

# Effects of Horticultural Activities on the Psychological Well-Being of College Students

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**Abstract:** Many students living in urban settings tend to lose touch with nature due to their lifestyles and reliance on the Internet and electronic devices for leisure and learning. Prolonged detachment from nature is detrimental to health. This study primarily explored the psychological well-being effects of horticultural activities among college students in urban areas. This study was implemented as a case study. In-depth interview data and the Myers-Briggs Type Indicator were used to analyze students' opinions about horticultural activities and the effects of these activities on their psychological well-being. The results showed that horticultural activities positively affected the students' emotional adjustment. Students with Introversive and Thinking learning traits were highly willing to engage in hands-on activities while those with Extraversive and Feeling learning traits emphasized visual aesthetics. Participating in horticultural activities enhanced the students' naturalist intelligence, but the results were influenced by the intensity of the activity and space constraints. This study provides several recommendations and references for students and psychological counselors.

**Keywords:** horticultural activity, psychological well-being, college students

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## 1. Introduction

Many college students in urban campus settings lack the opportunity to connect with nature. Moreover, electronic devices have become central to our lives, with many relying on them for studies and social interactions despite the significant health risks associated with overuse. Psychologists have proposed horticultural therapy is a means of boosting mental health. This study examined the effects of horticultural therapy-based activities on the psychological well-being of college students in urban areas. It is hoped that the results of this research can provide higher education counselors with a reference for assisting students to improve their psychological health.

Based on the aforementioned research motivations, the objectives of this study are as follows:

1. To investigate the opinions of students in urban areas toward horticultural activities.
2. To investigate the effects of horticultural activities on the psychological well-being of college students in urban areas.

## 2. Literature Review

Being in touch with nature offers health benefits. However, due to rapid urban growth and modern lifestyle changes, urban dwellers have fewer opportunities to connect with nature (Hartig, Mitchell, De Vries, & Frumkin, 2014). Studies have suggested that prolonged exposure to urban environments is detrimental to health (Ulrich & Parsons, 1992; Kaplan, 1995; Ulrich, Simons, Losito, Fiorito, Miles, & Zelson, 1991). Additionally, Bewick, Koutsopoulou, Miles, Slaa, and Barkham (2010) investigated the psychological well-being of college students and found that they perceive college life as highly stressful. The authors highlighted the importance of offering students the necessary support throughout their studies, as academic stress can reduce their motivation to learn (Pascoe, Hetrick, & Parker, 2020). Balashov (2022) studied self-regulated learning and pointed out that "Psychological well-being has been viewed as an integral indicator of the level of personality, which affects resistance, and manifests itself in subjectively tangible satisfaction and life satisfaction."

Horticultural therapy has received widespread attention among scholars because it aims to improve health by encouraging interactions with nature (Elings, 2006; Haller & Capra, 2006; Relf, 1992). Horticultural therapy is gaining increasing attention in education, with some researchers applying it in special education contexts. For example, Airhart, Willis, and Westrick (1987) designed a horticultural therapy intervention for adolescents with mental or physical disabilities and reported that it improved the employability of the participants. In addition, Riaz, Younis, Shah, and Naveed (2012) found that horticultural activities improved the social skills of special needs children. In higher education, Lunday (2009) provided recommendations for the content of introductory horticultural therapy courses at universities. Furthermore, Myer (1983) observed a

negative correlation between female college students' horticultural knowledge and their tendency to experience anxiety.

### 3. Materials and Methods

#### 3.1. Research participants

The participants in this study were six undergraduates who were from highly developed urban areas and enrolled at a Taiwanese college located in a highly developed urban area. They were divided into two groups of three based on the Myers-Briggs Type Indicator (Briggs & Myers, 1987). Group A comprised students with Extraversion and Feeling learning types while Group B consisted of students with Introversion and Thinking learning types.

#### 3.2. Qualitative Research Approach and Analysis

This was a qualitative study that aimed to explore the effects of horticultural activities on the psychological well-being of college students in urban areas. Six semi-structured individual in-depth interviews were conducted over a semester. The participants (coded A-1, A-2, A-3, B-1, B-2, and B-3) provided their opinions about the horticultural activities and their psychological adjustment in response to the questions asked. The horticultural activities in this study consisted of indoor and outdoor activities such as floral crafts, pressed flower art, planting potted plants, applying plant essential oils, drinking herbal tea, and strolling through the trees. These activities targeted the senses of sight, smell, sound, touch, and taste. High-intensity activity participation was defined as participating in five or more activities per week; low-intensity activity participation was defined as participating in four or fewer activities per week. A-3 and B-3 were identified as low-intensity participants. The Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) was used to examine the students' psychological well-being. After gathering feedback from the participants, the researcher used the protocol analysis approach in content analysis to analyze the interview data, logs, and other content provided by the participants.

### 4. Results and Discussion

Based on the in-depth interviews, this study analyzed the effects of horticultural activities on the psychological well-being of college students in urban areas. The results revealed that horticultural activities positively affected the students' emotional adjustment, aligning with previous studies. In addition, the psychological well-being effects differed among the participants with different learning traits. The psychological well-being effects are described as follows:

#### A. Horticultural activities positively affect emotional adjustment.

*Nature has such astounding powers. It feels comforting to look at plant life every time. Even when I'm watering the plants or touching the leaves of potted plants, I immediately feel less stressed and emotionally at ease. My strained eyes become relaxed after being immersed in using electronic devices. (A-2)*

*The light differs between indoors and outdoors. Out there, there's sunshine during the day. I sweat during the sweltering heat in summer; I appreciate the fleeting warm moments of sunshine in winter. On rainy days, the vivid plants appear to be visually different from sunny days. It's a feast for the eyes. (A-1)*

*The air I breathe when I'm walking through the trees invigorates me.... When I'm strolling through a garden, I can smell the freshness of freshly cut grass, the crisp air after a rain, the aroma of flowers in bloom. I can feel the different textures of leaves and tree barks. It's fun walking in the garden. (A-3)*

*Eucalyptus leaves are suitable to be kept on a desk because they have a soothing scent. (B-3)*

*When I'm walking in a garden, I feel happy because it's a symphony of natural sounds, like bird chirping, rustling leaves, pattering rain on leaves. (B-2)*

*It feels great to taste herbal teas. It's amazing that great tea can be brewed using simple herbs. There's virtually no room for failure as long as the ratios are correct. (B-1)*

#### B. Participants with Introversion and Thinking learning traits are highly willing to engage in hands-on activities

*Put on a hat that shields me from the scorching sun. A large bead of sweat slides down my face. All the efforts have been worthwhile at the moment when the job is done. From sowing chili seeds to seeing them bear fruit or repotting sweet potato leaves ... the results will always give me a sense of achievement and joy. (A-1)*

*Tending the plants on weekdays allows me to momentarily relax and de-stress from my studies. It's also fun to think about the means to achieve better growth for the plants. (A-2)*

*Bookmarks made from pressed flowers can make me feel relaxed. It always feels good to appreciate these works of art. (A-3)*

**C. Participants with Extraversion and Feeling learning traits strongly emphasize visual aesthetics.**

*Painter's Palette is a symbol of auspiciousness. It brings joy to people who appreciate its beauty. (B-1)*  
*The sea of Golden Shower Trees in bloom is stunning. It definitely makes me want to take many photos. (B-2)*

**D. Horticultural activities enhance the experiences of nature's impermanence and promote the development of "naturalist intelligence" (Gardner, H., 1999).**

*Each time I complete a floral craft, I am often able to garner praise from others. This gives me a sense of achievement. However, I feel sad when the plants begin to wither. (A-1)*

**E. Low-intensity maintenance and insufficient space impacts the effects of horticultural activities and are barriers to the students' participation in these activities.**

*My balcony can only accommodate three potted plants. Inadequate sunshine and poor ventilation are also reasons why my plants are unable to survive. (A-3)*  
*My plants grow poorly when I'm busy preparing for exams. It's frustrating to see a plant grow below your expectations, and you feel like you no longer want to continue tending to it. (B-3)*

### Conclusion

Despite a densely populated and highly urbanized area offering convenient transport access and commercial and industrial developments, the urban environment is man-made. In addition to the artificial surroundings, the students in urban areas are exposed to high levels of electromagnetic waves due to their heavy reliance on electronic devices in daily life. These factors create an unhealthy living environment for the students. Horticultural activities provide a way for them to connect with nature. The study results indicated that engaging in horticultural activities improved the students' psychological well-being. Consistent with previous studies, horticultural activities elevated the students' moods. They felt more relaxed and energized rather than anxious and fatigued.

Furthermore, the study results revealed that the students' interest in different horticultural activities varied according to their learning traits. Those with Introversion and Thinking learning traits were highly willing to engage in hands-on activities, while those with Extraversion and Feeling learning traits emphasized visual aesthetics. Additionally, in contrast with low-intensity engagement in horticultural activities, high-intensity engagement in horticultural activities positively enhanced the students' psychological well-being and reduce the stress. Moreover, Odom (1973) described gratification as a byproduct of participating in horticultural activities. Encountering transitory phenomena in nature helps individuals realize the unpredictability of life and enhances their naturalist intelligence. For students living in densely populated and urbanized environments for long periods, the lack of space hinders their participation in horticultural activities. It also takes time for them to develop an interest in connecting with nature. Learners who increase the intensity of their participation in horticultural activities see greater improvement in their psychological well-being. Enhancing psychological well-being is key to improving psychological adjustment and emotional balance. Psychological counselors should consider the personal traits of urban-dwelling students when encouraging them to participate in horticultural activities. If the students can overcome the barriers of insufficient time and space, the psychological well-being benefits they gain from horticultural activities would become more significant.

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