Fostering Critical Thinking Skills in Lower Secondary School Students by Using Group Discussion Articles and Clues Box

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ABSTRACT

This study aimed to assess and compare the development of students' critical thinking skills using group discussion articles and Clues Box as instructional tool in a lower secondary classroom at The Prince Royal's College, Chiang Mai Province, Thailand. Twenty purposively sampled students participated, evaluated through a critical thinking skills test and group discussion assessments. The findings revealed a significant improvement in students' critical thinking abilities post-intervention. The pre-test average score was 60.2, increasing to 72.8 in the post-test, indicating a highly significant improvement. The paired t-test showed a substantial t-value of 19.69 (df = 19, p < 0.001), affirming the statistical significance of the results. Integrating group discussion articles and Clues Box effectively enhanced students' capacity to critically analyze information, consider diverse perspectives, and engage actively in discussions. These findings underscore the value of innovative pedagogical strategies in fostering critical thinking skills among secondary students, essential for success in today's dynamic global environment.

Keywords: Critical thinking, Group discussion; Teaching materials

Introduction

In today's world, the demand for critical thinking skills among students is more crucial than ever. The ability to analyze information, evaluate its credibility, and make informed decisions is not only essential for academic success but also for navigating the complexities of the 21st century. This action research project aims to explore and enhance critical thinking skills in lower secondary school students through the innovative use of group discussion articles and clue boxes.

Critical thinking is defined as the ability to think clearly and rationally about what to do or what to believe. It involves careful analysis of information, reasoning, and drawing conclusions based on evidence (Foundation for Critical Thinking, 2020). Research indicates that fostering critical thinking skills at an early age can significantly impact students' academic achievement and lifelong learning abilities (Abrami et al., 2015). By engaging students in activities that challenge their assumptions, encourage reflection, and promote collaborative problem-solving, educators can effectively cultivate these essential skills. Lower secondary school students, typically aged 13 to 15 years, are at a pivotal stage in their cognitive development. They are transitioning from concrete operational thinking to more abstract and analytical thought processes (Piaget, 2014). This developmental stage provides a unique opportunity to introduce strategies that can enhance their critical thinking abilities.

Group discussion articles and clue boxes represent two innovative educational strategies designed to promote critical

thinking skills in students. Group discussion articles are carefully selected texts that present controversial or thought-provoking topics relevant to students' lives and interests. These articles encourage students to analyze different perspectives, articulate their opinions, and engage in respectful debate with their peers (Dwyer et al., 2014). Research suggests that structured group discussions not only improve students' comprehension and communication skills but also foster higher-order thinking skills such as analysis and evaluation (Baines et al., 2019).

Clues box, on the other hand, are interactive learning tools that challenge students to solve problems or make decisions based on limited information or clues. This approach not only stimulates curiosity and creativity but also requires students to think critically about the information presented and consider alternative solutions (Zhang et al., 2018). By incorporating clue boxes into classroom activities, educators can create engaging learning experiences that promote independent thinking and problem-solving skills.

The combination of group discussion articles and clue boxes in this action research project aims to create a synergistic effect, enhancing students' critical thinking abilities through active engagement and collaborative learning. By analyzing the impact of these strategies on students' ability to analyze information critically, evaluate arguments, and formulate evidence-based conclusions, this research seeks to contribute to the growing body of literature on effective pedagogical approaches for fostering critical thinking skills. Furthermore, this action research project

aligns with current educational trends emphasizing the development of 21st-century competencies, including critical thinking, communication, collaboration, and creativity (Trilling and Fadel, 2009). As educators strive to prepare students for an increasingly complex and interconnected world, interventions that enhance critical thinking skills are essential for promoting academic success and lifelong learning.

In conclusion, this action research project aims to explore how the integration of group discussion articles and clues box can foster critical thinking skills in lower secondary school students. By leveraging these innovative educational strategies, educators can empower students to become thoughtful, analytical, and informed decision-makers capable of navigating the challenges of the modern world.

Literature Review

Critical Thinking in the Classroom

Murawski (2014) highlighted the widespread integration of critical thinking (CT) into higher education curricula across various colleges and universities. Critical thinking, often approached as a method to enhance cognitive processes, involves a mindset that transcends mere skill development—it encompasses a holistic approach to learning and thinking itself (Paul and Elder, 2020). At its core, critical thinking entails understanding how individuals construct and apply knowledge, with a focus on continually refining and improving one's thought processes. An individual demonstrates proficiency in critical thinking by actively engaging in

ongoing efforts to enhance the quality of their thinking (Facione, 2015). The fundamental premise underlying the study of critical thinking is straightforward: identifying the strengths and weaknesses inherent in one's thinking in order to leverage and fortify strengths while addressing and improving weaknesses (Halpern, 2014). Students who embody the essence of critical thinking employ a variety of probing techniques to unearth innovative and often refined ideas. These individuals rigorously examine issues from multiple perspectives, explore diverse investigative methods, and generate a plethora of ideas before settling on a course of action (Ennis, 2015).

In Thailand, the English language holds a longstanding place within liberal education frameworks, evident from its inclusion as a requirement or optional subject in many general education programs (Sutthirat, 2018). Secondary education in Thailand emphasizes the cultivation of critical thinking (CT) skills, as stipulated in teaching guidelines and evaluation standards, especially in contexts where English serves as a second language (Ministry of Education Thailand, 2021). The integration of English into the general education curriculum underscores its role not only as a linguistic skill but also as a vehicle for fostering critical thinking abilities among students. This emphasis aligns with global educational trends that recognize the importance of English proficiency alongside cognitive skills development (OECD, 2019).

Integrating critical-thinking skills into the foreign language and culture curriculum could help learners develop key cognitive and life skills while also helping to enhance the prestige of a staple

discipline in the general education curriculum (Snider, 2017). In effect, active learning processes and critical thinking development are closely related. Students who are actively engaged in guided discussions and group work are more likely to develop critical thinking skills (Nelson, 2006).

Group Discussion and group work

Group discussions and group work are effective ways to develop and demonstrate critical thinking skills, such as argumentation, persuasion, and evaluation. This research uses the debate and discussion technique to explore controversial or complex topics in a specific subject area through two different group discussion articles. Debates and conversations can also be used to help students to express their opinions, perspectives, and values, and to listen and respond to others. Johanna, Avinash and Bevoor (2023) found that the group discussion method is a learning method that exposes students to a problem. Discussion is a learning method that can be used to implement problem-solving-based learning strategies. Learning Methods Group discussion is a learning process that involves 3-5 people in a group gathering information or knowledge for each group member so that existing problems can be solved. The results of the discussion were then presented to the class by group representatives. The aim is to develop individual cooperation in groups, analytical skills and social sensitivity as well as personal responsibility in groups. The group discussion method can increase students' participation in the learning process and independence in sharing thoughts, experiences and ideas formed in the group discussion process.

Figure 1 Group discussion article or group discussion topic for pre-test
(Source: Researcher)

Figure 2 Group discussion article or group discussion topic for post-test
(Source: Researcher)

The choice of a group discussion article or topic hinges on the participants involved in the group discussion. For lower secondary students, the topic must be simple and establish clear goals and guidelines. Students should build on each other's ideas and thoughts. This will promote a positive learning environment and the outcome of the group discussion will be better. Time

management is an important aspect of group discussion. Students should only speak within the time allowed for them. This will help them speak precisely without getting distracted. Mutual respect is crucial to the success of any group discussion. Students should also aim to provide constructive feedback to create a positive learning environment. At the end of the group discussion, students should summarize and summarize their key points. This helps consolidate ideas so everyone stays on the same page.

Developing students' critical thinking skills through Group discussion article

Students' ability to think critically can be developed through collaborative learning. Implementation of the group discussion method emphasizes students' mastery of the concepts of the material to solve a problem through a process of critical thinking, self-confidence, and the ability to interact with friends and the social environment (Asrita and Nurhilza, 2018).

Students' ability to analyze the topic in group discussion is claimed to emerge from critical thinking skills (Asrita and Nurhilza, 2018). Students were introduced to the weekly topic through an interactive lecture led by the lecturer. This session included comprehensive summaries of relevant theories and concepts, complemented by multimedia materials such as newspapers, books, film clips, or short documentaries (Jones, 2014). The group discussion article is a task in task-based language teaching. Nunan (2004) defined a task is *"a piece of classroom work that involves learners in comprehending, manipulating, producing or interacting in the target language while their attention is focused on*

mobilizing their grammatical knowledge in order to express meaning, and in which the intention is to convey meaning rather than to manipulate form. The task should also have a sense of completeness, being able to stand alone as a communicative act in its own right with a beginning, a middle and an end" (p. 4). According to this definition, learners must understand the task given and become familiar with the task. The ultimate goal is to help learners complete the task, and learning the linguistic features is secondary (Trang and Anh, 2020).

Fung and Leung (2016) confirm that group work is effective in helping students develop critical thinking compared to whole-class teaching. In addition, the teacher plays a role in facilitating group discussions that may arise during small group debates. Baines, Blatchford and Chowne (2007) explained that students are empowered as experts on the problems they face every day, and these problems are used as a starting point for intensive classroom discussions. Co-learning is a form of active, dynamic learning in contrast to traditional, passive teaching formats, such as the standard lecture. The use of team-based learning, such as: such as small group discussions and whole-class debates, is an essential part of an active educational approach. Co-learning has been shown to improve critical thinking, improve communication skills, and improve sociocultural awareness for both teachers and students.

Clues Box

Tomlinson (2012) further highlights the central role of materials in language learning and includes a wide range of resources such as coursebooks, videos, graded readers, flashcards, games, websites and mobile interactions. These materials can serve as exploration tools and help learners make meaningful discoveries about the language. With these considerations in mind, the researcher made a conscious decision to enhance critical thinking skills in the context of lifelong learning through the development of a resource known as a "Clues Box".

The Clues Box is a collection of materials containing words relevant to the topic being discussed. Importantly, the topics covered in group discussions are rooted in real-life situations, providing students with a platform for critical thinking as they work together to resolve the challenges presented in the discourse.

The "Clues Box" material, which contains a curated set of keywords intended to stimulate critical thinking, is believed to improve participants' cognitive processes and problem-solving skills during discussions. By providing a structured framework of relevant terms, the Clues Box aims to stimulate deeper analysis, encourage consideration of diverse perspectives, and facilitate the synthesis of information. The presence of these keywords is expected to serve as cognitive triggers, prompting participants to make connections, support their arguments with evidence, and engage in reflective thinking.

The Clues Box is designed to promote active listening and collaborative decision-making by providing participants with tangible clues, prompts, or information that serve as a shared

vocabulary. These items could include key facts, relevant data points, thought-provoking questions, or diverse perspectives related to the discussion topic. By accessing this shared resource during discussions, participants can deepen their understanding, consider alternative viewpoints, and contribute more substantively to nuanced and well-informed conversations. The hypothesis suggests that the intentional inclusion of keywords in the "Clues Box" will contribute to an environment that promotes critical thinking and enhances participants' ability to address complex problems with greater depth and breadth. In particular, the 'Clues box' serves as a tool to strengthen participants' critical thinking and promote their active participation in group discussions. These teaching tools are intended to provide in-depth learning experiences through group discussions and promote individuals' critical thinking skills.

The Clues Box serves a multifaceted role in enhancing critical thinking and fostering active participation in group discussions. It functions by providing participants with a curated set of key words, excerpts from relevant texts, or summaries that expand vocabulary and improve reading comprehension within the context of the discussion. This resource encourages active listening skills as participants engage with the information to respond thoughtfully and contribute meaningfully to the discourse. By offering a shared vocabulary and pertinent information, the Clues Box facilitates collaborative decision-making processes. It prompts critical thinking by presenting challenging questions, diverse viewpoints, or evidence that prompts participants to evaluate information critically and explore different perspectives. This

mechanism encourages a dynamic exchange of ideas, enabling participants to collectively reach informed conclusions and enhance their overall engagement in group discussions.

Research Objective

The purposes of this research were to test and compare students differentiated critical thinking skills by using group discussion articles and clues box as instructional media for a lower secondary class.

Methodology

This study uses a pre-experimental design in the form of a one-group pretest-posttest design using a quantitative approach. In the pre-test and post-test group, observation occurs twice, before treatment, called pre-test, and after treatment, called post-test (Suwathanpornkul, 2019). Independent variables are group discussion items and clues box and dependent variables are critical thinking skills in lower secondary school students.

The pre-test is conducted before the group is treated, so that the pre-test can represent the initial skills of the group. The treatment here is the application of media to the group. The posttest was administered after the group received treatment so that the posttest could represent the group's development.

The pre-test served as an evaluative measure to assess the presence of critical thinking skills among the participants. In this assessment, participants were tasked with reading a real-world situation article concerning the Influence of social media on

teenagers' lives in Thailand within a time frame of 15 minutes. Furthermore, participants were required to engage in a discussion about the provided article, drawing upon their existing knowledge of critical thinking skills to address the central question: "How can teenagers effectively balance the positive and negative influences of social media in their lives?" Throughout the discussion, the researcher not only gauged individual participant behaviors but also identified groupthink dynamics within the group discourse. Additionally, the researcher assessed the manifestation of critical thinking skills by analyzing the content contributed by each individual during the discussion process.

In the post-test, the researcher employed a graded assessment to evaluate the development of critical thinking skills. Participants were tasked with reading a real-world article on the topic of "Bullying: Recognizing, Preventing, and Taking Action" within a 15-minute timeframe. Following this, participants engaged in a discussion regarding the article and responded to the central question: "How can we, as students and members of our school community, actively contribute to preventing and addressing bullying in our school?" Additionally, we utilized a resource called the "Clues box" to aid participants in enhancing their critical thinking abilities. The Clues box contained words such as "cyberbullying," "empathy," and "school environment," along with associated phrases and questions. Throughout the discussion, the researcher also carefully observed individual participant behaviors, identified instances of groupthink in group discussions, and assessed critical thinking skills as demonstrated in the participants' contributions

Participants

This research comprised 20 second-year secondary school students of the lower secondary class at The Prince Royal's College, Chiang Mai Province, Thailand, collected by purposive sampling techniques. These individuals were selected from the pool of students enrolled in the English course, given that this course primarily focuses on fostering communication and discussion skills among its participants.

Results and Discussion

Results of Critical Thinking

After the research implementation, the score was obtained from pretest and posttest stage. Table 1 shows the average of pretest and posttest that have been carried out.

Table 1: Result of Critical Thinking

Test	N	*M*	*S.D.*	t	p
Pre-test	20	60.2	2.89	19.69	.001*
Post-test	20	72.8	2.84		

* Significant at (p<0.05)

The results from the research study highlight a significant enhancement in critical thinking skills among lower secondary school students following an intervention involving group discussion articles and a clues box. Prior to the intervention, students had an average pre-test score of 60.2, with a standard deviation of 2.89, providing a baseline assessment of their initial critical thinking abilities. After engaging with the intervention

activities, students demonstrated a substantial improvement in their post-test scores, averaging 72.8 with a standard deviation of 2.84. This considerable increase in scores indicates the effectiveness of the employed strategies in enhancing critical thinking. The paired t-test revealed a high t-value of 19.69 with 19 degrees of freedom, yielding a p-value of less than 0.001, signifying strong statistical significance. These findings underscore the efficacy of interactive learning approaches, such as group discussions and hands-on activities like the clues box, in cultivating critical thinking skills among secondary school students. They suggest that such pedagogical methods can play a pivotal role in fostering deeper analytical thinking and problem-solving abilities in educational settings.

Results of Group Discussion Evaluation

The evaluation of group discussions assessed the impact of integrating the Clues Box as an instructional tool among 20 participants across multiple sessions. Participants actively engaged with the Clues Box, leveraging cues, prompts, and information to enrich their understanding of discussion topics. This active engagement was evident through frequent contributions and interactions, illustrating the tool's ability to foster participant engagement. Moreover, the Clues Box facilitated critical thinking by prompting participants to analyze information critically, evaluate various perspectives, and synthesize insights to construct well-founded arguments. In terms of collaborative decision-making, the Clues Box supported participants in using shared vocabulary and information to reach consensus, explore alternative solutions, and

make informed group decisions. Overall, the integration of the Clues Box enriched participants' contributions to discussions, enhancing their ability to articulate ideas clearly, reference key concepts effectively, and delve deeper into discussion topics. These outcomes underscore the effectiveness of employing interactive instructional tools such as the Clues Box to enhance educational experiences, promote active learning, and cultivate essential skills in group settings.

Conclusion

The incorporation of real-world scenario articles significantly enhances critical thinking skills among English as a Foreign Language (EFL) students during group discussions. These articles, infused with contextual relevance, enable students to connect theoretical knowledge with practical situations, thereby fostering deeper analysis and critical thinking. Engaging with these scenarios prompts students to apply their existing knowledge in comprehending and responding to complex issues, encouraging them to explore diverse perspectives and enriching their overall understanding. The challenges posed by these scenarios also cultivate problem-solving skills, promoting collaborative discourse where students actively address central questions, express opinions, and contribute diverse viewpoints. Analyzing real-world scenarios nurtures analytical skills, establishing a strong foundation for robust critical thinking. Additionally, the incorporation of culturally relevant elements enhances students' cultural sensitivity and broadens their perspectives, making language proficiency applicable to authentic contexts beyond the classroom. This approach not only connects

language learning with real-world use but also prepares students for practical applications in diverse cultural settings, enhancing the transferability and relevance of their learning experiences.

The utilization of a 'Clues Box,' comprising words, phrases, and transitional elements, further augments critical thinking abilities and active engagement among EFL students, specifically addressing the potential challenges associated with group dynamics. This instructional tool serves as a catalyst for critical thinking by providing prompts that encourage deep contemplation and thorough analysis during group discussions. The inclusion of relevant vocabulary and prompts students to consider multiple viewpoints, thereby fostering a comprehensive understanding of the topics under discussion. Moreover, the transitional elements aid in structuring coherent arguments, enhancing students' ability to articulate their thoughts effectively. By offering cues that guide critical thinking processes, the 'Clues Box' not only stimulates individual reflection but also promotes collaborative problem-solving within the group setting. Additionally, the 'Clues Box' acts as a strategic mechanism to counteract tendencies towards groupthink. By introducing external stimuli in the form of vocabulary and prompts, the tool disrupts potential conformity and encourages independent thought within the group. Ultimately, the 'Clues Box' serves as a safeguard against the homogenization of ideas within the group, encouraging students to critically examine different perspectives and contribute diverse insights to discussions constructively and inclusively.

Pedagogical Implications

Given the demonstrable positive impact of using the Clues Box in group discussion activities on the development of critical thinking skills among Thai EFL learners, this research offers valuable insights with potential benefits for educators and researchers alike. This research holds significant promise for educators seeking effective teaching strategies. The Clues Box can be integrated into group discussion activities as a valuable instructional resource. Specifically, teachers who aim to foster critical thinking and active participation in their classrooms can leverage the Clues Box to achieve these objectives.

Furthermore, the Clues Box can serve as an engaging icebreaker activity to gauge participants' predisposition toward critical thinking, helping instructors tailor their teaching methods accordingly. By incorporating the Clues Box, teachers can gain deeper insights into the interests, concerns, and objectives of Thai EFL participants, enabling more effective communication and tailored instruction. Researchers interested in the realm of teaching implications and classroom development in Thailand can draw upon this study's findings. The case studies presented in this research shed light on the distinctive characteristics of Thai participants in the context of critical thinking development.

Additionally, the research elucidates the factors that may hinder or facilitate the advancement of critical thinking skills among participants. Researchers can utilize this knowledge to inform their future studies and educational initiatives. Based on the findings of this research, it is evident that the Clues box served as a catalyst for fostering the short-term development of participants' personal critical thinking skills. To enhance the Clues box as a truly effective resource for lifelong learning,

researchers should consider the following steps. Researchers should refine the vocabulary provided in the Clues box to align with the specific needs and abilities of learners engaged in discussions. This customization ensures that the material is not only relevant but also conducive to long-term skill development. A more comprehensive exploration of lifelong learning development should be undertaken. Researchers ought to delve deeper into how this pedagogical approach can be effectively integrated into instructional materials. Understanding how to incorporate lifelong learning principles into the material will be instrumental in its long-lasting impact. By pursuing these avenues of research, the Clues box can be transformed into a highly effective educational tool that supports lifelong learning and continual critical thinking skill development.

References

Abrami, P. C., Bernard, R. M., Borokhovski, E., Waddington, D. I., Wade, C. A., & Persson, T. (2015). Strategies for teaching students to think critically: A meta-analysis. *Review of Educational Research, 85*(2), 275-314.

Asrita, A., & Nurhilza, N. (2018). Students' critical thinking skills in group discussion: The case study of fifth grade students in Sukma Bangsa Bireuen Elementary School. *Sukma: Jurnal Pendidikan, 2(*1), 67-92.

Baines, E., Blatchford, P., & Chowne, A. (2007). Improving the effectiveness of collaborative group work in primary schools: Effects on science attainment. *British Educational Research Journal, 33*(5), 663-680.

Baines, E., Blatchford, P., & Kutnick, P. (2019). *Promoting effective group work in the primary classroom: A handbook for teachers and practitioners*. Routledge.

Dwyer, C. P., Hogan, M. J., & Stewart, I. (2014). An integrated critical thinking framework for the 21st century. *Thinking Skills and Creativity, 12*, 43-52.

Ennis, R. H. (2015). Critical thinking: Reflection and perspective Part I. *Inquiry: Critical Thinking Across the Disciplines, 34*(2), 47-60.

Facione, P. A. (2015). *Critical thinking: What it is and why it counts.* Insight Assessment.

Foundation for Critical Thinking. (2020). *Defining critical thinking.* Retrieved from [https://www.criticalthinking.org/pages/defining-critical-thinking/766]

Fung, D. C. L., To, H., & Leung, K. (2016). The influence of collaborative group work on students' development of critical thinking: The teacher's role in facilitating group discussions. *Pedagogies: An International Journal, 11*(2), 146-166.

Halpern, D. F. (2014). *Thought and knowledge: An introduction to critical thinking.* Psychology Press.

Johanna, A., Avinash, B., & Bevoor, B. (2023). Small group discussion method to increase learning activity: Its implementation in education. *International Journal of Educational Narratives, 1*(1), 18-22.

Jones, J. M. (2014). Discussion group effectiveness is related to critical thinking through interest and engagement. *Psychology Learning & Teaching, 13*(1), 12-24.

Ministry of Education Thailand. (2021). *National Education Act B.E. 2560 (2017).* Retrieved from [https://www.moe.go.th/en/national-education-act-b-e-2560-2017/]

Murawski, L. M. (2014). Critical thinking in the classroom... and beyond. *Journal of Learning in Higher Education, 10*(1), 25-30.

Nelson, C. (2006). *Fostering critical thinking: Comments and conversations.* The Center for Excellence in Learning and Teaching (CELT). Brockport, NY; The College at Brockport. State University of New York.

Nunan, D. (2004). *Task-based language teaching.* Cambridge University Press.

OECD. (2019). *The future of education and skills: Education 2030*. OECD Publishing.

Paul, R., & Elder, L. (2020). *Critical thinking: Concepts and tools.* Foundation for Critical Thinking.

Piaget, J. (2014). *Piaget's theory of cognitive development.* In J. Piaget & B. Inhelder (Eds.), The psychology of the child (2nd ed.). Basic Books.

Snider, D. (2017). Critical thinking in the foreign language and culture curriculum. *The Journal of General Education, 66*(1-2), 1-16.

Suwathanpornkul, I. (2019). *Educational Research: Concepts and Applications* [การวิจัยทางการศึกษา: แนวคิดและการประยุกต์ใช้]. Chulalongkorn University Press.

Sutthirat, C. (2018). *English language education in Thailand: Policy and practice.* Springer.

Tomlinson, B. (2012). Materials development for language learning and teaching. *Language Teaching, 45*(2), 143–179.

Trang, N. H., & Anh, K. H. (2020). Impact of teaching critical thinking tasks for enhancing paragraph writing performance of EFL learners. *International Journal of Education and Practice, 8*(4), 784-803.

Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times.* John Wiley & Sons.

Zhang, J., Scardamalia, M., Lamon, M., Messina, R., & Reeve, R. (2018). Socio-cognitive dynamics of knowledge building in the work of 9- and 10-year-olds. *Learning, Culture, and Social Interaction, 18*, 6-21.