PUPILS' KNOWLEDGE ON GARDENING EDUCATION: BASIS FOR ENHANCING COMPETENCY IN VEGETABLE GARDENING

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Abstract*— This study investigated the vegetable gardening skills of Grade 5 pupils at the University of Saint Louis, focusing on both knowledge and practical abilities. The findings revealed a fair level of knowledge and good practical skills in vegetable gardening. Based on these results, Project GROW (Gardening Readiness and Optimization Workshop) is proposed to further enhance students' gardening competency. This project outlines specific objectives, activities, timelines, and expected outcomes, aiming to improve theoretical knowledge and practical skills and integrate gardening education into the curriculum to foster environmental literacy and sustainable practices.

Keywords— ***Vegetable gardening, knowledge, skills, Grade 5 learners, Project GROW***

I. INTRODUCTION

Education plays a critical role in equipping individuals with essential life skills, and vegetable gardening is a prime example. Teaching students about gardening fosters not only an appreciation for nature but also promotes sustainability, healthy eating habits, and self-sufficiency (Stamps, 2020). Integrating gardening education into the curriculum can significantly enhance students' competencies, ensuring they are well-prepared to meet various challenges, both personal and environmental.

Vegetable gardening, the practice of cultivating edible plants primarily for household consumption, involves tasks such as soil preparation, planting, watering, weeding, and harvesting, providing a hands-on experience in plant cultivation and care. Vegetable gardening remains a crucial practice for numerous reasons. It bolsters food security by offering a consistent supply of fresh fruits and vegetables, which is especially important in areas with limited access to healthy food choices (Joseph et al., 2020). Studies continue to demonstrate that gardening promotes physical activity, reduces stress, and cultivates a connection to nature (Mathieu & Bastías, 2021). Moreover, it serves as a cost-effective strategy to acquire nutritious food and can instill valuable life skills and values in young children (Owens & Moosavi, 2024).

In the Philippines, vegetable gardening has long been a cornerstone of the culture, especially in rural areas where agriculture remains a primary source of income (Department of Agriculture, Philippines, 2018). While urbanization and changing lifestyles continue to impact home gardening practices, the movement towards its revival is gaining momentum. Various government and community initiatives actively promote urban gardening and sustainable agriculture practices (Urban Agriculture Program, Department of Agriculture, Philippines, 2020).

The knowledge level Filipino students possess about vegetable gardening remains diverse, often influenced by factors like geographical location, socioeconomic background, and access to gardening programs in schools. Students in rural areas may benefit from practical experience passed down through family traditions. However, students in urban settings might have limited exposure to gardening activities. Recognizing these disparities is essential for developing effective educational strategies that can bridge the knowledge gap and empower future generations.

Despite the recognized benefits of vegetable gardening, there is a lack of comprehensive studies focusing on the current state of gardening education among Filipino students. Existing research often highlights the importance of gardening but fails to address the specific competencies and knowledge levels of pupils. This study aims to fill this gap by assessing pupils' knowledge on gardening education, thereby providing a basis for enhancing their competency in vegetable gardening. The findings will help educators and policymakers design targeted interventions that can improve gardening education and, consequently, the overall well-being of students.

II. METHODS

The descriptive-quantitative phase involved collecting the written work and performance task scores to evaluate the pupils' knowledge and skills in vegetable gardening. The participants in this study were the 44 Grade 5 Cattleya pupils in the University of Saint Louis, which included 23 male and 21 female pupils.

In educational assessment, a variety of instruments, such as written works and performance tasks, are employed to gather

comprehensive data on student performance. These instruments allow educators to measure the depth of understanding, critical thinking, and the ability to synthesize information through written work scores. On the other hand, performance tasks are crucial for assessing students' skills. These tasks provide insights into students' ability to apply knowledge in real-world scenarios, showcasing their practical skills, problem-solving abilities, and creativity. Together, written works and performance tasks offer a balanced approach to assessing both theoretical knowledge and practical skills, ensuring a holistic evaluation of student learning outcomes.

The gathered data was summarized using descriptive statistics for the study's quantitative component. A summary of the data's central tendency and variability was produced by calculating measures like means. The participants' vegetable gardening skills were summarized and described with the use of these descriptive statistics.

III. RESULTS AND DISCUSSION

Table 1. Pupils' Knowledge Levels on Vegetable Gardening

Knowledge Levels	**Score Range**	**f**	**%**
Outstanding	13-15	7	15.91
Good	10-12	17	38.64
Fair	7-9	16	36.36
Low	4-6	4	9.09
Very Low	0-3	0	0
	Total	44	100
Qualitative Description	**Fair**		

The data in Table 1 provides a nuanced understanding of pupils' knowledge levels on vegetable gardening. The categorization into five distinct groups offers a clear picture of where the majority of the pupils stand in terms of their knowledge. The most populated categories are 'Good' and 'Fair', with 38.64% and 36.36% of pupils, respectively. This indicates that while many pupils have a reasonable understanding of vegetable gardening, there is still significant room for improvement. The mean score of 9.84 falls into the 'Fair' category, reinforcing the interpretation that, on average, the pupils' knowledge is moderate. The absence of pupils in the 'Very Low' category is encouraging, as it implies that all pupils have at least some basic knowledge of vegetable gardening. However, the fact that only 15.91% of pupils fall into the 'Outstanding' category suggests that there is potential to elevate the knowledge levels of a greater proportion of pupils to this highest category.

The insights from this data are multifaceted, suggesting several strategic interventions to enhance pupils' knowledge of vegetable gardening. Since most pupils fall into the 'Good' and 'Fair' categories, there is a clear opportunity to help these students achieve 'Outstanding' levels. This can be done by incorporating more hands-on gardening activities, interactive workshops, and comprehensive gardening modules into the curriculum. Additionally, the smaller group of pupils in the 'Low' category needs focused support, such as extra tutoring or peer mentoring, to boost their understanding. Reinforcing core gardening concepts while introducing more advanced topics can help raise overall knowledge levels. Regular assessments and feedback can track progress, identify struggles, and allow for timely help. Engaging learning materials like interactive digital content and practical gardening sessions can spark interest and deepen understanding. Involving the community and parents in gardening projects can provide practical, real-world learning contexts, making the subject more relevant and enjoyable for pupils. Comparing gardening knowledge with other subjects, conducting long-term studies to track progress, and gathering feedback through interviews or focus groups can offer deeper insights into pupils' attitudes and any learning barriers they face. This comprehensive approach can help refine educational strategies and significantly improve learning outcomes in vegetable gardening.

Table 2. Pupils' Skill Levels on Vegetable Gardening

Skill Level	**Score Range**	**f**	**%**
Outstanding	29-30	20	45.45
Good	27-28	8	18.18
Fair	24-26	16	35.56
Low	21-23	0	0
Very Low	≤ 20	0	0
	Total	44	100
Qualitative Description	**Good**		

Table 2 provides a detailed breakdown of how well students perform in vegetable gardening, categorized into five skill levels: Outstanding, Good, Fair, Low, and Very Low. Each category specifies the score range, how many students fall into each range, and the corresponding percentage. The data shows that a significant number of students, 45.45%, excel at an Outstanding level, scoring between 29 and 30. Following closely, 18.18% are classified as Good, scoring from 27 to 28. A substantial 35.56% fall into the Fair category, achieving scores between 24 and 26. Interestingly, none of the students scored in the Low (21-23) or Very Low (<20) categories, indicating that all students have at least a Fair level of skill in vegetable gardening.

These findings have several implications for our understanding of student learning in vegetable gardening. The high percentages of students in the Outstanding and Good categories indicate a strong overall proficiency level. This success likely reflects effective teaching strategies and a curriculum that supports student learning in this area. Moreover, the absence of students in the lower proficiency categories suggests that the

educational efforts to teach vegetable gardening skills are generally successful across the board.

This data can guide educators in identifying areas where additional support or enrichment might be needed to further enhance students' skills. By building on these insights, we can continue to foster a high level of competence in vegetable gardening among our students, ensuring they develop valuable life skills that contribute to their overall education and well-being.

Project GROW
(GROW: Gardening Readiness and Optimization Workshop)

Specific Objectives	**Activities**	**Date of Implementation**	**Outcomes**
Enhance theoretical knowledge of vegetable gardening	Conduct interactive workshops and seminars on vegetable gardening concepts	July 1 - July 15, 2024	Improved understanding of gardening principles
Improve practical gardening skills	Organize hands-on gardening sessions in the school garden	July 16 - August 15, 2024	Increased proficiency in practical gardening tasks
Integrate gardening education into the curriculum	Develop and implement a gardening module in the science curriculum	August 16 - September 30, 2024	Seamless integration of gardening education into regular lessons
Foster environmental literacy and sustainable practices	Initiate a school-wide gardening project involving all grade levels	October 1 - November 30, 2024	Enhanced awareness and practice of sustainability among students
Evaluate and monitor progress	Conduct periodic assessments and provide feedback to students	December 1 - December 15, 2024	Continuous improvement and tracking of students' gardening skills

IV. CONCLUSION AND RECOMMENDATIONS

The study identified a need to improve the overall vegetable gardening knowledge among Grade 5 learners. While practical skills were generally good, knowledge levels were fair. To address this gap, Project GROW proposes a series of workshops, hands-on activities, curriculum integration, and a school-wide gardening project. This comprehensive approach aims to equip students with the necessary knowledge and skills to become proficient vegetable gardeners and promote environmental awareness and sustainable practices.

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