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## The Sociology of Plants

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THE SOCIOLOGY OF PLANTS

an Honors Thesis by

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Department of Sociology

February 25, 1993

Research Advisor: E. H. Berry

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## OVERVIEW

The purpose of this research is to assess the link between plants, people, and performance. Several studies have suggested that plants in a social environment will change the behavior of the people in their vicinity (Relf, 1990, 1992; Bryant, 1992).

To test this idea, attitudinal questions were included on Introductory Biology midterm exams for two groups of Brigham Young University students. All of the students took the test in the Testing Center at BYU. The testing room in the center was divided into two halves--one side had trees and plants and the other remained unenhanced. Students were alternately directed to one of the sides of the room, so that half took the exam in the room with plants and half took the exam in the room without plants.

Significantly more students seated in the side of the room with plants felt comfortable in the environment than did students seated in the area without plants. The mean score from the exam given to all of the test population was similar in both groups. Thus attitudes were affected, and performance seemingly was not.

## LITERATURE REVIEW

Recent research has examined the effect of plants on human mental and emotional well-being. Plant researchers are indicating that a positive link between plants and emotional well-being seems to exist. C. A. Lewis (1988) states: "Plants are uniquely suited to benefit people. In a world of constant judgement, plants are non-threatening and non-discriminating." These qualities as well as plants' air-cleansing capabilities and apparently soothing appearance have influenced researchers to examine more carefully many of the unexplored aspects of the plant/people relationship.

There are several theories that seek to explain how and why plants are valuable to people (Ulrich and Parsons, 1992). One theory assumes evolution is key to our response to plants. Because we developed in a plant-filled environment, we have inherent feelings and reactions to plants. One study (Kaplan and Kaplan, 1982) implied that highly vegetative areas are intuitively preferred. Ulrich (1983) held to a psychoevolutionary theory regarding this relationship that maintains that the first response to a nature scene is emotional. This response is cardinal to all following thoughts and behavior related to the environment.

Another theory states that the response people have to plants is a result of earlier learning experiences, or the environment in which they were raised. Thus someone who grew up in a tropical area would prefer tropical vegetation to other types, and those who have been raised with mountains would be more positive toward that terrain than would someone who grew up in the desert.



Other emotional responses may also be explained by this theory. We still follow the old tradition of giving plants and flowers at funerals to comfort the grieving. It is hard to know whether or not the relief comes because we are socialized to respond to plants as therapeutic or because the plants intrinsically provide comfort.

A final theory that helps explain the emotional people/plant connection is the overload theory (Relf, 92). This maintains that modern society with it's hectic timetables, complexities, and demands can overwhelm the senses. Plants, as a contrast, are soothing and predictable, hence they reduce our stress. As Lewis (1988) explains:

"These predictable patterns differ from those in technological society, where the flow of life is governed by schedules and regulations and must adapt rapidly to change. Plants take away some of the anxiety and tension of the immediate "now" by showing us that there are long enduring patterns in life."

Dr. Roger Ulrich has conducted studies that support this concept. In one study, two groups of students who had just completed a test were given psychological tests that determined they were distressed. Afterward, each group was shown slides. One group was shown nature scenes while the other was shown urban scenes. The psychological tests were then repeated. The students that were shown nature scenes demonstrated significantly improved emotional states, while the group that was shown urban scenes

showed slightly higher distress levels than on their earlier tests. "Ulrich concludes that vegetation inspires peaceful feelings and enhances psychological well-being." (Lewis, 1988)

In another study, Ulrich compared patients whose rooms either faced a brick wall or trees--yet they had all undergone the same operation. The patients facing the trees had quicker recoveries, required less medication for pain, were released earlier from the hospital, and had more positive attitudes than the patients facing the brick wall (Lewis, 1988; Relf, 1992).

More support for the positive affects plants encourage in people has been demonstrated in the work place. In 1972, Everett Conklin was quoted, "Psychological and psychiatric research in employee attitudes in the planted office versus that of employee attitudes in the traditional or unplanted office brought forth some interesting observations in human behavior. A great majority of the employees in the planted office stated that they felt more content and in many instances could not explain why."

J.E. Laviana (1985) concluded in his dissertation that plants improve people's perception of their environment, and that plants make spaces appear more acceptable (Shoemaker, Randall, Relf, and Geller, 1992). This was reinforced by a study involving office workers and their opinions and behavior pertaining to plants. While the behavior of the workers did not change significantly as in past studies where plants are said to have increased productivity, improved morale, and decreased absenteeism: "Attitudes were favorable, and most surveyed agreed that plants in



an office made it a more desirable place to work. Office workers were aware of the benefits, such as improving air quality, that plants provide" (Shoemaker, Randall, Relf, and Geller 1992).

## THE RESEARCH

I have attempted to focus on the effects of the passive relationship that humans have with plants, more specifically, does being in the presence of plants make one perform better? and does the presence of plants make one feel more at ease? The research I have conducted corresponds by asking whether or not plants will affect students' attitudes and behaviors while in a testing environment. My hypothesis was that plants will help students feel more calm and relaxed--which can lead to higher test scores (if relaxation does indeed help while taking a test).

## METHODS

I conducted my research at Brigham Young University in the Testing Center on campus. The center seats up to 600 students at a time, and at any given time there are a variety of tests being taken. The population I studied was a section of Biology 100--a required general education course ( $n=291$ ). The students in the section had two days in which to take an exam. As the students entered the test receiving area they were alternately directed by a simple chart on the front page of their exams to a side of the large testing room (see appendix A).

The room was divided by a partition into halves. One half (the side they entered) was left in its unaltered state--rows of desks without plants, while the other half was embellished with large tropical plants and trees. The view when walking from the entrance of the testing room to any seat in the side without plants ensured that those students taking tests on the no-plant side could not easily see what was on the other side of the partition.

I added three extra questions to the students' exams:

"1. Which side of the room are you seated in?" (A or B)

This was to double check that they had followed the instructions given them when they entered the room. The exams which did not have answers that corresponded to the diagram on the front page were thrown out.

"2. I feel comfortable taking a test in this environment."

(Using the Likert scale: strongly agree to strongly disagree)

This question was key to determining the attitudes of the students

in each side of the room.

"3. When taking a test, the physical surroundings are not important to me." (Likert scale: strongly agree to strongly disagree)

I used this to gauge whether or not the students varied in their feelings about the surroundings, and also to determine if they viewed the environment as important.

In addition, I compared the mean test scores of the students on the plant side with the students on the no-plant side.

## RESULTS

The mean test score of the students taking their tests on the plant side was one percent higher than the mean in the unaltered side. While this is of interest, it may not be very significant. Whether or not students perform better while relaxed has not been proven to my knowledge. More significant is the response to the statement, "I feel comfortable taking a test in this environment." 20 percent of the students seated in the side without plants "strongly agreed" to the statement, while 45 percent of the students seated on the side with plants strongly "agreed." 40 percent of the students on both sides "agreed" with the statement. Thus, 60 percent of the students seated in the side without plants either "agreed" or "strongly agreed" with the statement, yet in the side with plants, 85 percent either "agreed" or "strongly agreed" with the statement.

The responses to the statement, "When taking a test, the physical surroundings are important to me." were similar in each side of the room, with the students seated in the side without plants responding with slightly less agreement than the students seated in the side with plants. The students who sat in the side with plants were probably more alert to their environment because they passed through the side of the room without plants on the way to their side.

Apart from the study population, other students noticed and responded to the addition of plants to half of the testing room. Although the plants were only in the center for two days, many



notes were left in the suggestion box requesting that the testing center keep the plants. The least positive stated simply, "What's up with the plants?" After the plants had been gone for weeks, the testing center still reported receiving more suggestions asking to bring back the plants.

The school newspaper, *The Daily Universe*, ran a piece titled "Top Thirty Things To Be Thankful For At Thanksgiving," making a respectable showing at number 21 was "Plants in the Testing Center" (see appendix B). Since then, the Testing Center has responded and now has established plants permanently in the testing room and in the lobby.

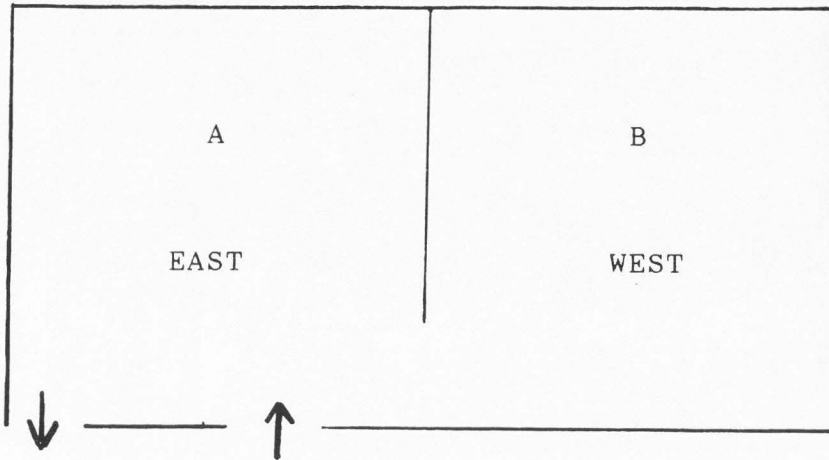
## DISCUSSION

These results imply that there is a link between plants and human well-being. Certainly many of the students find the plants to be a refreshing addition to an otherwise sterile testing environment. Perhaps it's the same reason that plants are popular house-warming gifts--plants can make people feel welcome and more at ease. Whether this feeling stems from evolution, socialization, or the opposition plants give to a hectic society can only be speculated. Most likely, human response to plants is a combination of the above theories. The Testing Center wants to show the students that it serves them, what better way than to add plants to make a seemingly caring environment.

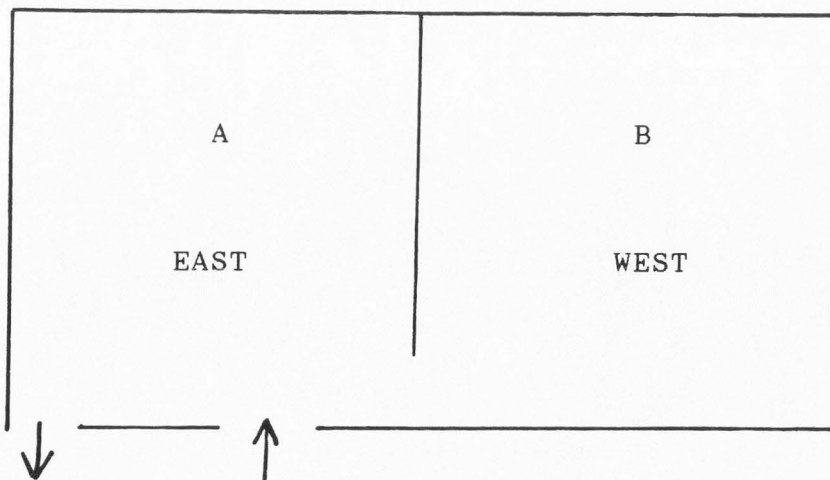
By conducting research to expound on the plant/people connection, we may find that attitudes can be improved in many institutions. Humans may benefit more fully from their link to plants only if they are made aware of the benefits available to them. Through more studies we may find additional ways in which we can gain from plants.

## APPENDIX A

PLEASE TAKE YOUR TEST IN THE EAST SIDE OF THE ROOM



PLEASE TAKE YOUR TEST IN THE WEST SIDE OF THE ROOM



### **Top Thirty Things To Be Thankful For At Thanksgiving**

1. Rex 2. The Blues 3. Deseret Industries 4. Conveniences of modern-day toilet 5. Venus Flytrap 6. Laser printers 7. Wool knee socks 8. Ska 9. Opened-minded professors 10. Roommates who pay bills 11. Automobiles in winter 12. Curry 13. Children's Television Workshop 14. BYU custodial staff 15. 30 more shopping days till Christmas 16. People named Jerry 17. Rum raisin lip gloss 18. Tithing 19. Dewey Gray 20. Sarcasm 21. Plants in the Testing Center 22. "Surviving" 23. Crested Butte, Colorado 24. Leggos 25. Freshman starting to grow up 26. Meatball subs 27. Monty Python 28. Extended family 29. Flora and fauna 30. Alka Seltzer



## PICTURES





MORE PICTURES



## LIGHT DISCUSSION

While preparing for and conducting this research I have learned many things. Aside from the obvious increase of knowledge about the link between plants and people, I have learned some lessons that only experience can truly teach.

The first is that there will always be some muck between you and your objective--it starts out shallow and gets deeper and deeper. When I started conceptualizing this project there were a few complications, yet as I got further into the project and had narrowed my options, more and more complications arose.

Luckily, I also learned that personal visits can cut through a great deal of the muck. After two weeks of close to continual phone contact with "key person" after "key person" and little progress, at the suggestion of an experienced professor, I drove to BYU and in less than five hours made the arrangements to conduct my research two weeks later.

Along the same lines, I have learned that you are only as 'good' to others as you present yourself to be--having a name to add credibility to yours is always a bonus. While working on the details for the study, I found that the only thing that doesn't have to be perfectly in order is that which you are working on with the person you are talking to at that moment. Then people will be more likely to work with you. Thus, step by step, person by person, you can finally attempt to put things in order for real.

Of course order never lasts for long, so I have learned that persistence and a sense of humor are traits worth striving for.

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