Using Clustering Flower to Enhance Grade 8 Students' Conceptual Understanding in English

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ABSTRACT

The clustering flower approach markedly improves learners' conceptual understanding, motivation, engagement, and critical thinking, evidenced by considerable advancements in several educational measures. This action research sought to enhance the conceptual comprehension in English among Grade 8 pupils. The research utilized a classroom-based action research methodology, recruiting 33 students by purposive sampling from a public secondary school in Ozamiz City during the 2023-2024 academic year. A researcher-developed pre-test and post-test were utilized for data collection, with analysis involving the calculation of the mean and standard deviation, as well as the execution of a t-test. The study employed statistical tools like frequency, percentage, mean, standard deviation, and t-test. Thematic analysis was conducted via HyperResearch to identify prevalent and emerging themes. Prior to the use of clustering techniques, the students' conceptual grasp was inadequate; however, following the intervention, their performance improved to a satisfactory level. The integration of the clustered flower method is an effective tool for improving students' conceptual comprehension in English.

Keywords: Classroom-based; Clustering flower; Conceptual understanding; Critical thinking; Engagement; Integration; Intervention; Motivation; Public; Secondary students.

1. Introduction

In middle school, English is essential for developing students' communication abilities and academic achievement (Hyun et al., 2020). English is not merely an academic discipline; it serves as the cornerstone for critical thinking, creativity, and effective communication, which are vital competencies for future academic and professional achievement (Hessel, 2019). Proficiency in English enables students to flourish in several areas by improving their comprehension and analysis of texts, articulation of ideas, and participation in conversations (Syahfutra & Niah, 2019). Many Grade 8 pupils, however, encounter difficulties in comprehending intricate topics in English, which extends beyond just reading and memorization. They must cultivate a profound comprehension of concepts, themes, and interrelations within the language to achieve academic and practical success (Willingham, 2021). Due to the persistent necessity for enhancement, it is evident that new strategies are crucial for assisting students in surmounting these obstacles and attaining a more profound conceptual comprehension in their English studies.

High school students frequently encounter significant cognitive demands as they engage with increasingly intricate and esoteric concepts across multiple disciplines, including English, which complicates the processing and retention of new material (Appleman, 2023). Furthermore, conventional pedagogical approaches that predominantly depend on rote memory and lecture-centric education may fail to engage students successfully or accommodate varied learning styles (Kumari et al., 2023). Moreover, inadequate integration of practical applications and interdisciplinary links might render concepts appear unimportant or abstract (Tipmontiane & Williams, 2022).

Students possess inadequate English competence to understand auditory instructions from their teachers or textual content in their textbooks, rendering active engagement practically unfeasible (Getie, 2020). The inability to proficiently use English has adversely affected the quality of teaching and learning in schools (Altmeyer et al.,

2020). This leads to pupils participating in rote memorization with limited understanding of the material presented (Ishartono et al., 2019). At worse, numerous pupils, devoid of fundamental English abilities essential for rote learning, predominantly occupy their class time transcribing notes from the chalkboard, frequently rendering them nonsensical (Sibomana, 2022). In this context, English transforms from a medium of instruction to a media of impediment (Odugu & Lemieux, 2019).

In the latest Education First English Proficiency Index for 2023, the Philippines attained the 20th position globally, indicating a significant level of proficiency (Kabigting, 2020). In the Asian area, the country secured the second position. Singapore has outperformed the Philippines in the use of English for both verbal and written communication in professional environments and daily interactions. The sensation of unease, apprehension, trepidation, and worry associated with utilizing a second or foreign language is termed "language anxiety." Filipino students in secondary education frequently encounter this problem, which may adversely affect their English language proficiency (Kabigting & Nanud, 2020).

The English proficiency level of college graduates in the Philippines is inferior to the intended proficiency level of high school pupils in Thailand (Rudd & Honkiss, 2020). This information derives from a research conducted by Hopkins International Partners, the official Philippine agent for the Test of English for International Communication (TOEIC) organization. Rex Wallen, General Manager of Hopkins International Partners, said that the Philippines lags below some ASEAN counterparts in English competence (Kabigting, 2020).

Numerous pieces of data suggest that a principal component influencing students' academic success is their conceptual approach and comprehension (York et al., 2019). Students encounter difficulties including poor language proficiency, worry over concepts, lack of desire, reliance on their native language, and insufficient structural comprehension (Al-Seghayer, 2021). It is crucial to equip pupils during their secondary education for the various writing tasks they may face in their future careers (Jeong & So, 2020).

Nonetheless, the current research appears to exhibit a deficiency of practical understanding. The existing literature is deficient in robust investigations. Certain unknown areas are lacking in the English education curriculum for Grade 8 students. The domain of English education for this grade level is prepared for empirical study aimed at employing the clustering flower technique to improve students' conceptual comprehension in English (Miles, 2017). The clustering flower technique presents an effective approach to improve students' conceptual comprehension by offering a visually stimulating and structured framework for learning. Visual representation enhances students' understanding of intricate concepts and facilitates the recognition of interconnections among various ideas. This active participation cultivates a more profound knowledge than passive learning approaches, as students examine, categorize, and prioritize information to complete the petals of the clustering flower (Koh et al., 2019). Moreover, the clustering flower fosters the development of metacognitive skills as students contemplate their cognitive processes and problem-solving techniques (Sutarto et al., 2022).

This research is based on John Dewey's learning theory, which asserts that pupils get optimal learning through experiential methods. This theory aims to improve Grade 8 pupils' conceptual knowledge of English through

interactive experiences. Consequently, employing the clustering flower technique promotes active participation and enhances understanding. Integrating the clustering flower method into English courses encourages students to visually manipulate and organize concepts, so enhancing critical thinking skills and cultivating a deeper comprehension of the English language. This action research project examined the efficacy of the clustered flower technique in enhancing Grade 8 students' conceptual comprehension in English, in accordance with Dewey's concepts of experiential learning and active engagement in the educational process.

2. Methods

This study utilized action research to improve the conceptual comprehension of Grade 8 English students in a junior high school in Ozamiz City. The research involved 33 Grade 8 students selected through a purposive selection method, including those with low English performance, who provided full consent, and only from the Amber section. The researcher developed a prototype intervention and obtained permission from the Superintendent of the Division of Ozamiz City, authorization from the principal, and consent from a collaborating teacher. The implementation phase involved data collection, observing participants' performance and attitudes, and performing post-test evaluations. The post-implementation phase involved drawing findings, offering recommendations, proofreading, revising, and concluding the research study. Ethical considerations were maintained, and participants were informed about their involvement and rights. The study maintained confidentiality and anonymity, and the final report resolved copyright issues. Minitab statistical software was used to provide a descriptive overview, determine learners' level of conceptual understanding before and after using the clustering flower, and explore significant differences. Thematic analysis was used to explore other improvements observed among the learners after using the clustering flower.

3. Results and Discussions

3.1. Students' Level of Conceptual Understanding Before Using Clustering Flower

Table 1 illustrates the degree of conceptual comprehension among learners prior to the execution of the clustered flower. The comprehensive results demonstrate that all students were required to fulfill the requirements. In total, 33 pupils (100.00%) were classified as failing to fulfill the expectations (M = 7.97; SD = 3.27).

The data unequivocally indicates that the learners' conceptual comprehension was markedly below the anticipated level prior to utilizing the clustering flower. With all pupils classified in the "Did not Meet the Expectations" category, it is clear that there was a widespread problem with comprehension or retention of the information. The average score of 7.97, much beneath the minimum acceptable standard of 18, highlights the extent of the problem. The substantial standard deviation of 3.27 indicates diversity in the scores, suggesting that although all pupils were underperforming, some were nearer to the threshold than others.

The results underscore an imperative necessity for interventions to improve learner performance. Educators and school administrators want to contemplate the incorporation of the clustering flower strategy to enhance comprehension and retention. Current performance metrics indicate that conventional pedagogical approaches may be inadequate for learners to fully comprehend the topic.

The majority of school engagement metrics predominantly emphasize academic achievement (Lynam et al., 2024). Although the importance of academic performance must be acknowledged, it is equally vital to expand the emphasis to encompass support for students in attaining non-academic achievements (Issah, 2023). Academic performance is essential for achieving educational and learning goals and promoting personal development (Mahoney, 2021).

It is advisable for educators to get training on the proper integration of clustered flower strategies into their lesson plans to solve these deficiencies. Moreover, augmenting these strategies with dynamic and engaging pedagogical methods, like group discussions, practical exercises, and regular formative evaluations, can facilitate the evaluation and enhancement of student development. Regular feedback sessions help pinpoint specific areas in which students have difficulties and require further assistance. Implementing a more participatory and supportive methodology is expected to markedly enhance learners' performance and retention rates.

Table 1. Students' Level of Conceptual Understanding Before Using Clustering Flower

Level of Conceptual Understanding	Frequency	Percentage	M	SD
Did not Meet the Expectations	33	100.00	7.97	3.27

Note Scale: 26-30 (Outstanding); 23-25 (Very Satisfactory); 21-22 (Satisfactory); 18-20 (Fairly Satisfactory); 1-17 (Did not Meet the Expectations).

3.2. Students' Level of Conceptual Understanding After Using Clustering Flower

Table 2 displays the performance of learners following the implementation of the clustering flower. The learners' total performance shown a notable enhancement, with a mean score (M = 22.58; SD = 2.40).

The predominant frequency of learners was in the "Satisfactory" category, with 12 pupils (36.36%) attaining (M = 21.58; SD = 0.52). Subsequently, 11 students (33.33%) were classified as "Very Satisfactory," with a mean of 24.00 and a standard deviation of 0.63. Six pupils (18.18%) were categorized as "Fairly Satisfactory" (M = 19.17; SD = 0.75). Four students (12.12%) were classified as "Outstanding," with a mean of 26.75 and a standard deviation of 0.50.

The data indicates a substantial enhancement in learner performance subsequent to the use of the clustering flower approach. Notably, 36.36% of students attained satisfactory outcomes, illustrating the efficacy of this interactive tool in improving understanding and retention. The mean score rose to 22.58, signifying a general enhancement in performance levels relative to the pre-test scores, where all pupils fell short of expectations. The proportion of students failing to meet expectations fell from 100% to 18.18%, so underscoring the beneficial effects of the clustering flower approach.

The elevated standard deviation of 2.40 indicates a wider spectrum of performance levels, suggesting that while numerous students had substantial improvement, some continued to have difficulties, albeit to a lower degree than previously. The results demonstrate that the incorporation of the clustered flower approach markedly enhanced learner performance. This enhancement should encourage educators and school administrators to persist in and even expand the implementation of such methodologies in their curricula.

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The clustered flower approach significantly improves student comprehension (Sudirtha et al., 2022). It captivates students by integrating visual aids that enhance interactivity and enjoyment, hence enhancing educational outcomes (Qizi, 2024). This approach offers experiential and inquiry-driven learning opportunities that enhance students' understanding of concepts (Kilag et al., 2023). The implementation of clustering flower strategies has markedly enhanced students' comprehension of subjects and has garnered highly favorable comments (Zhong, 2024).

It is advisable to provide supplementary assistance systems to rectify the deficiencies if certain pupils fail to meet expectations. These encompass focused tutoring sessions, individualized learning programs, and other interactive tools to address varied learning requirements. Furthermore, professional development for educators regarding optimal practices for the use of these strategies could augment their efficacy. Facilitating collaborative learning activities and providing consistent feedback can assist in identifying and supporting students who continue to experience difficulties. Enhancing the learning environment through increased interactivity and support is anticipated to elevate overall student achievement, guaranteeing that all learners gain from the improved educational resources.

Table 2. Students' Level of Conceptual Understanding After Using Clustering Flower

Level of Conceptual Understanding	Frequency	Percentage	M	SD
Outstanding	4	12.12	26.75	0.50
Very Satisfactory	11	33.33	24.00	0.63
Satisfactory	12	36.36	21.58	0.52
Fairly Satisfactory	6	18.18	19.17	0.75
Overall Performance	33	100.00	22.58	2.40

Note Scale: 26-30 (Outstanding); 23-25 (Very Satisfactory); 21-22 (Satisfactory); 18-20 (Fairly Satisfactory); 1-17 (Did not Meet the Expectations).

3.3. Significant Difference in the Student's Level of Conceptual Understanding Before and After Using Clustering Flower

Table 3 illustrates the notable disparity in learners' performance prior to and subsequent to the implementation of the clustering flower. The investigation indicated a highly significant difference in performance before and after the implementation of the clustering flower (t = 21.91, p = 0.00).

The sole notable variable revealed in the investigation was learners' performance prior to and subsequent to utilizing the clustering flower. The average score prior to implementing the method was (M = 7.97; SD = 3.27), while the average score subsequent to utilizing the simulation was (M = 22.6; SD = 2.40). The t-value of 21.91 and a p-value of 0.00 (p < 0.01) signify a highly significant difference, resulting in the rejection of the null hypothesis (H0). This signifies that the clustered flower strategy significantly enhanced learners' conceptual comprehension. The study revealed no non-significant results, as the sole comparison conducted was very significant.

The significant enhancement in student performance resulting from the clustered flower technique holds critical implications for educators and school authorities. This compelling data supports the ongoing and increased use of interactive activities in the curriculum to improve student comprehension and retention of material.

The clustered flower technique serves as an effective aid for pupils facing challenges with abstract concepts and comprehension (Hiebert, 2020). The integration of clustering flower approaches facilitates the comprehension of abstract concepts by offering a smooth transition from the concrete to the abstract via visual representation. This visual aid provides a comprehensive learning experience and incorporates correct and precise core concepts (Pellas et al., 2021). Furthermore, it cultivates motivation and motivates students to interact more efficiently with their academic pursuits (Xie et al., 2023). This viewpoint emphasizes the favorable relationship between increased student learning motivation and improved conceptual comprehension, as assisted by clustering flower approaches in English instruction (Lopez, 2024).

To leverage this accomplishment, educational institutions should provide training sessions for educators on the effective incorporation of clustering flower approaches within their instructional methodology. Moreover, augmenting these tactics with other interactive and engaging instructional methods can further improve student learning. Regular evaluations and feedback sessions are essential as they allow educators to identify persistent issues faced by pupils, hence enabling focused interventions and support.

The findings indicate that incorporating interactive instructional tools, such as clustering flower approaches, significantly improves student performance, making them an essential component of educational tactics in schools.

Table 3. Significant Difference in the Student's Level of Conceptual Understanding Before and After Using Clustering Flower

Variables	M	SD	t-value	p-value
Before Using Clustering Flower	7.97	3.27		
After Using Clustering Flower	22.58	2.40	21.91	0.00

Ho: There is no significant difference in the student's level of conceptual understanding before and after using clustering flower.

*Note: Probability Value Scale: **p<0.01 (Highly Significant); *p<0.05 (Significant); p>0.05 (Not Significant).*

Other Developments Observed Among the Students After the Use of Clustering Flower

The study analyzed the significant effects of implementing the clustering flower technique to enhance conceptual understanding among Grade 8 students in English. Participants of the study shared their individual experiences and feelings regarding this interactive strategy. The researchers gathered and analyzed responses from eight participants, seeking to identify key themes that emerged from their feedback. The analysis revealed three themes that encapsulate the participants' experiences and sentiments about using the clustering flower strategy: 1) Improved Comprehension Skills; 2) Increased Motivation and Engagement; 3) Enhanced Critical Thinking.

3.4. Improved Comprehension Skills

Enhanced comprehension abilities using clustering flowers denotes a pedagogical method that utilizes visual and organizational instruments, such as clustering diagrams, to facilitate the grasp of intricate concepts. The clustered flower symbolically symbolizes a fundamental concept or theme at its core (the flower's center), with associated

subtopics or details extending outward (the petals). It assists learners in recognizing the interconnections among concepts and their relation to the central notion. This spatial configuration can facilitate comprehension and retention of information. These are the responses of the participants:

"The clustering flower technique has made me clarify complex topics by visually organizing and connecting related concepts, making it easier to see relationships and overarching themes. This approach has deepened my understanding and retention of many subjects." (P2)

"The clustering flower helped me in improving my understanding of concepts by answering it as another example about the topics we discussed. It also helped us to know how to exchange sentence outline to a graph for much easier understanding of the concept." (P7)

"By organizing information into a central theme with related subtopics branching out, the clustering flower helped me have a clear visual representation of how concepts are interconnected. This helps in understanding the hierarchical structure and the relationships between different elements of a complex topic that I encountered during the fourth quarter." (P8)

The participants' feedback demonstrated the efficacy of the clustered flower technique in improving learning by elucidating intricate subjects, providing alternate illustrations, and visually depicting interrelated concepts. It assists students in organizing and linking similar concepts, facilitating the identification of linkages and overarching themes, hence enhancing comprehension and retention (Feng et al., 2023). Furthermore, it enhances the understanding of concepts by transforming phrase outlines into visual representations and facilitates the knowledge of hierarchical structures and linkages within intricate subjects (Ghanizadeh et al., 2020). The clustered flower technique markedly enhances conceptual comprehension and recall (Muhali et al., 2021). The integration of the clustered flower approach significantly enhances pupils' comprehension and recall of intricate subjects. It visually arranges and links related concepts, elucidating intricate material and aiding pupils in comprehending hierarchical systems and interrelated ideas. This approach fosters active participation and analytical reasoning, enhancing retention and rendering the learning experience more dynamic and pleasurable. In general, it renders intricate topics more approachable and less daunting for learners.

3.5. Increased Motivation and Engagement

Enhancing motivation and engagement in pupils pertains to the visual structuring of abstract topics that captivates their interest and ignites their curiosity. This interactive method promotes active engagement and cultivates a sense of ownership about the content. Students' confidence increases as they picture intricate subjects and comprehend the interconnections between concepts, resulting in enhanced investigation and learning. Moreover, grouping flowers enhances collaborative learning experiences, fostering peer engagement and cooperative efforts. These are the responses of the participants:

"Using clustering flower has increased my interest and motivation by helping me transform abstract ideas into tangible visual maps. This makes learning more engaging and accessible to me. The technique has also caught my curiosity and enthusiasm for exploring new topics." (P4)

"My motivation has changed when we started using the clustering flower because it persuades me to understand the lesson more in order to answer the clustering flower at the end of the discussion or when the teacher gave us an activity to answer the clustering flower." (P6)

"Since using clustering flower, my interest and motivation in the subject have significantly increased. Visualizing complex topics in a structured manner has made the learning process more engaging and enjoyable, leading to a deeper understanding and a desire to explore further." (P7)

"Using clustering flower has reignited my interest and motivation in the subject. The visual organization of concepts has made studying more dynamic and interactive, prompting me to delve deeper into the material and seek out connections between ideas." (P8)

Motivation is essential in the learning process. It facilitates the attainment of learning objectives. When learners possess it during the learning process, they will comprehend the materials more effectively, particularly in English (Sambayon et al., 2023). A motive is an internal impetus that compels an individual to behave. Motivation is the impetus that affects an individual's behavior, driving them to take action to attain particular outcomes or objectives (Rahardjo & Pertiwi, 2020). The students' replies indicate that employing clustered flowers enhances their motivation and engagement, resulting in improved performance in the subject. The beneficial effect of the clustered flower technique on students' interest and motivation highlights the need of integrating visual aids in education.

Educators must to incorporate clustered flower activities into their lesson plans and offer training for actual implementation. Interactive sessions for collaborative clustering flower production can enhance comprehension, while workshops and visual aids can assist educators in efficiently applying this strategy. These measures will improve conceptual comprehension, motivation, and student involvement.

3.6. Enhanced Critical Thinking

The improvement of pupils' critical thinking skills is intimately related to the visual organizing of abstract concepts using strategies such as clustering flowers. This strategy captures students' attention and encourages them to question and evaluate the content, resulting in a higher degree of involvement. As students actively picture complex issues and find relationships between concepts, they gain confidence in navigating and comprehending the material. Furthermore, clustered flower promotes collaborative learning experiences in which students participate in peer conversations and cooperative activities to explore ideas and views, so strengthening their critical thinking skills. The answers of participants support this:

"It helped me influenced my thinking skills and problem-solving skills by thinking brightly to answer the following questions and what is needed to complete the task that is given." (P1)

"Clustering flower has enhanced my critical thinking by encouraging me to break down problems into manageable parts and see connections between ideas. It has also improved my problem-solving skills by providing a structured way to analyze and synthesize information." (P3)

"Using clustering flower has enhanced my critical thinking skills by encouraging me to identify patterns and connections between related concepts. It prompts me to think critically about how different ideas interrelate, which has proven invaluable in solving problems and approaching tasks with a more strategic mindset." (P6)

Critical thinking abilities are required for analyzing, identifying relationships, assessing, problem solving, and decision making (Alsaleh, 2020). The pupils' comments show how the clustered flower strategy improved their critical thinking skills. Breaking down problems into smaller components and discovering connections between concepts helps critical thinking (Bean & Melzer, 2021). Clustering flower activities encourage students to break down problems into manageable bits, establish connections between concepts, and examine information in a systematic manner, promoting a higher degree of critical thinking. These findings indicate that including clustering flower approaches into the curriculum can promote a more strategic approach to problem solving and decision making. Furthermore, clustering flower activities allow students to practice pattern recognition skills, which are crucial for practical critical thinking. The findings indicate that introducing clustering flower strategies into educational practices can considerably improve students' critical thinking skills, better equipping them for academic achievement and lifetime learning.

4. Conclusions

The study presents several significant insights concerning the application of the clustered flower method in improving learners' conceptual understanding. Initially, it was apparent that the learners' current comprehension fell short of expectations, highlighting a deficiency in their knowledge and the necessity for a different pedagogical approach. Following the deployment of the clustered flower technique, there was a significant enhancement in their conceptual understanding, highlighting the method's efficacy. The notable disparity in understanding prior to and following its application underscores the clustered flower method's efficacy in enhancing educational results. Moreover, students employing this method exhibited improved understanding, increased engagement, heightened motivation, and superior critical thinking abilities. These findings underscore the comprehensive advantages of integrating the clustered flower technique within the educational framework.

5. Recommendations

It is advised that English educators incorporate tasks employing the flower clustering technique to enhance students' conceptual understanding. Educators want to integrate this strategy into their lesson plans to augment learning outcomes. Principals are urged to promote the integration of the clustered flower approach into the curriculum due to its substantial effect on understanding. Furthermore, students may gain advantages by working with others during flower clustering activities, which can enhance motivation and engagement. Subsequent investigations should examine the efficacy of the clustered flower approach across many fields to ascertain its wider application.

Declarations

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Competing Interests Statement

The authors have not declared any conflict of interest.

Consent for publication

The authors declare that they consented to the publication of this study.

Authors' contributions

All the authors took part in literature review, analysis, and manuscript writing equally.

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