THE "GULAYAN SA PAARALAN" (SCHOOL VEGETABLE GARDEN) IN RESPONSE TO SUSTAINABLE DEVELOPMENT

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Abstract

The demands of our growing population have done much damage to the environment in our quest for food; volumes of waste contribute to environmental risk (Akaateba & Yakubu, 2013). This study aimed to document the best practices of Talamban Elementary School's "Gulayan sa Paaralan" in response to sustainable development. The following objectives were raised in order to answer the main problem: (1) determine the TES-GP's challenges and success stories; (2) assess the physical feature of the TES-GP; (3) identify the type of vegetables planted; (4) describe the gardening model used in the TES-GP, and (5) perceive the guidelines for its successful monitoring. The study employed a qualitative approach using phenomenology of Zahavi's pre-reflective self-awareness of experience through interviews of a specific human subject named "Madam Green". Personal experiences were categorized into retention, primal impression, and protention, which served as a self-manifestation of her stretched consciousness. An ocular observation of the garden was conducted to validate the interviews made. Data gathered were supplemented with periodic reports and other related studies. The "Gulayan sa Paaralan" (GP) was a modest replication of the "Gulayan ng Masa" (GM) served as one of the best practices of TES – created a vital contribution for its feeding program. Exasperations to the inimical attitude shown among the TES-GP's stakeholders, resulted in the garden's minimum involvement, insufficient landscaping and garden fixtures, no proper arrangement and classification of vegetables according to the specified garden models indicated no discouragement. Stretched consciousness of these realities, catapulted a vision to innovate organic fertilizers and pesticides in the enhancement of garden yields. Experiences swirled to a retention that mattered, a passion for

environment, a coordination of the non-government organization was forged and protention for successful maintenance of the garden was regarded an anticipated proposal for action.

Keywords: Backyard gardening/ "Gulayan ng Paaralan", organic farming, sustainable development, waste management, stretched consciousness of the flow of time

Introduction

As human populations continuously growing, with an estimate of 353,000 babies are born every day, around the world (UNICEF, December 2013), the ratio for food requirement rapidly increases. The demands of our growing population have done much damage to the environment in our quest for food; volumes of waste contribute to environmental risk (Akaateba & Yakubu, 2013). As vulnerable families in the Philippines are affected to tropical cyclones, with an average of 20 typhoons every year, results in high demand for food, ending most of these families displaced, impoverished, and school children in public school malnourished. This situation increases poverty incidence in the countryside and a widening urban poverty in highly urbanized cities. To Ajodo-Adebanjoko & Walter (2014) poverty and insecurity are the most serious global problems which adversely affect sustainable development in the developing countries. Under the K to 12 in basic education, the Department of Education (DepEd) in the Philippines creates children's awareness about production of more food on the table, through vegetable gardening within the scope of Home Economics and Livelihood Education (HELE) subjects in the elementary and the Technology and Livelihood Education (TLE) subjects in the high school, in order to nurture resiliency and sustainability of scarce resources in localized and contextualized ways. Sustainable development becomes a policy of the Ramos administration in order to strengthen the national economy for global competitiveness; support for small-scale enterprises and local community enterprises (Agoncillo & Mangahas, 2010). This awareness on sustainable development increases the need for children's protein requirement to eat vegetables in order to be healthy, without buying them in the market; but relying on the bounty of their own school vegetable gardens.

In 2006 to 2010, Administrative Order (AO) No. 11, Section 1 of the Department of Agriculture (DA) deputizes DepEd as one of the agencies to implement the "Gulayan ng Masa" (veggies for the masses) – as a potential family farm program that "empowers the poor living in the rural areas with high hunger and malnutrition incidence by enhancing their capability to produce their own food through adoption of integrated backyard gardening". The role of DepEd is to campaign for the entire community, where the

school is situated, to put up an integrated garden in school and a nursery (NGP requirement as stipulated through DepEd Memorandum No. 58) – a functional backyard garden for the entire community, to be managed through a concerted effort of the school officials and families, to ensure sustainable growth, so that hunger is minimized. Sustainable development is the balance between people and the environment (McDilda, 2007). With this balance, the principles of the "Gulayan ng Masa" can be fully operationalized. As reported, the Department of Agriculture (DA) multi-cropped home gardens supply sufficient vegetables for the family's needs in enhancing sustainability. Altoveros & Borromeo (2007) describe these gardens into three sections planted with different crops of varying maturities identified through the following descriptions that:

> *"One section should be planted with vegetables that are maturing in two to four months, like soybean, mustard, pechay, carrots, cowpeas, bush sitao, sweet corn and tomatoes.*
>
> *The other section can be planted with okra, cucumber, eggplant, winged bean, and ginger, which are maturing in six to nine months. The last section can be planted with crops that are maturing in 11 to 12 months such as pigeon peas, taro, and swamp cabbage."*

These sections can be a well-planned backyard garden, with no fear for being sustainable. Backyard gardening is the process of planting vegetables, herbs, fruits, and spices in any space available at the school backyard, in a form of garden patches, pockets, pots, vertical walls and trellises, with the use of recyclables such as: empty bottles, cans, basins, pails, trays, sacks, styropors, tires, bags and other disposable containers, with the use of organic materials that protect the environment. This gardening promotes sustainability through the use of organic ways fashion in an urban lifestyle. According to McDilda (2007),

> *"Organic gardening refers to the growing, raising, or processing of food without drugs, synthetic chemicals, or hormones, using methods that conserve natural resources and limit the effects on the environment."*

Organic production adopts a system – reflecting health of the soil, ecosystem and people proposing an overall attitude of farm management and food production that combines best environmental practices, high level of biodiversity, conservation of natural resources … and production in line with the preference of certain consumers for products produced using natural substances and process (Sdrolias, Grigoriou, Anyfantis, Nousia, Koukoumpliakos & Kiriakou, 2014). For Talamban Elementary School, the HELE department is responsible to spearhead and monitor the "Gulayan sa

Paaralan" (School Vegetable Garden) as a school-based replication of the "Gulayan ng Masa" (People's Garden) with active involvement of parents, students, teachers (as primary stakeholders in Grades IV, V and VI), the local government officials and other families interested in the program. This organic garden makes use of grass cuttings, rotten leaves, fruit peelings, animal manure, and other degradable materials in the school's compost pits, which are taken from the garbage bins on degradable wastes in every TES classroom.

The Implementing Rules and Regulations (IRR) of the Republic Act (RA) 9003 known as the Solid Waste Management Act of the Philippines of 2000, Section 4 requires to carry out a national policy of adopting a systematic, comprehensive and ecological solid waste management program consistent in pursuit to sustainable development, which cover support actions such as research and studies on solid wastes, providing technical standards and guidelines for effective waste management systems. Resource efficiency is seen as the path where economic development and human-wellbeing can progress with lower resource use and environmental impacts (Zelko & Oravcova, 2013). Translated with paramount interest in public schools, the students are taught how to segregate wastes from "malata" (degradable) to "di-malata or" (non-degradable) and to process these into recyclable resources and organic wastes for the garden. The Talamban Elementary School - "Gulayan sa Paaralan" (TES-GP) is divided into three categories such as: vegetable garden production, tree planting, animal and fish production. Because of a limited space, the school prioritizes the management of a vegetable garden at the back of the three major buildings. Sdrolias, et al, (2014) recommend sensitizing kids through school on the benefits of organic agriculture as an economic activity, with positive consequences for the environment. To actualize its full sensitization, the veggies in the garden are watered by the HELE students with the working assistants hired to take care of the garden during no classes.

To ensure sustainable development in the process, both the Presidential Decree No. 1153 and Executive Order no. 53, series 2011 known as the National Greening Program (NGP), Section 3, deputizes students that DepEd and CHED identify, including all government employees to participate in the NGP, by planting at least 10 seedlings in places identified by the Department of Environment and Natural Resources (DENR). In the case of TES, the administration has opted for vegetable gardening; however, for tree planting, TES extends to plant 391 orchards and 600 trees in designated areas offered by the government and non-government organizations for NGP's successful implementation. With this, TES has given its contribution in environment recuperation, not only awareness; but also a collective action for sustainable development. TES students are

reminded about the symbiotic relationship of trees in the environment to human life. Those trees produce enough oxygen to make up for the amounts of carbon dioxide individuals generate (McDilda, 2007). Like trees, other plants also remove carbon dioxide from the atmosphere and produce energy-storing foods through photosynthesis (Wolfson, 2007). Steger & Bowermaster (1990) affirm that a fast-growing tree can recycle 48 pounds of carbon dioxide each year, so tree planting is one of the most cost-effective, immediate and gratifying steps we can take to fight global warming. Polackova (2014) accentuates that trees create 'interiority of space' to be divided, united, and above all, can be a dominant feature to provide mental hygiene – that suits the people's eye and mind for relaxation, and even create compositions. Further, she highlights remarkable individual trees link also to history and future of the place, we inhabit. In the case of the name of the barangay where this study is conducted, it is derived from tree called "malatamban" (*Cyclostemon bordenii*); hence it is now known as "Talamban". The Regional Wood Energy Development Program in Asia (1993) has found out that:

> *"In spite of these positive tree-planting practices, wood-cutters, charcoal-makers, wood-fuel traders and other informants regularly bemoaned the widespread depletion of secondary forest species like tugas (Vitex parviflora),* ***malatamban (Cyclostemon bordenii)****, and pangantoan (Pittosporum pentandrum), all said to have been more abundant in the "old days". While the common perception among urbanites is that this state of affairs has resulted in mainly to over-cutting for charcoal, rural residents report a far greater number of uses for these species, and thus give more varied explanations for their decline."*

In order to respond to the preservation of *Cyclostemon bordenii*, its seedling is secured from a nursery in San Remegio, Cebu, and now; it is planted in TES vicinity, with a fervent wish that the school continues to take care and even propagate this for heritage preservation and natural restoration. This study is anchored on the Malthusian theory, which supports that as "human population increases geometrically, food production increases arithmetically". If human individuals find it difficult to prolong marriageable age, if not to suspend it, in order to limit the number of birth rates and curb the growing population, then it is a challenge on how government and non-government organizations can find ways to increase food production. This challenges different schools to be sustainable in resources management. TES-GP has exemplified a better strategy for School-based Management System (SBMS), upon which this study is basically moored. In the SBMS,

the school is given the blanket authority to make relevant decisions to ensure quality in the management of resources and anticipate growth.

Likewise, the TES-GP study is also transcended on Zahavi's Pre-reflective Self-awareness Theory of Experience, which explains that pre-reflective self-awareness of the experience is nothing but the perpetual self-manifestation of the absolute flow of consciousness constitutes itself and brings awareness to the act of experience. According to Gee (2014) Zahavi's view on consciousness is the extended view of primal impression, retention, and protention that constitute the presence, as one unitary element. The experiences of the subject in backyard gardening is juxtaposed since 2011 (retention) = to what it has brought now (primal impression) = to what will it bring base on the then and now experiences (protention). Zahavi takes such a view to be able to maintain the presence so that he can hold his view of pre-reflective self-awareness where self-manifestation of the absolute flow and pre-reflective self-awareness coincide (Gee, 2014). This concurs that assessment of the TES-GP follows the whole awareness of the subject's phenomenal experiences across time. Thus, a TES-GP study is intentionally undertaken.

Short literature of the study

Backyard gardening has always been a very important segment of the Filipino cultural life. Rural families depend to live sustainably base on the quality of garden harvest they reap during the harvest season. By the time they want to prepare for the day's meal, the vegetable garden is ready to provide a palatable food for their appetite. Before the arrival of the Spanish colonizers in the Philippines, life among the tribal Filipino families is inadequately centered in the farm due to its foraging lifestyle; inefficient gardening and shifting cultivation are obvious, brimming with rituals. To insure success, rituals of appeasement and permission have to be performed before embarking upon any hunting, gathering, planting, and harvesting activities; otherwise the spirits would be hurt and bring about a bad luck (Jocano, 2000). Loarca, Alciña, and Buenventura's accounts in Inocian (2013) are sufficient support that "puso" (rice pouches) are used as a ritual object among the Cebuano farmers, before the Spanish colonization in line with telluric purpose, that has contributed to a certain form of mysticism of farm rituals – a celebration of a unique farmers' experience with nature.

Jocano (2000) identified five general types of Filipino indigenous communities: (1) *"Pisan"* (campsite) absence of agriculture beyond inefficient gardening and shifting cultivation, (2) *"Puro"* (settlement) for the practice of swidden or slash-and-burn agriculture as the major source of subsistence, (3) *"Ili"* (village) for the practice of slash-and-burn and water irrigation, (4) *"Magani"* (district) for the presence of efficient and productive

agriculture, and (5) "*Banwa"* (domain) presence of an economic base on the combination of land production and extensive trade. These communities practice in more evolving ways of gardening that provide growth, vital for their survival. The presence of no established school for formal education leads these communities to run to nature and consider it a vast garden – serving the best laboratory for life. During the pre-colonial period, vocational training and less academics are provided to children by their parents and tribal tutors (Papong, 2014).

Within the three centuries of Spanish colonization, agriculture and education in the Philippines are controlled by the central government through a new tax-farming-system known as the "encomienda". Farm activities are dependent with consent with the central government authorities vested by the Spanish governor-general, who acts like a little monarch in the colony. In the late 18th century, shifting cultivation gradually gives way to more intensive sedentary farming (Borlasa, 2014). Spanish education also accentuates the teaching of various arts and trades in the "colegios", school for boys and in the "beaterios", school for girls (Bago, 2008). Added to the endemic vegetables are new introduced crops such as: cacao, maize, and others from Mexico are grown more elaborately in most Filipino family gardens. During the American occupation from 1909 to 1930, Industrial Work Education is a top priority by American education policy makers in the Philippines; pupils are taught handicrafts and farming techniques for earning (Papong, 2014). In the US, pupils work in school gardens because educators feel that gardening complements curriculum units in "nature study", hence contributes to the individual's intellectual and social development (Dewey & Dewey, 1915) in Papong (2014). Bago (2008) confirms that nature study is one of the subjects offered in a tentative and experimental curriculum by the Americans, which provides the offering of Industrial Work Education. Industrial Work Education refers to the "manual training classes given in the lower grades and vocational training provided in the higher grades" (May, 2009) in Papong (2014), upon which gardening is one of its identified courses (Bago, 2008). Bago (2008) further explains that after the completion of the primary curriculum, ACT 372 of 1902, the law on secondary education, specified the addition of instruction in agriculture to the academic, commercial and other manual training courses. This paves the way to the offering of four-year secondary vocational curriculum in 1906 (Martin, 1980) in Bago (2008).

By virtue of Military Order (MO) No. 2 in 1942, the Japanese curriculum promotes love for work and dignity of labor through vocational education for boys and home economics for girls in the elementary years. Agriculture is a priority and gardening is considered a must among the school children. Since the liberation in 1946, backyard gardening is regarded as a part of the manual arts subjects. In the 60s, this has been given impetus

through the "Masagana 99" – a program that enhances food production (Agoncillo & Mangahas, 2010). In the 70s, "green revolution" becomes the buzzword of former First Lady Imelda Marcos' pet project about planting fruits and vegetables as well as trees in vacant lots in schools and homes (Villanueva, 2011). Green Revolution is a program designed to increase food production particularly rice and wheat to cope with the demands of an increasing population (Salita, 2002). This program supports the offering of the Cooperative Work Curriculum in the public schools during martial law, under Dept. Order No. 6, series of 1973, requiring high school students in urban areas to undergo on the job training in factories, shops and offices, and in rural areas to undertake farm works (Bauzon, 2009), to plant vegetables in order to be sustainable, a major requirement for the Practical Arts for boys and Home Economics for girls. Across the curricular changes in basic education in the 80s, gardening has been a significant element in vocational education under the program for Decentralized Educational Development (PRODED) from 1982-1986 (Bago, 2008). The New Elementary School Curriculum (NESC), by virtue of the Ministry of Education and Culture (MEC) Order No. 6, series of 1982, introduces the offering of HELE in Grades IV to VI, with 40 minute time allocation (Bauzon, 2009). The Secondary Education Development Program (SEDP) undergoes several changes that pave the way to the creation of the New Secondary Education Curriculum (NSEC), by virtue of DECS Order No. 11, series of 1989, introduces the Technology and Home Economics (THE) from first year to fourth year with 80 minutes time allotment, longer than the rest of the subjects. From NESC and NSEC's demise to the rise of Basic Education Curriculum (BEC) and Revitalized Basic Education Curriculum (RBEC), gardening is recognized as one of the very important components in the "Makabayan" (nationalistic) Curriculum, in the early 2000, is known as "Edukasyong Pantahan at Pangkabuhayan" (EPP) – a Filipino translation for Home Economics and Livelihood Education (HELE), which in the advent of the K to 12 in 2012, recognizes EPP as one of its independent subjects in basic education, which finally dissolves the Makabayan curriculum. From the BEC to the K to 12, EPP for elementary and Technology and Livelihood Education (TLE) for the high school are offered to everybody without gender distinction.

The potential for gardening in the Philippines is enormous. There are more than 3,000 plant species in the country that are used for food, medicine, fiber, essential oil, commercial timber or ornamentals (Altoveros & Borromeo, 2007). They identify the country's leading crops such as rice, maize, sugarcane, coconut, banana, mango, pineapple, cassava, coffee, sweet potato and eggplant. And they further indicate that in terms of harvest area, the most extensively grown crops are rice, coconut, maize, sugarcane,

banana, cassava, coffee, mango, sweet potato and Manila hemp (abaca). When this finding is used as a model for vegetable gardening in school, then the country can achieve greater prosperity in the ASEAN integration. Like the other countries model for development, Sdrolias, et al, (2014) conclude that there is a significant development of Greece's specified sector, the requirements for the exploitation of the competitive advantage benefits have not matured yet, and that could lead to a positive economy of scale. To Tseles, et al, (2011) in Sdrolias, et al, (2014) crop production ensures the reduction of energy consumption. This effort to reduce energy consumption corroborates in Kone, Yte, Sekou, Konan, Koutou, Konan, & Zouzou (2014) through the use of dry cow dung (cattle waste), which increases relative nitrogen, phosphorus, potassium, and magnesium contents that contribute to soil fertility and potential vegetative growth of 30%. Exemplifying the case of Ghana, Baud, et al (2001) in Akaateba & Yakubu (2013) uses a 9-point indicator system combining ecological, economic, social and public health concerns to assess how alliances between the public and private sector in solid waste management contribute to sustainable development, that alliances help in solving the problem of disposal and the performance of landfills. Vis-à-vis, the European Union has embarked the concept of Zero Waste Management targeting zero wastes of resources (energy, materials, and human), zero emissions (air, soil, water, solid waste, hazardous waste), zero wastes in activities (administration and production), zero wastes in product life (logistics, use, end-of-life), and zero wastes of toxics (processes and products) (Zelko & Oravcova, 2013).

Objectives of the study

This study aimed to document the best practices of Talamban Elementary School's "Gulayan sa Paaralan" in response to sustainable development. The following objectives were raised in order to answer the main problem: (1) determine the TES-GP's challenges and success stories; (2) assess the physical feature of the TES-GP; (3) identify the types of vegetables planted; (4) describe the gardening model used in the TES-GP and (5) perceive the guidelines for its successful monitoring.

Methods and materials

Research Design

The study employed a qualitative approach using phenomenology of Zahavi's pre-reflective self-awareness of experience through interviews of a specific human subject named "Madam Green" – the brain-child of the TES-GP since the early part of 2011 when Executive Order No. 53 was released that deputized government institutions like DepEd as one of the government agencies to initiate the implementation of the National Greening

Program of the present Aquino administration. Personal experiences of the subject were categorized into retention, primal impression, and protention, which served as a self-manifestation of the subject's stretched consciousness. An ocular observation of the garden was conducted to validate the interviews made. Data gathered were supplemented with periodic reports and other related studies.

Results and discussion

Retention that Mattered

Putting up a garden alone is never an easy job. The school requires "Madam Green" to attend series of seminars relative to HELE. The TES-GP has been the concrete output of the government's money expended for her in the seminars that she attended. With the lack of support, she stands firm for the project and even spends for her money to pay for the services rendered by the student assistants she hired to maintain the garden. She has been exasperated when other teachers take advantage of the produce even if they have not extended a little support or concern in the maintenance of the garden. It is obvious that school supports the academic subjects over the non-academics like HELE. Some students do not value the plants in the garden. They even play that affects the destruction to its vegetables. Amidst all the said challenges, the visit of the National Nutrition Council of the Philippines, sometime in August 2014 validates her efforts that the TES-GP does benefit the TES' Feeding Program. Through her initiatives, the TES-GP supports the use of organic fertilizers and pesticides, which she personally revolutionizes that are taken from the renewable materials. Firstly, she introduces the use of Indigenous Micro-organism (IMO) with essential elements of molasses and "bahaw" (left-over foods) in order to provide soil conditioning, weeds decomposition and removal of animal waste odor in the garden. Secondly, she makes use of Fruit Fermented Juice (FFJ) for plant conditioning to increase yield and sweetened fruiting. Thirdly, she introduces the use of Fish Amino Acids (FAA) with essential elements of fish remains, which contributes to regeneration of the soil and increase nitrogen components. Lastly, she introduces the so-called Organic Herbal Nutrients (OHN) as potential organic pesticides. In her administration of the TES-GP, the Ramon Aboitiz Foundations, Incorporated (RAFI), an active non-government organization (NGO) in Cebu, partners the TES-GP in the promotion of the NGP project. TES-GP has collected 2,013 empty plastic bottles for seedling generation and propagation. Another 19,136 plastic bottles are distributed to Borbon National High School in their quest for a greener community. TES-GP has also planted 391 fruit bearing trees like 25 "atis" *(Annona squamosal)* in the school campus and in the specific place designated by the DENR. This best practice of TES-GP is relatively affirmed

by Akaateba & Yakubu (2013) that the "embracing public-private partnerships have improved the effectiveness and efficiency in the delivery of waste management services", thus contributes an alliance for environmental conservation.

Its Primal Impressions of the TES-GP

The TES-GP has been fully established even before the issuance of the AO 11 in 2006 and the Executive 23 in 2011. As a component of the school's HELE effective instruction in TES, the backyard garden has been put up. The garden is a potential source of vegetables for feeding school children who are malnourished. However, the lay-out of the garden has been in place, but it requires re-classification of the plants and rearrangement of the available fixtures in order to observe unity, harmony in garden aesthetics. Identified potted gardens need to be transferred at the side of the rectangular plots with uniform plants like pechay, Chinese onions (leek) or ring onions (shallot). Veggies planted in empty bottles need to be mounted on the fences as vertical gardens. Patched gardens need re-digging and replanting. Climbers like string beans and others need to be planted in rectangular plots with proper ditching, clear alleys and pathways, and railings or trellises to support the growing tendrils. Pathways need to be at least 2 feet wide for easy movement, trellises or internal hedges provide intervals (Stuart, 1993) that separate from garden model (patch gardens) to another genre (potted gardens). Hanging plants are to be transferred in a space with direct sunlight depending on the nature of the vegetables and the type of soil.

Vegetables Grown

TES-GP has a sizable amount of vegetables (annuals, perennials, bulbs), which percentage survivability connotes a positive remark for sustainable help of the TES' feeding program. These plants bring color, variability, scents, and plant details into the urban space (Polackova, 2014). To Hattatt (2002) annuals are plants whose life is limited to only one season, which Nessman (2008) characterizes these to complete their life cycle in one year, when grown from seed, it will germinate flower, set seed and die within a single season. Perennials are plants that return to a new flower, so they do not need to be replanted (Nessman, 2008), like for examples the "malunggay or "kamunggay" (*Moringa oleifera*), the bulbous perennials such as: "camote", (*Ipomeoa batatas*), "gabi" (*Colocasia esculenta*), "ubi" (*Dioscorea alata*), and shrubs. Bulb plants stockpile reserve nutrients in the fleshy underground organ (Nessman, 2008) that permits a long period of dormancy (Hattatt, 2002), which feeds the young shoots like gingers, onions, and tubers. Climbers are shrubs with long flexible branches that need to support growth (Nessman, 2008). These plants need support in any of these

garden structures: railings, trellises, pergolas, and pyramids. Hattatt (2002) categorizes climbers into two: the clinging and the twining. To him, clinging plants do not need support because they use aerial roots as adhesive pads like the "kangkong" (*Ipomeoa aquatica*) and the camote (*Ipomeoa batatas*), while twining plants require support up to the height at which they are intended to grow with its coiling tendrils like the "ampalaya" (*Momordica charantia*), "sitaw/batong" (*Phaseolus vulgaris*), and "garbanzos" (*Psophocarpus tetragonolubos*). In one of the monthly reports and the ocular visit conducted, TES-GP has planted the following vegetables as shown in Table 1. In the actual observation of the school garden, "gabi" (*Colocasia esculenta*) and camote (*Ipomeoa batatas*) thrive to last and grow more abundantly.

Talamban Elementary School - Gulayan sa Paaralan (TES-GP) Progress Report							
Vegetable Planted	**Common Name**	**English Name**	**Scientific Name**	**Plant Types**	**Planted**	**Growing**	**% of Survival**
Malunggay	*Kamunggay*	*Horse Radish*	*Moringa oleifera*	Perennials	208	150	72
Chinese Onions	*Sibuyas dahunan*	*Onions*	*Allium tuberosum*	Bulbs	75	50	67
Kangkong	*Tangkong*	*Swamp cabbage*	*Ipomeoa aquatic*	Climbers	200	200	100
Pechay	*Petsay*	-	*Brassica rapa*	Annuals	500	315	63
Bell Pepper	*Atsal*	*Bell pepper*	*Capsicum annuum*	Annuals	150	100	67
Okra	*Okra*	*Lady's finger*	*Abelmoschus esculentos*	Annuals	100	91	91
Camote	*Kamote*	*sweet potato*	*Ipomeoa batatas*	Climbers/bulb	100	100	100
Sitaw	*Batong*	*String Beans*	*Phaseolus vulgaris*	Climbers	50	50	100
Talong	*Tawong*	*Eggplant*	*Solanum melongena*	Annuals	150	88	59
Repollo	*Repolyo*	*Cabbage*	*Brassica oleracea Linn*	Annuals	50	42	84
Ube	*Ubi*	*Yam*	*Dioscorea alata*	Bulbs	30	26	87
Garbanzos	*Karbansos*	*Winged Beans*	*Psophocarpus tetragonolubos*	Climbers	25	25	100
Luya	*Luy-a*	*Ginger*	*Zingiber officinale*	Bulbs	40	35	88
Tanglad	*Tangad*	*Lemongrass*	*Cymbopogon*	Bulbs	50	50	100
Gabi	*Bisol*	*Taro*	*Colocasia esculenta*	Bulbs/tuber	68	68	100
Saluyot	*Saloyut*	-	*Corchorus*	Annuals	54	54	100
Ampalaya	*Paliya*	*Bitter gourd*	*Momordica charantia*	Climbers	50	50	100
Snow Peas	*Buway*	*Snow peas*	*Pisum sativum var. macrocapon*	Annuals	40	40	100

Jocano (2000) recalls the gardening culture of the Filipinos during the early time that the "*Pisan"* engages in limited gardening where they clear small patches of land and plant with cassava (tapioca), camote (sweet potato), gabi (taro), and ubi (yams). Once planted, these are left alone to grow in semi-wild condition, sometimes abandoned when the families move. The place is revisited when, as estimated, the plant-foods are ripened for harvest. Manna et al., (2005), Ouvrier, (1984) in Kone, et al, (2014) have validated the best vegetative growth, which is able to induce higher productivity of plant material that is determined by an optimal mineral nutrition, which guarantees the coverage of the needs of the crops. Vegetables ranks second in Greece's total organic farming produce (Sdrolias, et al, 2014). Spices, as essential elements in cooking, are planted with high rating. Out of these yields, to sell 106 kilos and another 87 kilos that supplements the school's feeding program. To Williams & Williams (1989), results of backyard garden experiments can lead to substantial savings of time and money, as well as tastier produce and more attractive landscapes. To Tseles, et al, (2011) in Sdrolias, et al, (2014) organic production improves living conditions to produce food of high nutritional value. To Tseles, et al, (2011) in Sdrolias, et al, (2014) organic production yields a sufficient quantity and conservation of genetic diversity in agricultural ecosystems, including the protection of plants and wildlife.

Gardening Models

In typical public school landscape, the challenge is on its limited space. School gardens are usually located besides the school building. Hence, it is dubbed as backyard gardening. In TES, the several gardening models are spotted through an ocular observation, which requires enhancement for wider production to fit the concept of urban gardening. **Model A is a Patch Gardening** that characterizes plots in a rectangular shape, ditches are provided for easy flow of water, and pathways to step on, while removing its weeds. **Model B is a Dish or Potted Gardening** that characterizes indoor location, using recyclables like containers such as basins, trays and pails. In this garden, plants are growing in shallow containers, which are placed with soil, planted with vegetables at least of three variants, transferable to a place at the side of the pathways and alleys or in the school veranda. Chinese onions, pechay and ginger are ideal plants in a dish garden. **Model C is the Vertical Gardening** that characterizes either indoor or outdoor mounted on walls, fences or trellises of the school building with the use of recyclable sacks, empty soda bottles, and other containers. This form of gardening makes the trellises look fresh and green ideal for vegetable climbers. **Model D is the Aerial Gardening** that uses hanging empty container, in an open or covered aerial position in the backyard. Iron

wires can be used to hang plants in an improvised roofless marquee or tent. This model is ideal for tomatoes (*Solanum lycopersicum*), kangkong (*Ipomeoa aquatica*), bottle gourd or "opo" (*Lagenaria siceraria*), "chayote" (*Sechium edule*) and "alugbati" or spinach (*Basella alba*) in a suspended position. **Model E is the Refrigerator Gardening** that characterizes the use of discarded dead fridge, its door, back and top covers are removed, made to stand like a real fridge; small potted plants are placed in every layer. Once, the fridge's body is laid on the ground, then the back cover is removed or drilled with wholes for water to drain, garden soil is placed, and vegetables are planted. **Model F is the Pocket Gardening** usually characterizes to a small garden constructed at any side of the building fringes. With these urban gardening models, growing of vegetables is not that difficult, if the entire school and community have the passion for planting despite its limited space.

Protention for Successful Monitoring

Using the provisions of the Administrative Order (AO) No. 11 of the Department of Agriculture (DA) and the Executive Order no. 53, series 2011 of the NGP, TES community enjoins full support of the following stakeholders: (1) Full support of the HELE teachers and students in the promotion of the "Gulayan sa Paaralan". After the discussion of principles and theories in every quarter units, the teachers continuously plan for the improvement of their gardens following the specific garden model that they are capable of maintaining to raise a harvest. (2) The specific garden model that the HELE class decides is to be approved by the HELE coordinator to be attested by the school principal. Output of this garden is credited to students' periodic grades in their HELE classes. (3) The parents extend their support through the school's "Brigada Eskwela" (school's physical preparation) for the opening of classes in the school year. Parents are required to fix the garden and make it ready for their children to sow and monitor the growth of their vegetables for the entire duration of the program. Under AO No. 11, rural families are required to extend support in the management of the "Gulayan sa Paaralan". (4) The "Gulayan sa Paaralan" funding can be sourced out from the concerted efforts of the PTCA (Parents, Teachers and Community Association), the school administration, and the local government unit of Barangay Talamban. (5) The impoverished and depressed members of the school and Talamban Barangay community are the primary recipients of the "Gulayan sa Paaralan". The Barangay authenticates the legitimate recipients of the garden based on the economic profile of the residents. (6) The school administration identifies students who are malnourished and recommends them for the school's feeding program, where the "Gulayan sa Paaralan" obliges to support. (7) Selling of the

produce of the garden is to be determined by the board, headed by the HELE coordinator with the PTCA president, Student Organization President, the School Principal, and the Barangay Captain. Income earned in the garden is appropriated to improve the TES-GP.

Conclusion

The "Gulayan sa Paaralan" (GP) was a modest replication of the "Gulayan ng Masa" (GM) served as one of the best practices of TES – created a vital contribution for its feeding program. Pre-reflective awareness in responding to government mandates like sustainable development, hunger and malnutrition, and other environmental challenges was a valuable piece for proximal impression led the TES-GP's creation. Exasperations to the inimical attitude shown among the TES-GP's stakeholders, resulted in the garden's minimum involvement, insufficient landscaping and garden fixtures, no proper arrangement and classification of vegetables according to the specified garden models indicated no discouragement. Stretched consciousness of these realities, catapulted a transcendent vision for change and innovate organic fertilizers and pesticides in the enhancement of garden yields. Experiences swirled to a retention that mattered, a passion for environment, a coordination of the non-government organization was forged and protention for successful maintenance of the garden was regarded an anticipated proposal for action. Success in vegetable gardening was an attribute of passion in a seamless element of stretched consciousness for sustainable development, with a certain degree of sameness across the flow of time.

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