significant increase in overall student behavioral engagement. When examining

	<p>student behavioral engagement in terms of interactions, the results showed the greatest difference in peer interactions, followed by interactions with the teacher, and then the content. Results from the students' reflections showed positive perceptions towards the utilization of the multimodal project in the writing class. The findings of this study also have implications for teaching writing in EFL contexts.</p> <p>Keywords: multimodal project, student behavioral engagement, student interactions, EFL writing</p>
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Introduction

Throughout history, the journey of learning to write has consistently presented a significant hurdle for EFL students. Writing has been acknowledged widely as a complex skill, demanding committed practice throughout the writing process (Hyland, 2019). Writing assignments also frequently turn monotonous and fail to offer enjoyment for many students (Amogne, 2013). This, as a result, can create a challenge in maintaining student engagement. The challenge is compounded by the need for a range of skills to nurture a passion for writing (Erkan & Bengü, 2019).

Student engagement denotes the extent to which students actively participate in, express interest in, and establish connections with their learning, peers, and educational institution (Axelson & Flick, 2010). As outlined by Fredricks, et al. (2004), it comprises three dimensions: behavioral, affective, and cognitive engagement. Behavioral engagement refers to students' active involvement in both academic and social activities within the school setting. This includes behaviors such as concentration, attention, persistence, effort, active questioning, and participation in various school-related activities. Emotional engagement addresses students' attitudes, values, and interests, specifically in how they interact with external factors beyond the learning process. Cognitive engagement entails students' investment in learning, motivation, self-regulated learning, metacognition, and the use of effective learning strategies.

Behavioral engagement is particularly noticeable and stands out as one of the extensively studied dimensions of student engagement (Gladstone, et al., 2022). The measurement of this dimension is more straightforward because behavioral patterns can be defined, observed, and interpreted (Liu, et al., 2015). Behavioral engagement is also a crucial step in the learning process in foreign language learning because behavior is proposed as the catalyst for other engagement aspects (Oga-Baldwin, 2019).

According to Cooper, et al. (2014), behavioral engagement is evident through students' active participation in classroom activities, including interactions with peers, instructors, and the course content. These classroom interactions benefit classroom learning in many ways. For instance, the interaction between students and their peers fosters a positive interpersonal climate in the classroom (Davis & McPartland, 2012). Additionally, the interaction between students and the teacher tends to create a strong teacher-student relationship within the classroom (Cooper, et al., 2014). Lastly, students' interaction with the content may result in a better understanding of the lessons and benefit students' cognitive structures (Moore, 1993).

In Thai EFL contexts, student engagement can be viewed as a significant challenge. Students in Thailand tend to perform less effectively than those in neighboring countries, mainly due to classroom disengagement (Khun-Inkeeree, et al., 2021). This challenge can be obviously seen in writing classes, where students find learning writing boring and teacher-centered, resulting in reduced interaction with both teachers and peers (Stone, 2017). Even with the effects of globalization on daily life, writing instruction in Thailand continues to emphasize grammatical accuracy instead of integrating engaging, technology-driven writing tasks, such as texting, blogging, or online communication (Stone, 2017). This reluctance to embrace modern writing approaches is particularly noticeable at the high school level, where students often shy away from writing due to a perceived lack of direction (Nopmanotham, 2016). In her research, Juiboonmee (2023) found that, in addition to facing challenges with vocabulary and syntax, students also lacked the motivation to stay engaged during the teaching process, and they preferred writing tasks that directly connected to their real-life experiences. Addressing this challenge involves adopting teaching methods that cater to student needs and encouraging their active and positive participation in the learning process (Pratumtong, et al., 2021).

Several strategies can boost student engagement in writing. One particularly effective method is to incorporate technology and collaborative elements, such as the integration of multimodal projects (Yeh & Mitric, 2019). Multimodal projects involve utilizing multiple modes of communication, whether linguistic, visual, auditory, gestural, or spatial, to construct and convey meaning (Jewitt, 2012). They can take diverse forms, such as infographics, posters, or videos, allowing students to create meaning through design (Selfe & Selfe, 2008). By employing various modes of representation, students engage in the design process to convey their intended meaning effectively (Kern, 2000).

Integrating multimodal projects into writing instruction offers numerous benefits. Firstly, multimodal projects increase student involvement in the learning process and enhance collaboration and interaction among

students (Prasetyawati & Ardi, 2020). Moreover, they enable students to engage in meaningful real-world tasks and promote 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 & Begga-Gupta, 2015). Given these advantages, multiple studies (e.g., Hepple, et al., 2014; Hyland, 2007; Prasetyawati & Ardi, 2020) have investigated the application of multimodal projects for improving student engagement in writing classes. However, these studies primarily focused on how learners developed engagement with multimodal projects in general. Further study specifically of the effects of multimodal projects on behavioral engagement when teaching EFL writing, by considering EFL students' interactions with peers, teachers, and the content throughout the project activities, would give a better understanding of students' behaviors. Hence, this study aims to examine the effects of a multimodal project on student behavioral engagement in a Thai EFL writing class. It specifically centers on the perceived effects of multimodal projects on student behavioral engagement. This investigation encompasses an overall assessment, as well as a focus on various aspects of interaction, including peer interactions, teacher interactions, and engagement with the class content. Furthermore, the study seeks to explore students' perspectives on the utilization of multimodal projects. Thus, the research questions of this study are as follows:

RQ1: How does a multimodal project affect student behavioral engagement in a Thai EFL writing class?

1.1 What are the effects of the multimodal project on overall student behavioral engagement?

1.2 What are the effects of the multimodal project on student behavioral engagement in different interaction aspects, including interactions with peers, the teacher, and the class content?

RQ2: What are students' opinions on the use of a multimodal project in the writing class?

Literature Review

Multimodal Projects

A multimodal project constitutes a type of writing task that incorporates the principles of multimodal compositions (MMCs). As defined by Kress (2003), MMCs involve written texts that utilize not only words, but also various other modes to effectively convey meanings. The New London Group (1996) proposed that constructing meaning encompasses multiple

communication modes, including linguistic, visual, auditory, gestural, and spatial elements. More broadly, Jewitt (2009) underscores the role of modes of communication as a collection of semiotic resources that develop through the cultural and social interactions of individuals in their daily lives.

In educational contexts, multimodal projects can be implemented in various ways. For example, as noted by Selfe and Selfe (2008), diverse assignments can serve as avenues for creating multimodal projects, including podcasts, collages, videos, blogs, audio essays, comic strips, posters, and digital storytelling. Multimodal projects can also be produced using computer programs, such as Canva, which was found to have a positive effect on students' motivation and improved their writing ability (Utami & Djamdjuri, 2021). In 2020, due to the government's COVID lockdowns, the move to online education forced students and teachers to use digital platforms. This shift opened up opportunities for broader audience interaction, especially with online publishing or writing (Stewart, 2023). In addition to writing tasks, Bateman, et al. (2002) also highlight the significance of cultivating an active educational environment that nurtures collaborative work among students, throughout the learning process, to successfully implement multimodal projects.

How a Multimodal Project Works

To successfully implement multimodal projects in a writing class, Arola et al. (2014) recommend a step-by-step approach. Firstly, familiarize students with various multimodal project types by asking them to analyze the project's audience, purpose, and contexts. Students, collaborating with their teams, then select a project genre and their preferred computer program. They then gather the necessary information and design the project. After the first draft is completed, the group presents it to the class to receive feedback from both the teacher and other groups. Then, the students edit the project based on the suggestions and publish 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, the students collaborate with their peers and the teacher and engage in various activities, such as group discussions, online research, and presentations (Wikan, et al., 2010). In so doing, they become knowledge creators, who actively produce and present their work (Twiner, et al., 2010). Moreover, during these activities, students can have fun, both as listeners and presenters, which not only increases learning outcomes but also fosters more class interaction (Wikan, et al., 2010).

Student Behavioral Engagement

According to Fredricks, et al. (2004), behavioral engagement is one dimension of student engagement which covers the behavioral, cognitive, and emotional domains. It pertains to students' active participation in academic and social activities within the school environment (Cooper, et al., 2014). It includes actions, such as concentration, attention, persistence, effort, active questioning, and involvement in school-related activities (Fredricks, et al., 2004). Furthermore, behavioral engagement is also fostered through interactions, particularly in the learning process. Therefore, promoting interactions in classrooms has the potential to enhance student engagement (Anderson, 2003).

Accordingly, Moore (1993) proposed that students' interactions play a crucial role in facilitating active engagement and meaningful learning experiences. He divided the interactions into three main aspects: learner-to-learner interaction, learner-to-teacher interaction, and learner-to-content interaction.

Learner-to-learner interaction entails communication and collaboration among peers, both within and outside the classroom, and serves to prevent learners from encountering boredom and isolation within the learning environment (Moore, 1993). Examples of activities that can facilitate a sense of connection among students include discussion, explanation, demonstration, presentation, and creating tasks (Belda-Medina, 2021).

Learner-to-teacher interaction includes various forms of communication between teachers and students, such as the teacher's guidance, support, and motivational role throughout the course (Moore, 1993). There are activities that help foster student-teacher engagement, such as building rapport and collaboration between teachers and students, as well as providing instructive feedback throughout assigned tasks (Gaytan & McEwen, 2007).

Learner-to-content interaction involves the intellectual connections students establish with the content they are studying, which can potentially lead to shifts in perception, cognitive structures, and a more profound understanding of the lessons (Moore, 1993). The activities that enhance this aspect of interaction include watching videos, interacting with multimedia materials, and conducting further research (Abrami et al., 2011).

Related Studies

Multimodal projects have been employed by a variety of studies to enhance student engagement when teaching EFL writing. Some of the

projects were conducted on social media platforms, such as Instagram (e.g., Prasetyawati & Ardi, 2020; Yeh & Mitric, 2019). The studies revealed that creating the multimodal project on Instagram had a positive effect on student engagement.

Studies have also indicated that integrating multimodal projects can foster positive classroom social interactions. For example, Jiang and Luk (2016) examined the implementation of multimodal composition in English classrooms. The findings highlighted that multimodal projects played a supportive role in creating inclusive learning environments and promoted collaboration among students with varying interests, abilities, and backgrounds.

Other studies have employed quite a variety of methodologies to study student engagement. For example, Li (2020) implemented multimodal projects in two online graduate courses, examining the perceptions of pre- and in-service teachers on the integration of multimodal projects through both semi-structured interviews and written narratives. A few years earlier, Hung (2015) conducted a study on the multimodal use of video technology when giving feedback to enhance student engagement in a writing class. A mixed-method approach was utilized to compare feedback provided through both multimodal videos and text-based feedback. Meanwhile, Hepple et al. (2014) had presented reflections from two English teachers, who incorporated claymation texts to develop students' language and synesthetic abilities.

From these studies, it can be observed that multimodal projects have been implemented in various forms, such as videos, claymation texts, and digital formats, to enhance student engagement and interactions in classrooms. Moreover, the studies employed a combination of qualitative methods, including reflections, interviews, and observations, alongside quantitative methods. However, while these studies have highlighted the implementation of multimodal projects in writing classes that have positively increased student engagement, studies on the effects of multimodal projects specifically on student behavioral engagement are still in their infancy. This study, therefore, focuses on how a multimodal project increases student behavioral engagement in a Thai EFL writing class.

Methodology

Research Design

This study utilized a quasi-experimental mixed-method design to examine the effects of a multimodal project on student behavioral engagement in a Thai EFL writing class, as perceived by the students. The

study comprised a single group of participants and incorporated both quantitative and qualitative data. The quantitative method employed to collect the statistical data was a pre- and post-survey questionnaire, while the qualitative method employed to gain insights was a student reflection form.

Participants

The participants consisted of 35 students (20 females and 15 males) in an eleventh-grade writing class, majoring in English, during the second semester of the 2021 academic year. To select a suitable group, the researcher employed purposive sampling with specific criteria. First, participants were required to have proficiency in constructing English sentences with diverse structures and using transition words. They also had to have acquired academic paragraph writing skills in a series of courses named Academic Writing 1, 2, and 3. These courses evaluated skills individually through formal summative assessments, such as exams or multiple-choice tests. Additionally, participants were obligated to enroll in Academic Writing 4 during the second semester of the 2021 academic year. Finally, the participants had to have had no prior experience with studying writing through the use of multimodal projects.

Research Instruments

To gather data to answer the research questions, the researcher developed three research instruments, which were a set of multimodal lesson plans, a pre-/post- behavioral engagement questionnaire, and a student reflection form.

1) Lesson Plans

The lesson plans were developed by adapting the steps outlined in the guide to creating a multimodal project from Arola et al. (2014). The project comprised four lesson plans, each spanning three periods a week (equivalent to 135 minutes) and integrated into the “Opinion Paragraph” chapter. Participants were tasked with creating a project centered around the topic: “What should city people do to keep the city green?”

The researchers chose the digital poster format for the project. It is a format that consolidates diverse elements, including text, photos, music, videos, hyperlinks, and data attachments, into a unified composition (Dzekoe, 2013). This choice also aligned with the school’s environmental conservation campaign. The final versions of students’ digital posters were presented and published on the school’s bulletin boards and e-journal. The use of a digital

poster allowed students to incorporate hyperlinks, which provided readers with online access to additional details. Furthermore, the poster creation process was facilitated through the use of an appropriate computer program. The specific steps involved in creating a multimodal project are detailed in Table 1.

Table 1

Steps of Creating a Multimodal Project

Steps	Activities
1: Understanding and Analyzing the Multimodal Project	<ul style="list-style-type: none"> - The teacher showcases examples of posters to the students. - The teacher provides explanations on modes of communication, design principles, and rhetorical situations. - The students work together in teams to assess their provided sample models.
2: Designing	<ul style="list-style-type: none"> - The teacher arranges a “Lab Day” to acquaint the students with practical technologies/platforms like Canva and PowerPoint. - Students engage in project planning. - Students present an overview of the project. - The teacher and peers provide feedback on each group’s presentation. - Students improve their work based on the received feedback.
3: Drafting and Revising	<ul style="list-style-type: none"> - Collaboratively, students produce an initial version of their digital posters. - Students enhance their initial draft by selecting crucial project elements and commencing the design process. - In a peer review, guided by the teacher, students showcase their work to the class and offer constructive feedback to each other. - Students produce the final draft.
4: Putting the Project to Work and Reflecting on the Project	<ul style="list-style-type: none"> - Students share the poster with a community that corresponds to the project’s purpose. - Working in groups, students reflect on their project and present it to the entire class. - Students conduct a peer review. - The teacher evaluates students’ work and provides valuable feedback.

To assess their validity, the lesson plans were reviewed by three instructional experts, utilizing the Item-Objective Congruence (IOC) Index, prior to their implementation in the classroom. The IOC rating provided by the experts was 1.00, which indicated a high level of correspondence between the plans and the lesson objectives.

2) Pre-Post Student Behavioral Engagement Questionnaire

A five-point Likert scale questionnaire was used to investigate the results of the student behavioral engagement before and after doing the multimodal project in the class. The questionnaire contained 19 statements, designed and adapted based on the idea that student behavioral engagement relies on classroom interactions (Anderson, 2003). Interactions were categorized into three aspects, which were the students' interactions with peers, the teacher, and the content (Moore, 1993). Then, the statements in the questionnaire were mapped to a protocol for engaging behaviors in the classroom by Lane and Harris (2015). The statements in the questionnaire were also categorized into three sections, which were those behaviors when engaging with their peers (9 items), with the teacher (4 items), and with the content (6 items), respectively.

To ensure the validity of its content, the questionnaire was examined by three instructional experts, using the IOC Index. The review resulted in an IOC score of 0.95, indicating an effective instrument for the study. Then, it was tested by piloting it with a control group of non-participant students other than the experimental group. The reliability value was calculated by using Cronbach's alpha. The questionnaire earned a Cronbach's alpha value of 0.97, which indicates high internal consistency in measuring the variables.

3) Student Reflection Form

The student reflection form was used to explore the students' perspectives on the use of the multimodal project in their writing class. 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 were encouraged to freely express their opinions in either Thai or English, without any imposed word limit.

To ensure the validity of the reflection form, three experts in the instructional field were invited to review its content using the IOC Index. The review resulted in an IOC value of 1.00, which indicated 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.

Data Collection

The data collection for the study spanned approximately four weeks. In the first week, the participants were asked to do the pre-survey questionnaire, before beginning to study or make their multimodal projects. During the second and third weeks, the participants continued creating and revising their projects. In the final week, the participants reflected on their project, and presented their work. All their work had been graded. Finally, the participants took the post-survey questionnaire and completed the reflection form.

Data Analysis

1) The Pre-Post Student Behavioral Engagement Questionnaire

To assess student engagement before and after the implementation of the multimodal project, mean scores and standard deviations from both pre-survey and post-survey were subjected to statistical comparison through the dependent *t*-test. The objective of this analysis was to examine whether the multimodal project had a positive effect on enhancing student behavioral engagement. Additionally, Cohen's *d* was employed to quantify the effect size. It is worth noting that the sole negative statement in the questionnaire (Item 13) underwent reversal from negative to positive when scored.

2) The Student Reflection Form

Thematic analysis was applied to analyze the data obtained from the reflections. The analysis of data from the first question in the reflections involved the organic emergence of themes. For the second question, the themes were designated based on the interaction aspects, by adapting the information from the survey questionnaire to guide the coding. Student reflections with relevant keywords were categorized based on these aspects.

Findings

The results of this study were analyzed based on the research questions and presented in the following sections.

Effects of the Multimodal Project on Student Behavioral Engagement in a Thai EFL Writing Class

This section presents the results derived from the pre-post student behavioral engagement questionnaire, which includes overall student behavioral engagement, as well as student behavioral engagement in terms of the three interaction aspects.

1) Effects of the Multimodal Project on Overall Student Behavioral Engagement

Table 2

Results of the Pre- & Post- Student Behavioral Engagement Questionnaire

Behavioral Statements	Pre-Survey		Post-Survey	
	M	SD	M	SD
Learner-Learner Interaction				
1. I actively participated in class discussion about making a digital poster with my classmates.	3.53	0.79	3.89	0.87
2. I led a discussion when discussing with the group.	3.41	1.05	3.63	0.97
3. I contributed ideas about environmental problems and solutions to the group.	3.76	0.89	3.97	0.92
4. I could state and defend my ideas about making a poster to my group.	3.74	0.90	3.94	0.98
5. I actively helped others in the group to make the digital poster.	3.82	0.92	4.00	0.85
6. I comfortably asked my classmates questions when I did not understand lessons.	3.79	0.93	4.09	0.95
7. I comfortably explained about making a poster to the group.	3.68	0.84	3.94	0.94
8. I gave my classmates' feedback on their digital posters.	3.68	0.91	3.89	0.96
9. I received feedback on making a poster from my classmates.	3.85	0.99	4.00	0.98
Learner-Teacher Interaction				
10. I asked the teacher when I did not understand the lessons.	3.62	1.04	3.71	1.02
11. My teacher gave me both oral and written feedback on our digital poster.	3.82	1.01	4.06	0.90
12. I answered the teacher's questions while learning.	3.47	1.05	3.66	1.19
13. I did not answer the teacher's questions.	3.56	1.05	3.89	0.99
Learner-Content Interaction				
14. I took notes while learning.	2.65	1.08	2.42	1.17
15. I wrote up the content in the digital poster.	3.85	0.99	3.88	1.01
16. I read the information about modes of communication, rhetorical situations, elements of design, and poster-making, provided in the class materials.	3.74	0.93	4.06	1.07

Behavioral Statements	Pre-Survey		Post-Survey	
	M	SD	M	SD
17. I used the Internet sources to find information for making the digital poster.	4.03	0.87	4.18	0.92
18. I took part in the presentation about making posters.	3.94	0.95	4.06	0.89
19. I designed the digital poster using modes of communication, rhetorical situations, and elements of design.	3.91	1.01	4.03	1.09
Totals	3.73	0.72	3.92	0.77

The findings regarding the effects of the multimodal project on overall student engagement are presented in Table 2.

As shown in Table 2 above, it is evident that the levels of overall student behavioral engagement in the writing class increased. This is indicated by the higher mean values and standard deviations observed after the students participated in the multimodal project. The average mean score of the students' overall behavioral engagement before the experiment was 3.73 (SD = 0.72), while the mean score after applying the project was 3.92 (SD = 0.77). The results of further investigating the data, by comparing the mean scores using the *t*-test and Cohen's *d*, are shown in Table 3.

Table 3

Overall Student Behavioral Engagement

Score	M	SD	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Pre-Survey	3.73	0.72	3.48	0.001*	0.59
Post-Survey	3.92	0.77			

* $p < 0.05$

As can be seen in Table 3, it was found that, overall, there was a significant difference between the average mean scores of the students' behavioral engagement in the Thai EFL writing class before and after the multimodal project ($t = 3.48, p < 0.05$). Additionally, the value of the Cohen's effect size ($d = 0.59$) suggests that the multimodal project had a moderate effect on enhancing students' behavioral engagement. The effect size can be considered meaningful, but not large.

Table 4*Student Behavioral Engagement in Interactions with Peers, the Teacher, and the Content*

Aspects	Score	M	SD	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Peers	Pre-Test	3.69	.69	3.35	.001*	0.57
	Post-Test	3.92	.72			
Teacher	Pre-Test	3.62	.79	2.71	.005*	0.46
	Post-Test	3.81	.84			
Content	Pre-Test	3.90	.84	2.22	.017*	0.38
	Post-Test	4.05	.92			

p* < 0.052) Effects of the Multimodal Project on Various Interactional Aspects of Student Behavioral Engagement**

The results from the questionnaire also indicated the effects of the multimodal project on student behavioral engagement, in terms of interactions with peers, the teacher, and the content, as shown in Table 4.

Table 4 presents the results of the implementation of the multimodal project in the writing class and indicates an increase in student behavioral engagement within the three interaction aspects. 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, interactions 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.

Significant differences were found in the mean scores between the pre-test and post-test questionnaires across the three interaction aspects. Interactions with peers showed a noteworthy difference ($t = 3.35, p < 0.05$), as did interactions with the teacher ($t = 2.71, p < 0.05$). Furthermore, there was a significant difference in the pre- and post-questionnaires regarding interactions with the content ($t = 2.22, p < 0.05$). The effect sizes, as measured by the Cohen's *d* values, were moderate for all three aspects (peers = 0.57, teacher = 0.46, content = 0.38), indicating a meaningful level of engagement resulting from the multimodal project, even though the effect's magnitude may not be substantial.

Students' Opinions on the Use of the Multimodal Project in the Writing Class

The findings regarding the students' opinions on the application of the multimodal project in the writing class were obtained from the analysis of the student reflections. The data were classified into two sections, according to the answers to the two questions posed on the reflection form.

Question 1: How Does Making a Digital Poster Help You Participate in the Writing Class?

Upon analysis, the data was categorized into two main themes: improvement in class participation and advancement in writing skills and creativity. The results of the analysis are outlined below, with excerpts.

Most students concurred that the digital poster supported their active participation in class discussions. Furthermore, the project allowed them to work collaboratively as a team and enhance their teamwork skills. Examples of the students' reflections can be found in Excerpts 1-4.

Excerpt 1

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

Excerpt 2

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

Excerpt 3

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. [Student C]

Excerpt 4

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

Most students felt that crafting posters and using concise language not only improved their content understanding, but also enhanced their skill in choosing the right words, structures, and rhetorical approaches. Additionally, the multimodal project noticeably boosted their creativity by

applying learned design principles. Excerpts 5-7 contain the students' reflections.

Excerpt 5

It [the digital poster] helped me with the writing, how to use words, or where and when to write. [Student I]

Excerpt 6

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

Excerpt 7

It [the digital poster] helped with using concise and precise language, and how to present information on the poster attractively. [Student K]

Question 2: How Do Activities in the Digital Poster Project Help You Interact with Classmates, the Teacher, and the Content? Please Explain.

The data were categorized into three themes, based on the coding guidelines, which had to do with the three classroom interactional aspects: peers, the teacher, and the content.

Interactions with Peers

Most students found that the in-class activities encouraged them to interact with classmates, share ideas, and be open to different perspectives. They also enjoyed giving and receiving feedback from their peers. Some students sought help from classmates, when working on poster design and editing. Excerpts 8-9 feature the students' reflections.

Excerpt 8

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.
[Student I]

Excerpt 9

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. [Student O]

Interactions with the Teacher

The majority of students agreed that the activities allowed them to get feedback from the teacher and build a better relationship by having more chances to talk. The teacher could also give useful suggestions to improve their posters. One student pointed out the importance of paying attention to the teacher during instruction because of the many new and unfamiliar concepts. Relevant comments can be found in Excerpts 10-12.

Excerpt 10

I could get interesting ideas from the teacher and the other group members. [Student O]

Excerpt 11

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

Excerpt 12

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

Interactions with the Content

Many students affirmed that the activities aided their comprehension of poster components and relevant details. They also enjoyed the class content and reported an improvement in presentation skills. Several students noted the opportunity to conduct additional research for essential poster information, which contributed to the selection of compelling content and enhanced overall poster attractiveness. These perspectives are reflected in Excerpts 13 -15.

Excerpt 13

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

Excerpt 14

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. [Student L]

Excerpt 15

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. [Student X]

Discussion

This section presents a discussion of the results, which is divided into two sections, based on the research questions.

The Effects of the Multimodal Project on Student Behavioral Engagement

Overall Behavioral Engagement

The findings, gathered from the viewpoints of students, indicated that the implementation of the multimodal project led to a notable increase in overall student behavioral engagement. The students who participated in the project exhibited higher levels of engagement, compared to their engagement before the project. This finding aligns with previous research that has spotlighted the potential of multimodal projects in promoting student engagement, for example, the studies of Hepple et al. (2014), Hung (2015), and Yeh and Mitric (2019).

One potential explanation for the study's results is that multimodal projects have the ability to boost student engagement in the writing process. Throughout the teaching stages of the multimodal project, the students were tasked with collaborating on various activities, such as discussion, drafting, editing, designing, and presentations. These activities familiarized them with the writing process and enabled them to create the project and fulfill their roles at each learning step. Consequently, this enhanced their engagement. This finding corresponds to the research of Prasetyawati and Ardi (2020), which highlighted that multimodal compositions can stimulate student engagement in the writing process. Corso, et al. (2013) also remarked that the more actively involved students are in their assigned tasks, the higher their academic performance.

The Various Interactional Aspects of Student Behavioral Engagement

From the pre- and post-engagement survey questionnaires, the findings also revealed that the implementation of the multimodal project in the writing class resulted in increased student engagement in all three interactional aspects. The highest increase was observed in interactions with

peers, followed by interactions with the teacher, and then with the content, respectively. This indicates that integrating multimodal projects into the classroom can establish a fresh learning atmosphere that effectively encourages collaboration and communication among students in an interactive and engaging space. These findings resonate with Jiang and Luk's (2016) perspective that underscores the potential of multimodal projects in nurturing a conducive learning environment. In this study, students worked together with their group members to design a digital poster for their intended audience and purpose. Their involvement in discussions aimed at consensus-building marked a departure from their previous individual work on assignments. This novel environment seems to operate as a zone of proximal development (ZPD), as suggested by Vygotsky (1978). This ZPD offers students an opportunity to collaborate and progress collectively in their learning journey. According to Vygotsky's sociocultural constructivism, social experiences significantly influence individual knowledge development. Therefore, the multimodal project holds the potential to foster a learning environment supportive of these social experiences.

Likewise, there was a notable increase in student engagement during interactions with the teacher. This outcome implies that the multimodal project positively affected student-teacher interactions, which were established through their involvement with the guidance, feedback, and support from the teacher (Gaytan & McEwen, 2007). Consequently, this encouraged increased student engagement and active participation.

Nevertheless, it is crucial to highlight that the rise in student behavioral engagement with the content was somewhat more modest, when compared to interactions with peers and the teacher. This might be attributed to the students' pre-existing attentiveness to the study content before the multimodal project was introduced. However, the project effectively engaged the attention of all students, even those who were already attentive. This observation aligns with Van Donge's (2018) insight that students can forge meaningful connections between their classroom activities to foster a more authentic learning experience.

Although the effect size of the multimodal project on overall student behavioral engagement and classroom interactional aspects is not substantial, it is important to acknowledge the practical significance of the observed increase in student engagement. In educational contexts, even moderate enhancements in student engagement can yield valuable implications. Augmented engagement is linked to various positive outcomes, including heightened motivation and satisfaction, reduced student isolation in learning, and improved academic performance (Xie et al., 2021). Thus, the moderate effect size suggests that incorporating multimodal projects could be a worthwhile strategy for educators seeking to promote student engagement

and may imply specific aspects of multimodal project implementation in an EFL writing class.

Students' Opinions on the Use of the Multimodal Project

Through an examination of the students' reflections, it was observed that the students concurred that the implementation of the project in the classroom contributed to the improvement of their class participation, creativity, and writing skills. This could be explained by the following reasons.

First, students believed that developing a multimodal project in the format of a digital poster could boost their participation in the classroom. This perception is likely rooted in the inherent nature of multimodal projects, which encompass the utilization of diverse modes, such as text, images, gestures, and audio, to convey meaning (Jewitt & Kress, 2010). This particular facet of the projects necessitates active student involvement in the design process. Consequently, students may have come to recognize the practical relevance of their projects in their everyday lives, given that they published their work with a genuine and authentic purpose.

Furthermore, students concurred that engaging in the creation of the multimodal project enhanced their creativity. This may be attributed to the project activities and the integration of technology. As evident from the steps of the multimodal project implementation in the lesson plan, the students were actively involved in using various modes of communication to design the digital posters from the start. They also had the opportunity to utilize computer programs, such as Canva and PowerPoint, in constructing their digital posters. This aligns with Bozarth's idea (2010) that crafting a digital poster serves as an enjoyable and innovative tool that cultivates a more engaging learning environment compared to traditional lectures. The integration of technology into the language learning classroom could also assist students in their digital practice, as noted by Jeanjaroonsri (2023). Consequently, students were able to showcase their creativity by applying various functions and design knowledge acquired in class while working on the project.

The students' reflections on the multimodal project indicated that they saw it as a means of improving their writing skills, especially in crafting the digital posters. However, their focus leaned more towards visual, design, and rhetorical aspects, rather than linguistic proficiency. For instance, in designing the digital posters, students aimed for concise language use, and consideration of the rhetorical situation. Beyond these writing skills, reflections and observed behaviors during the project suggested that the multimodal project also improved a variety of communication skills, including teamwork, discussion, presentation, and critical thinking. The

requirements of the project's activities, along with the final step of the class presentation, prompted the students to collaborate with their peers and contemplate how to effectively convey their ideas and respond to inquiries about their work. These observations can be attributed to the nature of multimodal composition itself. As it is rooted in the L1 context, multimodal composition typically involves incorporating non-linguistic semiotic resources into writing (Jin, 2023). This characteristic is consistent with findings in various studies (e.g., George, 2022; Kim et al., 2022), which have highlighted the contributions or implications of multimodal composition in developing rhetorical skills and other communication elements rather than focusing solely on language skills.

Additionally, the results derived from the students' reflections on the multimodal project underline its positive effect on the students' engagement with peers, the teacher, and the course content. Collaborating on the project facilitated the exchange of ideas among peers and promoted the acceptance of diverse viewpoints, which is in line with collaborative learning principles (Slavin, 2014). Students valued the feedback and rapport established through the interactions with the teacher. This was useful for their poster creations – a testament to the significance of feedback in the learning environment (Hattie & Timperley, 2007). Interaction with the content contributed to improved understanding, the selection of relevant information, and enhanced presentation skills, which reflect active learning practices (Prince, 2004). In summary, the findings indicate that the multimodal project effectively fostered student engagement through these interactions, which lead to a collaborative and supportive learning environment.

Pedagogical Implications to Teaching Writing in the EFL Context

This study has pedagogical implications for EFL writing contexts. Firstly, in a writing class, the multimodal project has the potential to support student behavioral engagement, as well as classroom interactions with peers, the teacher, and the content of the class, and to enhance collaborations. When the class environment is filled with engaging experiences and the comforts of each classroom element, it creates a better learning atmosphere. The creation of multimodal projects may foster collaborative learning. It seems to be different from the traditional study of writing, where students tend to work individually, leading to struggling alone and boredom for some students. To successfully conduct the projects, therefore, collaborative environments should be included. Nevertheless, it is crucial to emphasize that, as indicated by the results, the project may not give substantial priority to the linguistic facets of writing proficiency but lean towards creative and rhetorical aspects. It also has the potential to enhance certain communication skills, including

teamwork, discussion, presentation, and critical thinking. Hence, teachers should exercise caution in deciding to incorporate a multimodal project into their writing classrooms. Striking a balance between fostering creativity and collaboration, and offering explicit instruction with targeted practice, is essential for effectively developing students' writing skills.

Conclusion, Limitations, and Recommendations

This study investigated the effects of implementing a multimodal project in a Thai EFL writing class, with two main research objectives: examining the effects of the multimodal project on student behavioral engagement both in the overall results and the different interactional aspects (peers, the teacher, and the class content), and exploring students' opinions regarding the project's use. The findings from the questionnaires revealed that applying the multimodal project increased student behavioral engagement in the Thai EFL writing class, both in the overall results and in terms of interactional aspects. Moreover, the study revealed that students expressed positive perspectives towards the use of the multimodal project in the writing class.

Although this study successfully implemented a multimodal project in enhancing student behavioral engagement in a EFL writing class, there were some limitations to which further studies should pay attention. Above all, the present study employed a digital poster as the multimodal project. However, offering a variety of multimodal project choices, or workshops on various multimodal projects, could potentially lead to different outcomes. The present study also involved only 35 participants, all of whom were enrolled in a writing class. Expanding the research, with varied participant numbers, could enhance the generalizability of the effectiveness of multimodal projects on a broader scale. The research instruments in this study were the questionnaire and the student reflection form, which gathered data from the student's perspectives. Further research with other instruments, for example, observations or teacher's journals, is warranted, to gather data from different perspectives, which would provide a deeper understanding of the application of multimodal projects to writing classes. This study utilized content/thematic analysis for qualitative data without formal intercoding or interrater reliability assessments. Nevertheless, a collaborative validation process involving the primary researcher (first author, a master's student) and her advisor (second author) ensured analysis accuracy and rigor. Future research might explore more extensive intercoder agreement studies to strengthen methodological robustness and further validate the findings. Additionally, this investigation concentrated on the short-term effects of the multimodal project in improving student behavioral engagement. Conducting

a study over an extended period might provide different insights into the effects of multimodal projects.

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