



Impact of LoiLooNote Digital Mapping on University Students' Oral Presentation Skills and Critical Thinking Dispositions

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The 21st century technological advancement has revolutionized instructional classroom practices. Lecturers deal with tech-savvy learners, and thus, need to be taught by utilizing updated and technological-based platforms for a more meaningful learning engagement. The study was aimed at investigating the impact of LoiLooNote digital graphic organizer (digital GO) – a software mapping tool, on students' oral presentation skills across four components: clarity, content, fluency and coherence, and content and on their dispositions towards critical thinking (CT). Utilizing an exploratory case study using mixed-method type of research, the current study involved 30 intact group of students in a public university in Thailand. The data were obtained from students' oral presentation performance, interviews and California Critical Thinking Dispositions Inventory (CCTDI) results. The result indicated that using the digital GO might improve the students' oral presentation performance in terms of the aforesaid components. Interestingly, all the seven CCTDI sub-scales reveal a significant relationship with their oral presentation task performance indicating that they have become more disposed to open-mindedness, truth-seeking, CT self-confidence, analyticity, systematicity, inquisitiveness and maturity. Qualitative findings disclose that the participants have positively welcomed the use of LoiLooNote digital graphic organizer on their oral presentation tasks processes and made them become more inclined to critical thinking. Findings of the study suggest that the use of LoiLooNote digital GO increases EFL learners' oral presentation performance, enhances critical thinking dispositions and provides a foundation for designing curriculum in oral presentation.

Keywords: critical thinking dispositions, loiloonote digital graphic organizer, oral presentation skill

INTRODUCTION

Oral presentation functions an important part on learners' acquisition of information, academic experiences and class involvement. It is one common method of assessing learners' performance of almost all fields such as in Science, History, Psychology, Literature. English as a Foreign Language or EFL is not an exemption to this. In fact, oral presentation is considered as a relevant part of EFL curriculum at universities

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(Živković, 2014). Erkaya (2011) claim that university classroom is the most appropriate avenue for the learners to practice their skill in oral presentation since they are exposed to both preparation and presentation delivery. Thus, lecturers should teach students how to prepare, organize, and deliver a successful oral presentation for academic purposes. Živković (2014) highlighted that instructing students to improve the quality of their presentation means improving their speaking skill and the quality of their thoughts and vice versa.

In Thai educational setting, however, developing an effective oral presentation skill in EFL has always been a daunting undertaking for university students not only because of reluctance to speak in front of their peers but because of the difficulty in composing speech content including content organization, lexical resource, organizational mechanisms such as coherence and cohesion, and fluency of ideas which are overloading their cognitive load. This cognitive load needs to be reduced to acquire new ideas and information. To facilitate the acquisition of new schemata which are representations of concepts, Sweller (1994) recommends reducing the unimportant cognitive load during the learning process. One common method of reducing unimportant cognitive load is by using GOs such as maps and diagrams (Harrel & Wetzel, 2013; Robillos & Phantharakphong, 2020; Robillos, 2021).

GO is a mapping technique that facilitates understanding of knowledge when there is a large amount of information to work with, in a given limited time (Praveen & Premalatha, 2013). GO assists learners to have more engagement in their process of generating ideas and information as it ignites their background information necessary in organizing and developing a topic's content. When a learner lays down his thoughts graphically or pictorially through the process of diagramming and/or mapping, he is able to have a complete hold of his thoughts in mind. Consequently, a learner will enable to distinguish the necessary or unnecessary ideas and that mistakes would be reformed. Moreover, mapping ideas can assist learners produce more developed and coherent outputs and this can trigger their critical thinking (Davies, 2011; Robillos & Phantharakphong, 2020), which is often considered a core objective of higher education (Al-Mahrooqi & Denman, 2020), and problem-solving abilities (Özgenel, 2018) and therefore optimize their learning performances.

However, lecturers of some Thai universities have traditionally been assessing students' oral presentation performance through their grammatical usage, how words are pronounced (to name a few). Assessing students' oral presentation performance based on the previously mentioned may ignore other important characteristics of oral presentation such as organization of content, clarity, coherence, delivery and audience awareness. Furthermore, students' creativity and capability to learn through communicating are as well disregarded. Besides, most of the time, students work individually without interacting with one another when they are given an oral presentation task to perform. However, if learners are given time to verbally communicate with their peers about their ideas and insights, learners may be able to express their own thoughts and may be able to exchange ideas to their peers which is

contributory to obtaining insightful oral presentation ideas, meaningful content as well as clarity of thoughts and views.

As mentioned previously, GOs facilitate collaborative learning (Robillos & Phantharakphong, 2020). Members of the group prepare and map down their ideas individually, then share them in one common GO, and explains each of their ideas. If many members come up with similar ideas, they are grouped or placed close together, enabling idea exchange and integration. However, after integration, it is difficult for each student in a group to develop the shared idea in detail, since there is only one common GO for the group. With the introduction of technology, digital GOs may make it easier to maintain initial GOs for each member and re-arrange the organizers to enable in-depth development of integrated ideas by each member of the group. Students can also easily display the structure of information which might support them in developing the topic. Thus, the study delves into investigating the impact of a digital mapping tool in the EFL classroom with the end-in-view of improving university students' oral presentation skill and enhancing their dispositions towards critical thinking.

Graphic Organizers and its Use for Learners

Studies have shown that meaningful learning can be assisted through the use of GOs (Ausubel et al., 1978; Slavin, 2011; Praveen & Premalatha, 2013). According to Slavin (2011), research in pedagogy and psychology demonstrate that visual learning is among the most effective method for teaching comprehension skills to students of all ages. Helping students to generate and organize speech content aids them to better comprehend information such as main ideas, supporting details, facts, opinions, comparisons and contradictions (Praveen & Premalatha, 2013; Robillos, 2020). The birth of GO is based on Ausubel's assimilation theory of conceptual learning (Ausubel et al., 1978). Ausubel et al. (1978) describe that the information is organized by mind in a hierarchical top-down way. GOs facilitate understanding of knowledge when there is a large amount of information to work with, in a given limited time (Praveen & Premalatha, 2013). Students can construct GOs, in which case they are the expressions of students' understanding (Kurokami & Kojima, 2018; Aprianto & Murapi, 2020). When a complicated concept is translated in visual structures rather than linear form, the students can construct other structure to better understand the topic since the students are aided to visualize relationships by showing the spatial relationship between ideas (McElroy & Coughlin, 2009).

Students can organize their ideas and thoughts in a pictorial or graphical form, for example, a concept map (Novak & Gowin, 1984). Research has proved the positive effects of concept mapping in facilitating meaningful learning and fostering different types of thinking: critical thinking (Davies, 2011; Aprianto & Murapi, 2020); cognitive thinking (Robillos, 2021). Specific types of diagrams are provided to students to enable them to lay down their thoughts and ideas. Not quite recently, many educators and academicians have come to value thoughtful learning. For example, a study conducted by Aprianto & Murapi (2020) which focused on the effectiveness of GOs with patterned structures and their functions that helped facilitate Indonesian students' English spoken proficiency in class presentation. Results showed varying positive and negative

effectiveness towards certain English proficiency levels. They claimed that GOs could dynamically be incorporated into multimodal ways; by re-writing, chronological overview, and note-taking which would be employed by the upper intermediate learners

Numerous researches have shown that effective and meaningful learning can be aided through the use of graphic organizer. Learners using GO as a technique to comprehend accomplished better rather than the learners discussing with peers (Chularut & De Backer, 2004), outlining and summarizing (Robinson & Kiewra, 1995), or using underlining technique (Amer, 1994). GOs do not only enable students to categorize information, but also aid students to understand complex concepts, produce ideas, and determine links between views (Clark, 2007). GOs lead students to think critically and logically and to share, discuss, and present their ideas. It became necessary for students to support themselves with efficient tools to carry out these cognitive activities. In this regard, the Thai Basic Education Core Curriculum (2008) has started to incorporate the use of visual mapping in second language learning. This manifests that at present, we need effective digital applications that are capable to be embedded with graphic organizers.

LoiLooNote Digital Graphic Organizers and its Features

The LoiLooNote app, which is originated in Japan, is an effective multiplatform learning support app designed for classroom settings. This app is an educational application for slate computers that enables its users to make digital cards containing various types of information (Kimura et al., 2017; Kurokami & Kojima, 2018). This app provides a virtual workspace where users can save information as multimedia cards which can be arranged and grouped like a mind map, helping students organize their thoughts and providing a birds-eye view of what has been learned. These features encourage active learning and creative energy in the classroom be it online or onsite. Furthermore, LoiLooNote application helps teachers utilize technology for enriching, student-centred, communicative classroom activities.

Teachers can use the app to distribute materials, to assign tasks, and to collect students' accomplished activities. Teachers can ask students to collect information off or online to create presentations about what they learned individually or ask teams to collaborate in real-time as they create a group task. Once student work is submitted, teachers can show the whole class individual submissions, annotate their work for comments and suggestions, or compare multiple submissions side-by-side. Teachers can show students' created maps to everyone via an external display, or broadcast to all the students' devices. They even pass playback control to a student, whose presentation will be broadcast to all as they present. Figure 1 presents the salient features of LoiLooNote digital graphic organizer.

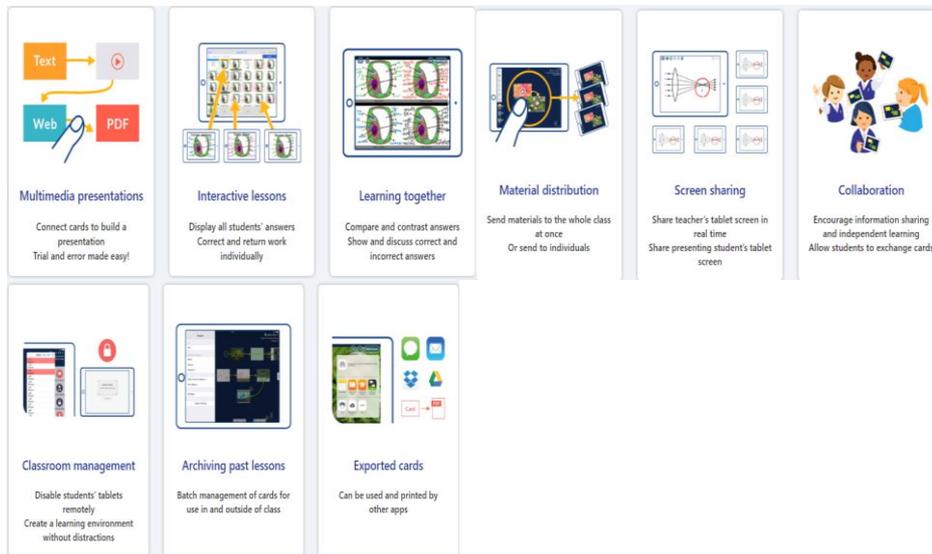


Figure 1
Salient features of LoiLooNote digital graphic organizer (<https://n.loilo.tv/th>)

Students can use the tunnel feature (at every stage) to exchange their information with their peers. Teachers can share PDF files containing instructions and templates with students. In short, the features of the app take the students through various processes: thinking of their own, organizing and arranging their thoughts, discussing, and brainstorming their ideas with peers, coming up with new insights and solutions, presenting their thoughts in a clearer and simpler way which eventually help the learners acquire 21st century skills such as CT skills, creativity, collaboration, communication, technology literacy, social skills, leadership, problem-solving, self-regulation, and the like. The features help motivate students to come up with their own ideas and concepts, and thus, lead them to come up with a better speaking performance that are more organized, more logical, and more effective.

Kurokami and Kojima (2018) conducted a study aimed at investigating the impact of a new developed Digital Graphic Organizers on the 5th Grade Japanese Elementary students' thinking and collaboration following standard procedures of LoiLooNote application. They also investigated the significant differences between students with longer and shorter experience in using the new functions of LoiLooNote application. They also describe that most students feel that digital GOs effectively enhance their thought process. Interestingly, the students' rate of usefulness of each function within the graphic organizers is described as "high", however, a longer experience with digital GOs seems to have positive effects on their thinking and sharing of ideas.

Dispositions towards Critical Thinking

Meanwhile, CT is believed to be very important for students to learn and work further critically to evaluate existing knowledge and information (Robillos & Phantharakphong,

2020; Facione et al., 1994a). Facione & Facione, (1997) viewed CT as a philosophical concept which is referred to characteristics of the individual, personality traits or habits of mind. CT is a universal and self-rectifying human phenomenon, referring to the inclinations and skills revealing what is authentic, what to believe, why it is and how it happens (Facione & Facione, 1997). In developing the mind, it needs the interconnecting processes of both human thinking (the content for language output) and language (tool for thinking). The connection between these two constructs has always been recognized by academicians, educators, and researchers.

There has been an expert consensus regarding CT and the ideal critical thinker with regard to thinking ability. As described by Facione et al. (1994a), the ideal critical thinker is habitually inquisitive, trustful of reason, open-minded, well-informed, fair-minded in evaluation, prudent in making judgments, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results. Therefore, training good critical thinkers means working toward this model. These dispositions toward CT are truth-seeking, open-mindedness, CT-self-confidence, analyticity, systematicity, inquisitiveness and maturity are the consistent internal motivation to engage in problem solving, logical reasoning and decision-making (Facione et al., 1994a; Facione & Facione, 1997; Facione et al., 1995).

The consensus was reached that skills and dispositions of CT are positively intertwined with the internal motivation to think. CT disposition represents an inclination of a person to use possessed skills in relation to CT (Facione et al., 1994a; Robillos & Phantharakphong, 2020). Digital GO aids students to strengthen these CT dispositions as it impacts learners' processes of understanding, organizing, managing ideas into more complex concepts which empower learners to solve problems, think clearly, and organize tasks logically. Digital GO can activate EFL learners' CT and problem-solving abilities (Robillos, 2021) and therefore, accomplished effective learning (Harrel & Wetzel, 2013; Sutiani et al., 2021; Syawaludin et al., 2019). Moreover, Digital GO enhances students' logical and CT (Davies, 2011; Robillos & Phantharakphong, 2020) since it provides an easy way to lay down their thoughts through maps on any given topic (Harrel & Wetzel, 2013) aside from boosting their ability to express and orally present their own thoughts and views which consequently enhance their inclinations towards CT.

Although previous studies have been conducted concerning the use of graphic organizer in EFL teaching and learning in various macro-skills, *e.g.*, diagramming in argument writing (Harrel & Wetzel, 2013), reading skill (Oliver, 2009), EFL students' oral proficiency (Panggabean & Trissanti, 2020), reading and speaking skill (Aprianto & Murapi, 2020), there is no any study to date has concentrated on investigating the relationship between learners' oral presentation performance using digital Graphic Organizer and their CT dispositions. Additionally, this paper is significant in that it can offer pertinent information to those who work in the field of education especially in the parlance of EFL. The results of the present study might serve as a guide for EFL teachers in terms of helping them to augment their understanding of language learning

from the learners' viewpoints and give them more insights into the advantage of teaching EFL lessons with the use of digital mapping technology and thereby aid them in enhancing students' oral presentation skills and CT dispositions. With the aims stated above, the present study is guided with the following research questions:

1. Is there a significant difference between the participants' oral presentation performance before and after the strategy intervention?
2. Is there a significant relationship between the participants' oral presentation task performance and their dispositions towards critical thinking in terms of the seven sub-scales of CT Dispositions?
3. What experiences the participants have gained after using LoiLooNote Digital mapping in their oral presentation task processes and performance as well as their CT dispositions?

METHOD

The study employed a mixed-method type of research - a type of research that combines qualitative and quantitative methods into a single study (Creswell, 2011), using a single group of pre and post- tests design. The study carried out in eight weeks using a 30 intact group of students studying at the study-university. These eight weeks involved the following sessions: Session one (week 1) and session three (week 8) were the administration of the pre- and post- oral presentation task performances respectively and the sessions two to seven were the implementation of strategy intervention. The procedures and oral presentation material through the lessons were consistent to enable learners to develop familiarity and confidence with the digital GO. All interactions between learners were carried out in English supporting the required use of English in the TESOL program of the Faculty in the study-university.

Participants

The participants in this study are the 30 third year college students majoring in TESOL program with ages ranging from 19-21 years old. There are seven males and 23 females. The group is purposively selected as an intact group of participants and LoiLooNote digital GO used as a strategy in their oral presentation task performance is not in practice for the learners in their regular classroom in the Faculty of the study-university.

Research Instruments and Data Collection

Pre- and Post- Oral Presentation Task Performance. The pre-test for the oral presentation task performance of the students was carried out and took place one week before the intervention began whilst the post-test was implemented one week after the intervention is provided on them. The two oral presentation tasks were scored according to the scoring rubric adapted from Brewer & Ebert-May (1998), though slightly modified by the researcher himself, checked by three English Experts who have been teaching English for over a decade in the study university.

The California Critical Thinking Disposition Inventory (CCTDI). The CCTDI was administered to the participants after the intervention was provided on them. This instrument was originated from Facione et al. (1994a). The CCTDI is used to measure CT dispositions of students which is composed of 7 sub-scales including Open-

mindfulness, Systematicity, Truth-seeking, Analyticity, CT Self-confidence, and Maturity. The participants are requested to state the extent of agreeing or disagreeing with each of the 75 questions. Participants who agreed to an item indicates concordance with a recognized CT attribute, whilst disagreement means opposition to the attribute. The scores of each of the 7 subscales range from a possible minimum of 10 to a possible maximum of 60. Scores of 30 or below indicates a negative tendency towards that subscale; scores of 31-39 suggest ambivalence; scores of 40 or higher are evidence of a positive tendency. The CCTDI total score is the sum of the seven subscale scores and can range from 70 to 420; a total score of 280 or higher indicates a positive disposition toward critical thinking in Western samples (Facione & Facione, 1997).

Interviews are conducted to provide more details about how often and when the respondents would use the LoiLooNote digital GO as a strategy intervention in improving their oral presentation task processes as well as their CT dispositions, one week after the intervention.

The Intervention Program

One week before the lesson starts, the participants were given three hours of instructional time to understand the “know-how” of the LoiLooNote digital GO. Each of the six sessions which took around three hours covered different classroom activities prior to oral presentation performance. The students are introduced to a topic they are going to discuss which will eventually be used for the presentation task. Activities such as brainstorming, schema-development to further link their background knowledge towards the topic were provided. Thereafter, a speaking topic was given by the teacher and each student started to map his/her ideas using LoiLooNote digital GO. After 30 minutes, students were grouped into four to five members and each member began to share his/her created map to the other members of the group. After all the members took their turn sharing, the group has to come up with one map using the digital mapping application. The newly created map was shared in front of the class for others to give some feedbacks and comments for the improvement of the groups’ map. After the presentation, the members have to meet again to modify their map and to come up with a newly created map responding to the feedback and suggestions given by both of their peers and teacher.

During the task performance, the students create their own draft and are asked to share their draft to their peers to further shape their ideas before oral presentation and to further solve some issues regarding clarity, content, and coherence. The teacher also provides advice to students who encountered problems in their work.

In the evaluation stage, it composed of oral presentation tasks. Here, a student presents his topic in front of the class using his created map which guided his/her ideas and notes he/she placed in the created map. Indirect corrective feedback is also provided by the teacher to monitor students’ speaking task progress. Thereafter, students will have an opportunity to self-evaluate and self-reflect their speaking performance using speaking performance checklist and have the chance to discuss to their peers how successful or unsuccessful they are, and they may share some possible strategies of doing so to deal with problems that may encounter in the future.

Test Marking and the Scoring Rubric

For the evaluation of the participants' oral presentation performance, four criteria were identified and used as the scoring rubric. These are: *clarity* (refers to how clearly the presenters stated the significance of their topic being conveyed), *content* (measures presenter's appropriate level of analysis and discussion as required to complete the topic assigned), *delivery* (measures the presenter's effective speaking style which exhibits enthusiasm, generates interests in the audience and communicates the intended information), and *fluency* and *coherence* (how well a presenter communicates logically and without difficulty in using English). This scoring rubric was adapted from Brewer & Ebert-May (1998), however, slightly modified by the researchers. It then checked by the three experts for its cognitive level of appropriateness before using. A descriptive checklist of these criteria was prepared to standardize the evaluation of the oral speaking performance of the participants. Each criterion is assigned a low-scoring response (1 point to 2 points) and higher-scoring responses (3 to 4 points).

Data Analysis

Quantitative data were evaluated based on descriptive and inferential statistics, whilst qualitative data were analysed using reflexive thematic analysis (Braun et al., 2014). Reflexive thematic analysis is an approach to analysing qualitative data to answer broad or narrow research questions about people's experiences, views and perceptions, and representations of a given phenomenon (Braun et al., 2014). The Descriptive Statistics such as mean, frequency, percentage were calculated and presented in a tabular form. The t-test statistical analysis was used to find out the difference between students' oral presentation task performance and CT dispositions before and after the intervention is provided on them. The Pearson Moment Correlation Coefficient was also used to determine the relationship between the use of LoiLooNote digital GO to those of participants' oral presentation task performance and their CT dispositions.

Furthermore, data from questions in the interviews were subjected to frequency counts and were analyzed using the process of thematic coding (Cresswell & Plano-Clark, 2011). The following themes were emerged after respondents' interviews were undertaken: Theme 1 the usability of LoiLooNote digital GO; Theme 2 contains benefits the learners obtained from using LoiLooNote digital GO in their oral presentation task processes and performance; and theme 3 comprises of learners' dispositions toward CT.

FINDINGS

Quantitative Part

Test of difference on the participants' oral presentation task performance before and after LoiLooNote digital GO was employed

Table 1 presents the test of difference between the participants' oral presentation task performance in terms of its four components, before and after the LoiLooNote digital GO was employed on them. These components are clarity, content, fluency and coherence, and delivery. As revealed from the table, the component on "content" was the most improved part as it yielded a Mean and SD scores of $\bar{x}=3.10$, $SD=.305$ before

the intervention and $\bar{x}=3.73$, $SD=.520$ after the intervention, however, the “Fluency and Coherence” indicated the least improved component with Mean and SD scores of $\bar{x}=2.62$, $SD=.621$ before the intervention and $\bar{x}=3.26$, $SD=.449$ after the intervention. Overall, all of the four aforementioned components significantly differ before and after the implementation of the LoiLooNote digital GO as evidenced by an overall Pre-test Mean (11.53) and SD (1.07) and Post-Test overall Mean (13.53) and SD (.93). Figure 2 also presents a sample of a student’s work using LoiLooNote digital GO.

Table 1

Test of difference on the participants’ oral presentation task performance in terms of its 4 components before and after the intervention

Oral Presentation Components	Before the Intervention	After the Intervention	Std Error	Mean
Clarity	3.06	.639	3.43	.504
Content	3.10	.305	3.73	.520
Fluency and Coherence	2.62	.621	3.26	.449
Delivery	2.76	.430	3.10	.305
Overall	11.53	1.07	13.53	.93

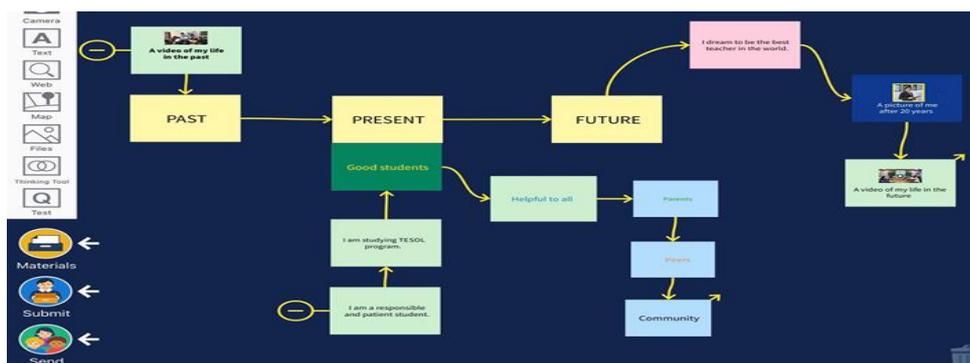


Figure 2

Student’s output done through LoiLooNote digital GO

Test of relationship between participants’ oral presentation task performance and their dispositions towards critical thinking after the intervention is provided.

Table 2 displays the relationship between the participants’ oral presentation task performance and their critical thinking dispositions as represented by CCTDI after the intervention is provided. All the 7 sub-scales such as truth-seeking, open-mindedness, CT self-confidence, analyticity, systematicity, inquisitiveness, and maturity which yielded t-computed values of -2.21, -2.50, -2.14, -2.54, -2.09, -2.79, and -2.09 respectively showed a significant relationship to that of the participants’ oral presentation task performance and are higher than the t-critical value of 2.06. In overall, the research hypothesis claiming that ‘there is no significant relationship between the participants’ oral presentation task performance across the 4 writing components such as clarity, content, fluency and accuracy, and delivery and their dispositions toward critical

thinking after the intervention', was rejected since the t-computed value 2.33 is found higher than the t-critical value of 2.06.

Table 2

Test of relationship between the participants' speaking performance task and their CT dispositions after the implementation of the intervention.

Sub-scales of CT-Dispositions	Pearson r-value	t-computed value	t-critical value	Interpretation
Truth-seeking	-0.21	-2.21	2.06	Significant
Open-mindedness	-0.34	-2.50	2.06	Significant
CT Self-confidence	-0.37	-2.14	2.06	Significant
Analyticity	-0.39	-2.54	2.06	Significant
Systematicity	-0.39	-2.09	2.06	Significant
Inquisitiveness	-0.41	-2.79	2.06	Significant
Maturity	-0.37	-2.09	2.06	Significant
Overall	-0.35	-2.33	2.06	Significant

Qualitative Part:

Usability of LoiLooNote digital GO towards EFL learners' Oral Presentation Performance

Theme 1 pertains to participants' perspectives on the multiple uses of LoiLooNote Digital GO to process their oral presentation performance. The sub-themes include better visual representation of their thoughts; ease of use; ease of sharing; better interaction with peers.

When asked about the use of the application, the participants articulated a predominantly answer reflecting on better "*visual representation of their thoughts*" which aid them to improve their oral presentation task performance. Respondent 2 (R2) expressed, "*The app aided me to clearly visualize my ideas through mapping them down and that it gave me smooth flow of presenting my topic*" (R2). There was a clear manifestation that when the participants map their thoughts using the app, it enables them to understand better the content of the oral presentation topic, as R4 stated, "*it assisted me to break down complex ideas into simpler parts which eventually help me connect one idea to another*" (R4).

Moreover, the participants articulated a predominantly response reflecting on the app's "ease of use" which aid them to improve their presentation performance. Several respondents indicate that the application was easy to use and that using the app to communicate with their classmates was fun and entertaining. A participant expressed his feelings regarding the web browser as "*not that complicated, so no worries when logging in*" (R17). The LoiLooNote digital GO is not difficult to operate especially when mapping down the students' ideas and incorporating support images, photos, and self-created videos. Majority of the students expressed their feelings regarding the flexibility of the app which help them facilitate their video-recording. One participant conveyed that the application is easy to operate "*because of its straightforward setting*" (R2) and it is "*easy to record and save our videos*" (R11).

One of the affordances of the LoiLooNote digital GO is “ease of sharing”. The LoiLooNote digital GO is a beneficial tool in aiding students share their maps with their peers and their teacher. One participant indicated that uploading a recorded video to support my ideas in my map is *“so simple and does not need many instructions to follow”* (R6). Additionally, when the created maps and peers’ responses are shared and made accessible to every student in class, they may improve learning a language since the created maps enable them to be exposed to L2. One participant narrated that responding and *“reacting to the created maps and are made accessible to everyone helps expose us especially in learning English”* (R4)

Using LoiLooNote digital GO enhances students’ interaction with their peers. The interview results manifested that the app was a beneficial tool in aiding students interact with their peers and their teacher. One participant indicated that sharing maps to their peers gives a feeling of having *“a direct conversation with classmates”* (R13) and that it gave the participant a feeling of connectedness with peers and friends. Furthermore, since the participants could post their replies and comments toward their classmate’s created maps, many of them experience *“a strong feeling of relationship with peers”* (R14) and felt easier *“to have a conversation using the app”* (R19).

Learners’ benefits from using LoiLooNote digital GO into their speaking task processes

Theme 2 elucidates the participants accounts of the benefits they obtained from using LoiLooNote digital GO on their oral presentation task processes. The sub-themes are: importance of students’ collaboration; reduced anxiety; better engagement; self-monitoring process.

The strategy intervention requires participants to share their created maps to their peers. The participants reported that it helped expose them to collaborate and use the language effectively. One participant narrated, *“working in teams is helpful because it exposes us to share our ideas and more importantly, allows us to use the English language in actual setting”* (R4). For some participants, a problem in expressing their ideas in English is considered a hindrance, however, they realized that sharing their ideas in English to their peers would help them to practice it in the real situation, *“it is important to collaborate in teams especially if we would like to practice communicating in English because we can use the language firsthand if we put it into practice”* (R6).

Notably, many participants reduced their anxiety and boredom as they participate in the group activities such as individual and creation of maps in groups. They felt the activity a “worry-free” activity as they map their ideas using not only words but also photos and videos that enhance better understanding of their topic and this leads them to speak and share more without much worrying to speak. R1 stated, *“since I am sharing my ideas with videos and pictures to my peers (...uhm, no much pressure in speaking), I started not to worry regarding my speaking ability”* (R1).

Regarding their interest in doing the activities in the classroom, it can be observed that students showed enjoyment as they positively engaged to the tasks given to them. R10

thought that *“the activities with the use of the app were fun and I always feel excited about what the teacher will teach us the next time”* (R10).

Meanwhile, the participants when the app was used, assisted them to achieve an effective oral presentation task composition. R15 maximized the effective use of the app by trying to self-monitor her ideas by going back twice or thrice around. She narrated, *“the app permits me to go back and forth even how many times I want, just to check my ideas. Double checking helps me monitor my accomplishments and check whether all the ideas cohere each other”* (R15)

Learners’ dispositions towards critical thinking

The results revealed that majority of the participants (21 or 70%) manifested strong inclination towards CT as the app enables them to better understand the content as they map their ideas down. One CCTDI subscale is inquisitiveness which measures one’s desire for learning even they slightly understood how to implement the new app: The participants showed their curiosity and eagerness to learn the app which aided them to process their oral presentation tasks though the technological app is new to them. R8 narrated, *“no matter what the processes to use and steps to follow on the app, I am eager to know more about the processes (...uhmm, new or not) because I believe that the result could affect my ability in presenting orally”* (R8).

The second CCTDI subscale is called systematicity. This assesses students being organized, orderly, focused, and diligent in inquiry. The participants when they were mapping down their ideas and information using the app, they tend to pay attention especially on how they organize the ideas on their map, how they create logical and coherent output. R19 stated his view concerning his sense of systematicity, *“the app provides helpful mapping techniques and this made me become more orderly and systematic in creating my ideas for the task”* (R19).

Another subscale of CCTDI is maturity which aims to the attribute of being reflective to decisions being made. Respondents became more matured as they manifest better decision-making in laying down their concepts, designs, and ideas before, during and after speaking task as what R4 expressed: *“the approach used by our teacher enhanced my decision-making process. I need to balance my ideas which will would aid me to come up with accurate and logical information”* (R4).

Open-mindedness addresses being open-minded to different views with sensitivity to the possibility of one’s own bias. R1 unveiled her opinion regarding this: *“I really need to listen to the opinion of others because I could grasp more and more ideas from them to help improve mine”* (R1).

Another CCTDI subscale is CT-self-confidence which targets the level of trust one puts in one’s own reasoning practices. R6 conveyed his thoughts regarding this: *“I felt confident of my own output since I did it myself”* (R6).

Truth-seeking targets the disposition of being eager to seek the truth and honest and objective about pursuing inquiry even if the findings do not support one’s interests or one’s preconceived opinions (Facione et al., 1994a). As R5 expressed: *“sometimes it is*

difficult to accept one's opinion but I still believe that those suggestions would somehow help better my ideas" (R5).

The above qualitative results from the interviews yielded positive results not only on participants' use of LoiLooNote digital GO to facilitate effectively their oral presentation task process but also enhancement on their CT dispositions.

DISCUSSIONS

The results from the study show that the intervention program on improving the participants' oral presentation task performance was successful and effective as it helped generate positive results on their presentation task performance and on their CT dispositions. The intervention program also helped the participants improve their oral presentation task performance across the four task components such as clarity, content, fluency and coherence, and delivery and to further learn how to use the digital graphic organizer. The improvement might be due to the fact that LoiLooNote digital GO aided the learners' processes of generating their ideas via mapping. It is a move that evaluate learners' language towards the communication of ideas, thoughts, concepts as well as experiences. It is true that it requires more classroom time to be spent to understand how to operate the said digital graphic organizer, but as the previously outlined activities show, there is more than just "mapping" happening during the sessions dedicated to effectively process their thoughts, views, and concepts.

One of the findings in the current study revealed that using digital GO affected the oral presentation task performance of the students in a positive and statistically significant way. This result is in congruent with other studies: the use of information and computer technology has enabled information mapping to be achieved with greater ease (Davies, 2011); Visual displays do enhance learning (van Gelder, 2007; Kurokami & Kojima, 2018; Harrel & Wetzel, 2013). McTighe (1992) likewise reported that mapping induce students to engage in cooperative learning. A cooperative learning classroom is well-suited for second language learners as it enables them to communicate, collaborate, solve problems, and think critically (Zuo, 2011)

One of the participants during the interview mentioned that her anxiety of expressing her thoughts due to weak grammar usage was reduced since her ideas were aided to be expressed through pictures and videos that she incorporated during map making using the app. The sharing activity might somehow aid the participants to grasp more meaningful and related ideas before they organize their thoughts which will later be used in their oral presentation. Moreover, since their background information was activated, it could eventually help them compose their content logically and effectively. Davies (2011) underscored that mapping allows the presentation of new material to build on existing knowledge and having well-constructed background information permits the students to eventually build new learning. Thus, mapping enhances the brain's ability to comprehend and process more coherent and logical information.

Meanwhile, results of the present study unfold that LoiLooNote digital GO significantly influenced learners' CT dispositions. This might be due to the fact that digital graphic organizer is dedicated at displaying inferential connections between ideas; thus, learners

using digital GO are expected to create better output in terms of the development of their content, lexical resource, coherence, and fluency of ideas. LoilooNote digital GOs help students build their critical thinking skills, Logical reasoning, analyticity and argumentation are not the entirety of critical thinking, but they are central to it (Robillos & Phantharakphong, 2020); and GOs help build skills in logical reasoning, problem-solving and argumentation. These critical skills are complex, and visualization, in general, help our brains cope with complexity. Further, when written material or difficult concepts are expressed graphically, the students can develop alternative structures for understanding the concept (McElroy & Coughlin, 2009). They (McLeroy & Coughlin) also emphasized that digital GOs may aid learners learn analysis because they visualize relationships, chronological relationship between ideas. Kurokami & Kojima (2018) supported this view by emphasizing that digital GOs were developed with the aim of enhancing abilities of the learners to organize logical, creative and critical ideas. LoiLooNote digital GO involves problem-solving and creativity as it is dedicated at displaying concepts and ideas that link to each other. Therefore, the learners are expected to create logical and creative ideas towards effective and successful oral presentation task performance.

Further, the finding of the study exposed that the learners positively inclined to all seven subscales of CT dispositions such as inquisitiveness, open-mindedness, systematicity, analyticity, CT-self-confidence, truth-seeking and maturity. The mean average CCTDI score was 290 which was higher than the established mean score of 280 set by Facione and Facione (1997). This simply manifests that the participants seem to have instilled the virtue of intellectual integrity. LoiLooNote digital GOs help learners to build their concept and views through logical reasoning and critical thinking skills which consequently enhanced their dispositions towards critical thinking. CT dispositions represent an inclination of a person to use possessed skills in relation to critical thinking. Using LoiLooNote digital mapping tools assists learners to empower these CT dispositions since it impacts learners' processes of understanding, assessing and logical reasoning.

CONCLUSION

This study examined the effect of using digital graphic organizer on EFL students' oral presentation skill and their dispositions towards critical thinking in a Thai university. The use of LoiLooNote digital GO can be very beneficial for EFL university students because it allows a place for them to organize their thoughts and views which lead them to come up with a better speaking performance that are more organized, more logical, and more effective. LoiLooNote digital GO acts as roadmap that guides learners over the new content to be learnt which in turn fosters their oral presentation performance across four speaking components such as clarity, content, fluency and coherence and delivery. This study delved into the effect of using digital graphic organizer on EFL university students' oral presentation skill and their dispositions towards critical thinking in a Thai university. The use of LoiLooNote digital GO in a university classroom can be very beneficial for students because it allows a place for students to organize their thoughtsLoiLooNote digital GO acts as roadmap that guides learners over

the new content to be learnt which in turn enhances their presentation performance. Furthermore, digital graphic organizer fosters students' CT dispositions as to open-mindedness, truth-seeking, CT self-confidence, analyticity, systematicity, inquisitiveness, and maturity. As the digital graphic organizers appeared to be effective in learning it can strengthen and direct students' critical thinking. Engaging students' interest in the nature of the teaching materials through working on them in some ways like using digital GOs, a greater degree of commitment and sense of purposeful activity will be generated. Sophisticated technology (e.g. LoiLooNote digital GO) could considerably affect learners' task achievement (van Gelder, 2007; Davies, 2011; Robillos & Phantharakphong, 2020; Robillos, 2021; Astuti et al., 2021).

One essential predictor on learners' success in language processing are their personality traits. Therefore, identifying these traits and providing facilities to enhance them would be a great accomplishment in EFL teaching and learning. Digital GO provides this opportunity for the teachers and learners to improve some of these personality traits such as self-regulated learning, problem-solving, and critical thinking. Finally, the present study constitutes a small-scale study, in the circumstances of only a brief description of the context. The demographic information is limited; thus, the intervention should be retested through a longer duration of studies. Further, designing of effective training procedures incorporating pedagogical – tactical approaches (e.g. metacognitive approach, CLIL approach) towards improving oral presentation skill are further suggested for future research.

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