

Effects of digital pet plants on emotions

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1. Introduction

Since the COVID-19 pandemic, more and more people are suffering from stress, depression, anxiety, and fear. In particular, as the COVID-19 pandemic is prolonged, more and more people complain of anxiety and depression. In fact, according to the "COVID-19 National Mental Health Survey" conducted by the Korean Trauma Stress Society on 1,002 adults, the risk group for depression was 18.6%. Due to COVID-19, going out is restricted, and the public is constantly looking for ways to relieve stress indoors.

In addition, the pet plant market is growing rapidly due to the recent increase in single-person households, low birth rate, and aging. Unlike companion animals, more and more people are looking for companion plants in that they do not have noise generation problems and anyone can raise them without burden.

Pet plants are less burdensome than animals, and they are attracting attention as a culture with one stone and three trillion effects that help health for modern people exposed to fine dust and electromagnetic waves. As the pet plant culture rapidly increased, the pet plant market naturally grew.

Consumption related to companion plants is increasing as the number of people suffering from depression and anxiety due to the COVID-19 crisis increases. By caring for companion plants, it is possible to obtain an effect of relieving stress. It's true that it's less labor than pets, but some people find it difficult to bring in plants because plants are also life.

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2. Related researches and trends

Since the COVID-19 pandemic, more and more people are raising companion plants. As the stay at home is prolonged due to COVID-19, the desire for plant (a combination of plant and interior) is also increasing. People's needs are changing to grow various plants that have interior effects such as herbs and flowers, not satisfied with the past way of growing food vegetables such as lettuce on apartment balconies (Lee and Jang, 2022).

The National Aeronautics and Space Administration (NASA) has studied a method for purifying the air in a completely enclosed spacecraft. After more than 15 years of research, plants were used to clean the air in the spacecraft. This is because about 12 plants were placed in an enclosed space with pollutants harmful to the human body, and 80% of indoor air pollutants such as formaldehyde, benzene, and carbon monoxide were removed within 24 hours. The best five air purification plants created through NASA's experiment include Areca palm, Gwaneumjuk, bamboo palm, Indian rubber tree (Bangal rubber tree), and Dracena Janet Craig (also known as lemon lime or golden bamboo).

The recent spread of ESG seems to be playing a role in the reason why companion plants, plantation, and gardens are attracting attention. Initially, I thought of a two-dimensional effect as a healing effect for air purification, but the effect is a three-dimensional effect because it also helps ESG practice. Some home appliance companies have also released related products with interest in companion plants, and new market possibilities are expected to grow in this field. It is expected that job creation and various startups will be able to come out.

Pet plants are defined as plants that provide emotional communication and comfort like friends. Through a consumer survey in Korea, the perception of the usage behavior and value of companion plants was investigated. According to the survey, 75.2% of the respondents heard the term "pet plant," and 60.3%

of the respondents said they were well aware of the pet plant recognition level. The biggest reason for not growing companion plants was the difficulty of management, and 45.9% of the respondents said they were willing to grow companion plants in the future. Respondents with experience in raising companion plants had an average of five years of cultivation experience, and the most common reasons for cultivation were the atmosphere of the house, interior design, and the cultivation of emotions of themselves or their families.

Regarding the difficulties of raising companion plants, they answered difficulties in management and the occurrence of insects and pests. When the importance of detailed values provided by pet plant cultivation was 100%, the importance of detailed values was the highest at 30.7%, followed by health value (23.3%), environmental value (21.0%), education value (14.8%), and economic value (11.7%).(Kim et.al, 2019)

Pet plants strengthen mental stability and improve depressive symptoms, resulting in a change to an active and enterprising personality. According to a study of 30 college students published in the Korean Society of Environmental Sciences in 2018, those who took care of companion plants for three months had fewer symptoms of depression than those who did not. The average of depressive symptoms before caring for companion plants was 46.207, but after caring, it changed to 35.083. In particular, in the case of female participants, after the companion plant care activity, a change in personality appeared in the dominant items such as active participation, self-determination, subjectivity, driving force, and leadership. In addition, according to the results of a project to support companion plants for the elderly living alone in 2017, companion plant care activities had a positive effect on improving the mental health, life satisfaction, and loneliness of the elderly living alone.(Kim and Cho, 2018) The elderly living alone who participated in pet care activities had a lower rate of loneliness and depression. In addition, according to a study published in the Journal of the Health Education Health Promotion Association in 2013, students' stress was reduced in

the process of taking care of plants by participating in gardening programs, and self-esteem and quality of life were improved.

Experts explain this because the original humanity of recognizing one's value and feeling proud in the process of raising children appears in the process of caring for plants. Achieving such emotional stability can lead to improved consideration and cooperation for others. In particular, if an identification phenomenon occurs in which a plant compares itself to a plant in the process of growing, the relationship between the plant and the caregiver becomes closer and the positive effect is further maximized. In addition, in the process of performing small tasks such as watering and organizing branches every day, stress is reduced and self-esteem is increased.

3. Implication and application to theme parks

Growing plants gives you time to concentrate, feel a sense of accomplishment and relieve stress. In addition, as air pollutants such as fine dust increase, interest in indoor air quality has increased, which is also aimed at purifying and humidifying air through plants. Such a well-grown plant helps keep the room more comfortable.

It is not only today that humans have grown plants. However, in particular, in a bleak and lonely modern society, the number of people seeking comfort from plants has increased significantly, and noticeable changes are also appearing in the plant market. As consumers expand to the younger generation, interest in companion plants is spreading through the media. Hundreds of thousands of posts were posted on Instagram with the hashtag 'Pet Plant'. It has become a trend to introduce companion plants or record their growth through SNS. In the publishing market, a series of plant essays containing personal appreciation and practical advice from growing plants are also gaining popularity.

POSCO E&C, Korea's leading construction company, will introduce a new botanical garden cafe "Plantrium," a landscaping space in the apartment complex. In other words, it has created a botanical garden in the residential complex and developed

"Plantrium," a complex resting place where you can see the garden at a botanical garden cafe, eat salads, and drink tea.

Daejeon City, a local city in Korea, is supporting single-person households to raise digital companion plants. The digital companion plant raising project was designed to improve emotional health by raising digital companion plants for single-person households, such as communication, exchange and depression between neighbors and generations, amid the spread of COVID-19 due to the prolonged COVID-19.

This was prepared by Daejeon City to improve the indoor environment of apartments in large cities. In the education and cultivation process, IoT oxygen trees growing classes will be conducted through the convergence of hydroponics using light catalysts and LEDs and the Internet of IoT oxygen trees that can be healed. In addition, various programs are being conducted together, such as understanding the recovery and healing effects through plants and developing a profit-generating model through companion plant technology.

In addition, various botanical gardens in Korea are increasing the space related to companion plants where you can see, feel, and buy them home, not just watching. In other words, there is an increasing trend of accepting plants as beings who live together from simply seeing them.

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