The Psychological Effects of Plants in an Academic Environment

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Project Motivation & Goals

❖ A National Mental Health Crisis: Low productivity, anxiety, stress levels, and depression among teens are at an all-time high (Fig. 1) potentially due to influences from social media, coronavirus pandemic, the effects of uninspiring classroom environments, and a lack of proper stress management (Divachea, 2019).

❖ Personal Motivation: In Feb 2023, my father almost lost his life from an aortic descending dissection, resulting from high stress levels and lack of proper stress management.

❖ Potential Approach: A 2021 study assessed the potential health and environmental benefits of "Indoor Forest Bathing" Approach (Fig. 2; Bishop, 2021).

❖ Overarching Goal: To reduce the amount of stress in students by creating a green study room and encouraging them to connect with nature while studying or during the school day by:
  1. Revitalizing a school greenhouse.
  2. Creating a green study room to promote relaxation, increase memory, productivity, and focus in students.
  3. Assess need/benefits of a green room by surveying and collecting data from students.

Research on the Psychological Benefits of School Green Rooms

Goals:

❖ Pre-Survey Goals: To assess how students how currently felt (in their current academic setting), their stress level to a variety of tasks, how they manage stress, and their opinions on a green space in an academic environment.

❖ Post-Survey Goals: To assess how students felt currently in their environment (in green study room), their stress levels, and their opinions on the green space there were currently in.

Methods (Fig. 3):

❖ Began holding lectures in environmental biology classes at Bunnell High School on the effects of stress (importance of proper stress management, dangers of high stress levels) and the benefits of plants.

❖ Immediately followed lecture with pre-survey to gain baseline data on current stress levels as well as determine community opinion on/need for green study spaces:
  - 1 surveyed 33 students during midterms week in classrooms.
  - Two months later: presented to students in the green room and conducted my post-survey:
    - 1 surveyed 18 students in the green study room.

Results (Fig. 4):

❖ Pre-Survey (Before Green Room) (Fig. 4a):
  - 63.3% of 33 students believe academic environment contributes to stress.
  - According to the sample of students, school is the most stressful activity.
  - 18.2% of 33 students were not comfortable in their current environment.

❖ Post-Survey (While in Green Room) (Fig. 4b):
  - 94.4% of 18 students stated that they would be productive in the green study room.
  - Students described themselves as calm, happy, relaxed, and safe.
  - 100% of 18 students stated that they felt comfortable in the green study room.

Creating Two School Green Rooms with Community Involvement

Goal:

❖ Revitalize and convert two academic spaces into green spaces to provide students with green study areas or opportunities to engage with plants during the school day.

Methods:

❖ Established location for project at one of my schools: Frank Scott Bunnell High School.

❖ Gained school support by working with my principal, Dr. Katie Graf, and my community partner, the Science Department Head, Dr. Tehmina Khan (Fig. 7).

❖ Identified two school spaces (Fig. 5):
  - Revitalized the greenhouse by cleaning and implementing plants.
  - Created the green study room behind Dr. Khan’s office (Fig. 7).

❖ Created a budget request for supplies from UConn NRCA and campaigned for donations from UConn EEB and Plant Science Greenhouses, Bridgeport Regional Aquaculture School community, and Bunnell High School community. See all supplies in Fig. 6.

❖ Green Study Room Overview:
  - Cleaned, reorganized, and decorated green room (Figs. 5 & 7).
  - Plants were transported into the green room.

❖ Greenhouse Overview:
  - Placed plants in greenhouse (Fig. 5).
  - Students cleaned, reorganized, and potted plants in greenhouse (Fig. 7).
  - Plants were watered daily and given Miracle Grow weekly.

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Conclusion and Next Steps

❖ Encouraging use of the two green rooms can have potential benefits to students’ mood and health. Plants encourage exposure to sunlight, which exposes humans to mood boosting vitamins such as vitamin D and B12 (Mead, 2008). Plants also produce oxygen through the process of photosynthesis, which can clean up the air in classrooms, as well as promote wellness, productivity, and proper breathing.

❖ My findings showcase the psychological benefits and significance of plants in an academic environment. The observations of benefits of plants on mental health may encourage other schools in my district to create more green spaces for students and require plants to be implemented into classrooms.

❖ Future steps are to continue care for the fish and plants as well as appointing a new student each year who will be in charge of the plants and green room after graduation.

Acknowledgements and References

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❖ References:
  - Divachea, D. (2020, April 15). Our teens are more stressed than ever: Why, and what can you do about it?. Developmental Science.