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# Home Gardening Amidst Pandemic: Addressing Students' Personal Welfare

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*Abstract* — Using the descriptive method of research, the researcher investigated in Balutakay Elementary School, Bansalan, Davao del Sur relationship of home gardening amidst pandemic as an approach in addressing student's personal welfare as to physical, emotional, and social attributes. Utilizing a questionnaire were analyzed using Mean, SD, and Pearson correlation coefficient. It was found that student's engagement in home gardening is very high in terms of student's interest, parent's initiative, and teacher's motivation. Moving on to sustainability of home gardening practices in terms of family's support, school's support, and LGU's support, Furthermore, a very high remark was noted for the status of student's personal welfare as to physical, emotional, and social attributes. The study concluded the established relationship between home gardening engagement and sustainability of home gardening practices in addressing student's personal welfare as to physical, emotional, and social was statistically significant. Thus, the hypothesis which states that there is no significant relationship between home gardening engagement and sustainability of home gardening practices in addressing student's personal welfare as to physical, emotional, and social attributes is rejected. Based on the findings it is recommended that in order to maintain student engagement in home gardening, parents and teachers should provide continuous motivation by giving rewards and recognition for their effort. Home gardening should be widened and strengthened by the school, community, and family. Local government units (LGU) must support home gardening in their community.

***Keywords — Home Gardening, Personal Welfare, Student Engagement, Sustainability, Practices, School, Parents, Teacher, Local Government Unit (LGU)***

## I. Introduction

Home vegetable gardening can not only increase produce consumption and physical activity—but it is also associated with improved emotional wellbeing. According to a recent study from Princeton University (2020) home gardening had a similar effect on emotional well-being as biking, walking, or dining out. It was the only activity out of the 15 studied for which people with low incomes reported the highest emotional well-being. Similarly, Hillside Atlanta (2019) explains that gardening lowers depression, anxiety, obesity, and heart disease as well as promotes personal happiness, quality of life, and a sense of community.

A study made by Eng et.al (2019) the most significant benefit that can arise from gardening is increased social capital and connections. As children work together to plant and create

something meaningful, the result is an improved bond between them. Lehman (2019) emphasizes when it is fun and stress-free, gardening with children can be a connecting relationship.

On the other hand, Better Health (2019) stated that by gardening as a family, adults can share their skills and knowledge with children and family members can learn together. For this reason, the researchers sought to investigate the effect of Home Gardening Amidst Pandemic as an approach in addressing student's personal welfare of Grade 5 and 6 students of Balutakay Elementary School in Bansalan, Davao del Sur.

*Review of Significant Literature*

'Gardening' is defined as the activity of working in a garden, growing and taking care of plants, and keeping the garden attractive (Gillard, 2019). Gardening is an extremely popular pastime in some cultures. In the UK for example, it is estimated that 49% of the adult population takes part in gardening activities (Department for Culture Media and Sport, 2017) and that there are 24 million domestic (home) gardens in the UK; a country with a population of 66 million people (Department for Culture Media and Sport, 2017; Office for National Statistics, 2015). Similarly, in the USA, it is estimated that 78% of home-owners take part in gardening on a regular basis (Kiesling & Manning, 2019). In any one city, gardens can exceed 20–25% of urban land area (Dewaelheyns et al., 2019; Mathieu et al., 2019) and are the most readily accessible green spaces for residents.

Gardening includes the cultivation of food crops for home consumption, but also the growing of ornamental plants for aesthetic purposes. The relative popularity of these two main trends can vary based on culture and socio-economic background (Aguilar-Stoen et al., 2019; Bhatti & Church, 2020; Davoren et al., 2016; Maroyi, 2019; Reyes-García et al., 2019), but of course many individual gardens may comprise both areas for fruit/vegetable cultivation and aesthetic purposes. So why is gardening so popular and what reasons do people garden for? Gardening has been linked to improvements in human health and well-being, but it is not clear what aspects of gardening promote health, or indeed the extent to which any health benefits are recognized in the gardening community? The research presented here explores attitudes to domestic gardening and the extent to which gardening is seen as a health intervention.

In contrast to these points, not all motivations to garden are necessarily seen as positive factors. Some residents have felt 'the need to garden' to keep their residence tidy, fit in with conventions or address peer-pressure, and may see garden activities as a chore (Clayton, 2021). Gardens can induce stress as well as provide restoration from it, and Young et al. (2020) found 16% of their respondents considered their garden to cause them stress quite frequently. Not all the influences on gardening may emanate from the home-owners themselves, but relate to external pressures. Previous studies have related gardens to other aspects of residential environments including those affecting well-being (Burton et al., 2021; de Bell et al., 2020), children's mental health (Richardson et al., 2019) or engagement with nature (Hand et al., 2019). Further

understanding of the relationships between gardens and the wider neighborhood thus merits attention. A sub-component of the research presented here was to determine how views on the local neighborhood might influence attitudes to the owner's garden or gardening activities.

Despite the increasing evidence around the value of domestic gardens for health and other ecosystem services, they are often not a priority for policy makers and planners (Breuste, 2020; de Bell et al., 2020; Haaland & Konijnendijk van den Bosch, 2020). Residential garden size is getting smaller. Some planners/developers now omit gardens in new housing schemes completely, especially where urban space is at a premium, while others prefer to invest in other forms of green space (Borsboom-van Beurden et al., 2019; Douglas et al., 2019; Haaland & Konijnendijk van den Bosch, 2020). Also, existing domestic gardens are vulnerable to infill (new houses inserted between existing residencies) and development (Drilling et al., 2019; Sayce et al., 2020), that results in a net loss of vegetation and soil sealing e.g. greater space allocated to car-parking bays. City densification is occurring across the globe and loss of garden space (and corresponding key ecosystem services) has been reported for Austria (Breuste, 2020), Germany (Wellmann et al., 2020), Chile (Hernandez-Moreno & Reyes-Paecke, 2018), Ecuador (Finerman & Sackett, 2022), India (Balooni et al., 2019), New Zealand, (Freeman et al., 2015), Romania (Badiu et al., 2019) and the UK (Ross, 2019). Thus we felt further research was warranted to give a better basis for how people, (and particularly gardeners) viewed and valued their gardens, and how this might inform future policy. In the UK, where gardeners represent approximately 50% of the population, we felt their opinions about gardens may have relevance to current debates around city densification. We were particularly interested in how gardeners viewed their gardens from a health perspective.

This study explored why students engaged with gardening and the extent to which any health and well-being benefits were acknowledged by these students. For centuries, home food gardens have been an essential component of families' self-provisioning practices all over the world (Galhena et al., 2019; Vávra et al., 2018). Home food gardens have evolved together with the way societies have urbanized (Ferreira et al., 2018). During social, economic, and environmental crises—times of intense difficulty, trouble, or danger— home food gardens have risen in importance (Mullins et al., 2021), with some home food gardens maintained by households specifically in response to collective crises (Schupp and Sharp, 2020; Cepic and Tomicevic-Dubljevic, 2019; Katz, 2020). The current COVID-19 pandemic, declared on March 11, 2020 (World Health Organization, 2020) and relating to the highly contagious coronavirus (SARS-CoV-2), is a contemporary crisis facing society.

In many countries, initial reactions to hinder the spread of the coronavirus included the closure of international borders and the implementation of curfews and social distancing to restrict and control social contact. The global spread of the virus called for almost half of the world's population in more than 90 countries to stay at home (Sandorf, 2020). These global efforts to reduce the spread of the disease have had unintended impacts on people's health and wellbeing.

Isolation from others including family members, restricted time outdoors, and the reorganization of life at home—work, studies, and/or childcare—have strongly affected people's lifestyles (Lades et al., 2020; Garre-Olmo et al., 2021).

Recent studies revealed the severe consequences of this confinement on human mental and physical health, with increased levels of e.g., stress, loneliness, and depression (Lades et al., 2020; Buckner et al., 2021; Kasar and Karaman, 2021; Pouso et al., 2021), as well as a generalized increase in sedentary lifestyles (Cheval et al., 2020). In parallel, alterations in trade networks due to international and local restrictions strongly affected the food systems (Ma et al., 2021; Rivera-Ferre et al., 2021). This amplified the risk of severe food insecurity and added, by the end of 2020, 265 million people to the already 821 million suffering from hunger worldwide (United Nations, 2020).

Home food gardens have heightened in relevance during this time due to their accessibility in time of movement restriction and their capacity to contribute to fresh food provision (Sofo and Sofo, 2020; Corley et al., 2021; Ma et al., 2021), aid in stress relief (Sunga & Advincula, 2021), promote physical activity (Machida, 2019), and contribute to strengthening social relations (Katz, 2020; Darly et al., 2021). This translated into a surge in home food gardening in cities around the world during the pandemic (Chenarides et al., 2020; Montefrio, 2020; Mullins et al., 2021), highlighting how urban agriculture can serve urban populations in times of crisis.

Nevertheless, there is little insight on what influenced or motivated people to garden during this time, and specifically, whether gardening experience and associated knowledge and/or equipment were motivators and/or hindrances for home food gardening uptake during the pandemic (Chenarides et al., 2020; Katz, 2020). Furthermore, previous research on home food gardens in times of crisis mainly focused on food security issues (Galhena et al., 2019; Herrmann, 2020; Montefrio, 2020). Research focus was also largely on community gardens, at the expense of home food gardens within the private realm, despite the critical role of the private sphere in the COVID-19 context (Ma et al., 2021; Mullins et al., 2021; Sunga & Advincula, 2021). This highlights the relevance of examining the multi-functionality and changing role of urban agriculture in general and home food gardens in particular.

The selection of theory of practice as a theory in this thesis is based on the nature of the research question's focus on the motivations of urban gardeners' and foragers practices. Why do they engage in these practicing when they can buy food in the supermarket? What do they gain when performing the practices that keeps them practicing? Or, in general as expressed by Warde (2020): "Why do people do what they do?" (Warde 2020).

The theory of practice recognizes the individual as both a bodily and mental agent (Schatzki 2021, Reckwitz 2022), and that the practitioners carry the practice (Warde 2020). Hence, the theory of practice acknowledges the social construction of practices, by the practitioners' interactions with other people and their surroundings (Czarniawska 2018, Nicolini 2019) in line

with this thesis' ontological grounds. Thus, the urban gardeners' and foragers' are pivotal in this thesis, because through their actions and perspectives, the researcher and the readers of this thesis can gain insight in their practices and thereby their motivations.

The constructivist thinking of the practitioners as both maintaining and creating the practices, is described in the practice theory as two approaches, under the terms of reproductive practices and innovative practices (Halkier, Jensen 2018, Warde 2020). This distinction is like other theories clearer in the theory than in practice, however it is relevant to discuss in relation to the individual urban gardener's and forager's practices, which entails both. Furthermore, some of the doings and sayings of the practitioners might be expressed in certain ways, reproducing certain patterns of cultural or attitudinal stances among the practitioners; such parts of the practices can be considered conditioning to the individual urban gardener or forager in order to fit in. Whilst innovative practices assure the development of practices in coherence to the contemporary societal changes, which aids an understanding of the investigated practices' connectedness with larger structures such as the food system (Nicolini 2019).

Practices can be regarded as having both micro- and macro-perspectives, which can be investigated by zooming in and out on the practices and practitioners to understand connections and multi-sited perspectives (Nicolini 2019). In the analysis and results of the thesis, the theory of practice lens allows the necessary focus on the performativity of the investigated practices (Halkier, Jensen 2008), and includes perspectives on the interconnectedness of the practices' addressing of both macro- and micro-levels (Nicolini 2019, Czarniawska 2018) to understand of the practitioners' motivations.

The theory of practice has its focal point in exploring the connection between doings and sayings (Schatzki, 2021), and in understanding what is constitutive and conditioning on both micro- and macro-level, in the establishment and conduction of practices (Halkier, Jensen 2018). The agent near focus on the relation between thoughts and actions (Andersen 2019) guides and sharpens the lens on the produced data to understand the urban gardeners' and foragers' motivations, and furthermore how understanding of these can be suggestive to future qualities in the food system.

Warde (2020) presents the concept of practices to form a nexus that can be deconstructed in three different components, respectively understandings, procedures, and engagements. In relation to these components, Shove and Pantzar et al. (2019) furthermore address technologies such as hardware and material objects in their research. From a consumer-perspective, such inclusion of materials as products, consumed goods, this research specifically include food, plants, and physical facilities as relevant. Since their structural and physical presence is an integrative part in the performance of the practices, this material component is elaborated by the Danish researcher Boris Andersen's (2019) work with practice theoretical perspectives on food and meals.

Andersen (2019) synthesizes a practice theoretical model around the nexus of practices that includes both physical and mental activity, and can be divided in four components: understandings covering knowledge, and what people say and how they express themselves, procedures covering principles, written as well as unwritten codes of conduct; engagements integrating motivations, purposes, beliefs, and emotions; and materials which are objects, technologies or physical surroundings.

These four components are summarized in a practice theoretical model by Andersen (2019) as shown in Figure 1. They are comparable to and recognized in the conceptualization and theory development in the work of Schatzki (2021), Reckwitz (2022), Halkier (2018), Warde (2020), and Shove, Pantzar et al. (2019).

Specifically, the study sought answers to the following questions:

1. What is the status of home gardening engagement in terms of:

   1.1 student's interest;

   1.2 parent's initiative; and

   1.3 teacher's motivation?

2. What is the level of sustainability home gardening practices in terms of:

   2.1 family's support;

   2.2 school's support; and

   2.3 LGU's support?

3. What is the status of student's welfare as to:

   3.1 physical;

   3.2 emotional; and

   3.3 social attributes?

4. Is there a significant relationship between home gardening engagement and sustainability of home gardening practices in addressing student's welfare as to:

   4.1 physical;

   4.2 emotional; and

   4.3 social attributes?

## II. Methodology

A descriptive-correlational-predictive type of research design through a validated survey questionnaire was used in gathering information from the sample respondents.

The respondents of the study were composed of 76 Grade 5 and 6 students of Balutakay Elementary School in Sitio Balutakay, Managa, Bansalan, Davao del Sur. The inclusion criteria for the selection of the respondents are as follows: officially enrolled in the identified school; officially enrolled in Grade 5 and 6 of the school; resident of the locality; and willing to participate in the study as evidence by participation and signed consent of the parents/guardians.

The questionnaire was downloaded from the study of Villar (2021). The questionnaire was comprised of three (3) parts. Part I is on the Status of Home Gardening Engagement with 15 statements and 3 indicators: Student's Interest, Parent's Initiative; Part 2 is on the Level of Sustainability of Home Gardening Practices with 15 statements and 3 indicators: Family Support, School Support, LGU Support; and Part 3 is on Status of Students' Personal Welfare with 15 statements and 3 indicators: Physical attributes, Emotional Attributes, Social Attributes. The questionnaire was norm validated by the researcher through three (3) professors of the RMC Graduate School. No item in the original questionnaire was replaced, except for the number of respondents.

In answering each specific research question, an appropriate statistical tool shall employ using Mean, Standard deviation, and Pearson correlation coefficient. The mean and standard deviation was used to determine the status of home gardening engagement in terms of student's interest, parent's initiative, and teacher's motivation as well as the level the of sustainable home gardening practices in terms of family's support, school support and LGU's support and the status of student's personal welfare as to physical, emotional and social attributes; Pearson Correlation Coefficient suits the study to find the relationship between home gardening engagement and sustainability of home gardening practices in addressing student's welfare as to physical, emotional and social attributes. The researcher constructed a five-point Likert scale to be used in the analysis and interpretation of the data.

## III. Results and Discussion

The overall mean indicates that students' interest in home gardening is very high. According to McMane (2019) students who showed interest in participating in gardening activities develop an ability to communicate and work collaboratively. Furthermore, Block et.al, (2019) found that children engaged in a garden and kitchen program were able to self-direct and complete tasks without repeated redirection or close supervision.

The overall mean indicates that the status of home gardening engagement in terms of parent's initiative is very high. In accordance with Dansal and Aguanta (2019), the effectiveness of vegetable gardening is significantly linked to the interest of the student in the program, parental support, and the extent of hands-on learning through the direct and meaningful learning experience with cooperation from home or parental support.

As shown in table 4 students indicated a very high level of home gardening engagement in terms of teacher's motivation. According to Filgona (2020), highly motivated learners are likely to learn easily and make any activities fun doing, while unmotivated learners can probably learn very little and make tasks painful and frustrating in general. Similarly, DiClaudio, Hughes, and Savoca (2019) claim the important role of a teacher in motivating students to engage in worthwhile activities like gardening. Teachers believe that implementing new learning styles and motivation can help students to engage more.

Data reveals a lowest for the statement my family is involved in the garden plans from the very beginning. According to Camey et. Al., (2020) Family and social relationships can also be strengthened through community gardening. As mentioned by Borbon (2019) another benefit of having a family garden is that it improves family well-being. As a result, the family bond is strengthened and further developed.

Students remark strongly agree with the statements about our school helps provide seedlings and other gardening needs, has a merit system for home gardening, features our home garden in its publications, and its teachers visit us to check on our gardens. Furthermore, the data in the table also shows the total mean level of sustainability of home gardening practices in terms of school support interpreted as Very High. The need for school's support in the sustainability of home gardening practices is important as mentioned by McCully (2019) provision of practical, up-to-date, basic information on home gardening for vocational agriculture students with limited knowledge of vegetable gardening is important.

The recognition of the respondents in the importance of LGU's support in the sustainability of home gardening practices is evident. As mentioned by McIntosh (2019) the local government plays important role in sustaining community gardening by offering the assistance of free seeds and gardening programs.

Results show that students strongly agree that doing home gardening helps them gain strength through regular exposure to fresh air and sunlight, helps them exercise their entire body through walking, reaching, bending, and digging, helps them feel more active and alive, helps them improve their endurance, strength, mobility, and flexibility and makes them physically fit through regular eating of fresh vegetables.

Data shows that the standard deviation implies closely similar responses obtained from the students. The overall mean indicates that the status of student's personal welfare as physical attributes is very high. According to Ohly et.al, (2019) gardening programs are increasingly

popular, with suggested benefits including healthier eating and increased physical activity. Similarly, Eng et.al, (2019) Gardening is quite beneficial to children's physical, cognitive, and motor development. Moving tools, digging in the soil, and feeling the dirt in their palms are all experiences that add to the physical development of children.

The overall mean indicates that the status of student's personal welfare as to emotional attributes is very high. As shown in the study conducted by van Lier, Utter, and Denny (2019) students involved in gardening report slightly lower levels of depressive symptoms and improved emotional well-being and are more connected to their families than students who are not involved in gardening. Similary Dorcheus (2019) stated in his research study found that both at the beginning and end of youth gardening experiences, participants reported feeling more positive than negative emotions.

The overall mean indicates that the status of student's personal welfare as to social attributes is very high. Mcfarland and Waliczek (2018) highlighted the importance of interactions in the garden with families. According to them home gardening can be used as a location for social interactions sharing of experiences and bounty with others as well as developing stories and memories. Eng et.al, (2019). The most significant benefit that can arise from gardening is increased social capital and connections. As children work together to plant and create something meaningful, the result is an improved bond between them.

Results show that home gardening engagement as to student's interest, parent's initiative, and teacher's motivation were found moderately related to student's welfare in terms of physical attributes. With regards to home gardening sustainability, there is a moderate relationship between LGU's support, school's support, and student's personal welfare as to physical attributes. Family's support however, shows a weak relationship with student's personal welfare as to physical attributes.

Furthermore, it shows that the established relationship was statistically significant. Thus, the hypothesis that states that there is no significant relationship of home gardening engagement and sustainability of home gardening practices in addressing student's personal welfare as to physical attributes is rejected.

*Analysis*

The literature review supports the inclusion and promotion of home gardens as an eco-friendly sustainable agricultural practice to improve food security and enhance economic growth.

The structure, functions, and contributions of home gardens vary in geographic regions. The literature shows that home gardens fulfill social, cultural and economic needs, while providing a number of ecosystem services. While these benefits are broadly distinguished here for better illustration, these benefits are not mutually exclusive. In the real world, there is substantial overlap

and dependence between the various beneficial elements resulting in a bundle of advantages making home gardening initiatives even more attractive.

In the wake of a global food crisis and the soaring food prices, there has been increased emphasis on enhancing and building local food systems. In this context, there is renewed attention to food production and livelihood enhancement through home gardens. However, more empirical evidence on the value and importance of home gardens in conflict and post-conflict situations needs to be researched and documented. There is also a need for research on the cost-benefit analysis of home gardening to determine the economic value and to derive viable models that hold the most promise in diverse circumstances. The areas of nutrition, access to new technologies, extension and advisory services, economic and non-economic benefits, women empowerment, and long-term sustainability of home gardens specifically in post-conflict situations need further research.

Recognizing the value and potential of home gardens for enhancing food security and livelihoods, numerous initiates have been launched by governmental, non-governmental, and international organizations in many developing countries that are providing support and building local capacity to enhance the productivity and also for scaling up home garden activities. In this light, a number of resource materials, manuals, and guides have been developed through various home garden-related projects that can be used to improve and promote home gardening programs to enhance food security.

## IV. Conclusion

Considering the findings and conclusions of this investigation, the researcher made the following recommendations.

1. In order to maintain student engagement in home gardening parents and teachers should provide continuous motivation by giving rewards and recognition for their effort.
2. Since home gardening amidst pandemic has a positive effect on student's personal welfare, the researcher suggests that it should be widened and strengthened by a school, community, and family.
3. Local Government Unit must support home gardening in their community to help families with their food production especially during this time of the pandemic.
4. It is further recommended that the Department of Education to conduct teacher’s training for home gardening to help the students in providing important information regarding home gardening.

5. It is recommended for future researchers to check and improve the reliability of the research instrument for a larger sample size.

6. More research and empirical data are also needed to evaluate the role of home gardens in a crisis like pandemic and post-crisis situations, as well as their economic value and impacts on food security, nutrition, and family's well-being.

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