Environmental Connections: The Interactions Between the Work Environment and Green Spaces

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Abstract

Work environments in both the student's mindset along with the professional working mindset share common values: workplace productivity, mental health, and psychological mindset. These values are created through the working cultures that people exist in. This research illuminates the connections presented between nature and the working environment. This paper sheds light on the inner psyche of workers and students, their business mindsets, along with their mental health effects. Additionally, it further analyzes how the businesses conduct themselves through daily tasks and evaluating the employees' state of mind while comparing it to a various work environment. Through past research, green spaces have been proven to increase morale along with worker productivity. There will be an evaluation of how Bryant University implements types of green spaces into its academics and an analysis on the effects they have on students. A potential plan will be presented for Bryant University and how they can improve aspects of implementing green spaces into the campus culture. The use of these green infrastructure improvements can be used in many other college campuses and work environments, hopefully improving the mental health and morale of these communities.

Key words

Environment, Mental health, Green space, Morale, Efficiency

Introduction

Issues surrounding mental health and the sustainability of the environment are not so easily divided. Often when the environment is in an unhealthy state, it affects the mental health of the people within the environment. By determining individual factors in a community that influences a person's mental processes, one can discover what should be invested in to maintain a healthy environment for their employees or students. These factors may include distributed green spaces which are areas that are beneficial to the biological communities. Research conducted on students in various stages in their education process have analyzed factors that influence the student's well-being and satisfaction. The research carried out has demonstrated a relationship between green policy, urban green spaces, and public health in areas ranging from classrooms to urban communities. Connections can be made between these environments due to productivity being connected with one's mental state. This essay will illustrate that green spaces can strengthen one's mental health and prevent diseases in cities across the United States.

Biological impacts from Green Spaces

Green spaces have been demonstrated to have a connection with improving mental health in city-like environments. There is a concept that consistently resurfaces called "biophilia."[1] Biophilia is the notion that we are naturally connected with nature, and our disconnect from it can lead to problems.[2] Two basic ideas help support that green spaces improve mental health.

The first idea is that green spaces lower stress levels with the intention of relaxation. In one study done by Roe and others, "There was a steeper decline in cortisol (a stress hormone) secretions in people exposed to high levels of stress followed by extended periods of time spent

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[1] Boylan, Anna, "Urban Green Space and Health in the U.S.: The role of green policy in improving public health outcomes" (2019). Undergraduate Honors Theses. 1929, 8.
[2] Boylan 8.

in green areas."[3] When people are exposed to green spaces, their decreased stress levels allow for them to live a more balanced lifestyle. A theory that expresses this idea is Kaplan's Restoration Theory. This theory states that natural settings are rich in stimuli that invoke automatic attention, which can lead to lower levels of mental fatigue when one is viewing nature.[4] The above evidence supports that green spaces are essential for urban communities and lower stress levels.

The second idea is that the addition of green spaces has a social benefit to the community and results in stronger mental health. With more green space, there is more room for more social interactions, such as meeting new people along with engaging in activities. Places such as natural parks, tree covered areas, and trails allow more of these interactions to occur.[5] In a study done by Zhou and other writers carried out in 2010, they discovered that building a community with strong bonds between community members lowered the social gap and improved mental health. Also, this study resulted in people having a lower risk of a mental illness, such as depression.[6] There should be no surprise that more of these urban places should have more green spaces to benefit the community's social capital.

Green Spaces connected to disease avoidance

Cardiovascular disease (CVD) is one of the most prominent diseases in the United States. In her research paper, Boylan states, "Risk factors for CVD include physical inactivity, unhealthy diet, smoking, hypertension, diabetes, and high cholesterol."[7] From this information, to reduce CVD, individuals have to control high blood pressure and high cholesterol. In addition, individuals must make life changes such as exercising more and lowering stress. Green spaces

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[3] Boylan 9.
[4] Boylan 9.
[5] Boylan 10.
[6] Boylan 10.
[7] Boylan 10.

can reduce the risk of CVD by "potentially increasing physical activity, alleviating psychosocial stressors, increasing social interaction, and reducing exposure to air pollution and noise."[8] In a study from Kim and other writers, high blood pressure decreased when exposed to green spaces. Furthermore, the study depicted that people are more likely to participate in physical activity.[9]

Urban communities

In *A cross-sectional analysis of green space prevalence and mental wellbeing in England*, Victoria Houlden, Scott Weich, and Stephen Jarvis test the effects of green spaces in context to urban residents in England. According to their findings, mental health has two different aspects, hedonic and eudaimonic.[10] The hedonic dimension of mental health relates to happiness, life satisfaction, and pain avoidance of mental health which compliments the human, allowing them to relax and think in a positive, growth mindset. The eudaimonic dimension of mental health includes self-realization, how one questions their purpose in life, and their psychological state. The eudaimonic stage can be beneficial and harmful to one's mental health. When reflecting, people could think positively or negatively of themselves, as every human has a different perspective on their self-image.[11]

When studying the effects of mental health in the cities of England, it was noticed that green spaces had a positive impact on the people of urban communities. In the city, green spaces are usually associated with public use, as green spaces are less abundant in cities full of tall buildings. It is essential for people living in urban communities to find green infrastructure,

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[8] Boylan 10.
[9] Boylan 11.
[10] Houlden, Victoria, Scott Weich, and Stephen Jarvis. "A Cross-Sectional Analysis of Green Space Prevalence and Mental Wellbeing in England." *BMC Public Health* 17, no. 1 (May 17, 2017): 460. doi:10.1186/s12889-017-4401-x. http://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=136385554&site=ehost-live.
[11] Houlden, Weich, Jarvis 7.

allowing them to relax and escape the city life for short periods. Houlden mentions that when people visit green areas, they often connect themselves to nature, giving them a positive mindset.

The study was conducted to figure out if green spaces are related to any mental health correlations. Urban and suburban people were tested on factors such as the abundance of green spaces, living situations, and health conditions. The results concluded that green spaces were much more abundant in suburban areas, as families often had backyards rather than people in cities often living in tall buildings. There was a slight increase in mental health issues in the town where there were fewer green spaces available for people to live in.[12] In all, it was concluded that the amount of green space one has for themselves is not the issue, but instead, having a green space for each person to easily access is needed for a better overall mental health state and mindset. Green infrastructure not only brightens up a person's short-term mood but also helps them out in the long run.

Adolescent connections to nature

Being exposed to outdoor environments and nature has potential connections with mental health symptoms. At a young age, an adolescent mind is greatly influenced by the environment they are in. The child's brain is still in its early learning stages and is constantly absorbing any information it has access to. A national analysis of Canadian adolescents has been made to explore how exposure to nature can be connected to a prevalence of psychosomatic symptoms.

A weighted sample of nearly 30,000 students aged from 11-15 were used to collect data on their exposure to the outdoors. More specifically, the research focused on the interaction with nature and the "unique psychological benefits for young people".[13] Questions were asked about

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[12] Houlden, Weich, Jarvis 7.
[13] Piccininni, Caroline, Valerie Michaelson, Ian Janssen, and William Pickett. 2018. "Outdoor Play and Nature Connectedness as Potential Correlates of Internalized Mental Health Symptoms among Canadian Adolescents."

how long students would spend their time outdoors, observing if they showed any psychosomatic, or stressful, symptoms. The results were telling. Out of 20,697 students who were asked how much time they spent outdoors, outside of school hours, 1,775 had said they spent 0 hours outside weekly.[14] The percentage of students that displayed psychosomatic symptoms of that sample group was 40.1%.[15] This was then compared to a sample group of students who stated that they spent between 7 to 13.5 hours outside weekly.[16] Their percentage of high psychosomatic symptoms was only 26.8%.[17] This represents a 13% difference of who showed high stress mental attitudes based on the amount of time spent outdoors.

Another question was asked pertaining to how important the students considered their connection to nature. The 1885 students who had answered "Not Important" showed the high psychosomatic symptoms at 44%.[18] This is compared to the 12,196 students who considered their connection to nature to be "Important."[19] Their high stress mental states were very low at 24.3%, compared to the 44% of other students.[20]

The results demonstrate very clearly how perceptions of nature can influence a person's mental state. These students were especially vulnerable to the effects due to their continued brain growth. It also highlights how being aware of nature's connections to humans can play a part in how healthy a person's state of mind can be.

Club influence

Preventive Medicine 112 (July): 168–75. doi:10.1016/j.ypmed.2018.04.020.
http://bryant.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=129735291&site=ehost-live.
[14] Piccininni, Michaelson, Janssen, Pickett 168.
[15] Piccininni, Michaelson, Janssen, Pickett 168.
[16] Piccininni, Michaelson, Janssen, Pickett 169.
[17] Piccininni, Michaelson, Janssen, Pickett 171.
[18] Piccininni, Michaelson, Janssen, Pickett 171.
[19] Piccininni, Michaelson, Janssen, Pickett 172.
[20] Piccininni, Michaelson, Janssen, Pickett 172.

At many colleges and high schools, there are sustainability or environmental clubs that encourage students to learn about and act upon environmental issues. To what extent does membership in an on-campus environmental group shape students' pro-environmental attitudes and behaviors?[21] To answer this question, there is a specific study that came from the Survey of Students' Engagement with Social Issues (SSESI), a cross-sectional survey designed to examine undergraduate students' pro-environmental attitudes and behaviors.[22] The specific research collected the data from October to December 2009, surveying 539 people. The dependent variables included: care for the environment, environmental concerns, private, and public environmental behaviors. The independent variables gave an opportunity to learn about sustainability topics and the membership of an environmental group on campus.[23]

What was found in the study was that students reported medium-high levels of care for the environment. Furthermore, more than half of the sample expressed a high level of care, and only a small fraction of the study revealed a low level of care for the environment. The study illustrated that students care more about the economy, education, and healthcare than they care about the environment. On the other hand, the participants care more about the environment than they care about international relations and national defense.[24] Also, students tend to participate in light pro-environmental behaviors that have little to no challenge in their daily routines. This pattern is shown in students' responses to the concluding question in the survey. They were asked to suggest environmental activities that they would like to participate in to make the campus more sustainable or environmentally friendly. The answers to the final questions were

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[21] Pizmony-Levy, Oren, and Jessica Ostrow Michel. "Pro-Environmental Attitudes and Behaviors in Higher Education: Investigating the Role of Formal and Informal Factors." *Academic Commons Colombia*, 2018. https://pdfs.semanticscholar.org/9442/d4c98f49862e10432ae7e65b674ed4c27101.pdf.
[22] Pizmony-Levy, Oren, Michel 7.
[23] Pizmony-Levy, Oren, Michel 9-11.
[24] Pizmony-Levy, Oren, Michel 13.

mainly tied to waste management.[25] The solution to the overall problem is that membership in an

environmental group is, in fact, associated with more involvement with private pro-

environmental behaviors. In other words, they are more likely to be involved in helping the

environment in their own lives. Finally, pro-environmental activism is more likely among

students who were taught about environmental and sustainability issues in the classroom and

students who were members of an environmental group.[26]

What higher level education districts are doing for students?

Universities around the world are starting to investigate factors that students look for as

they apply. These factors are important in competitive educational districts that are developing

strategies to attract prospective students. The classroom environments, along with qualities

schools hold themselves to, determine a student's satisfaction at the end of their studies. Students

are starting to value physical components of the classroom environment to determine what is

required to maintain a high satisfaction during their studies. How the components are integrated

into the environment is a crucial factor in having student satisfaction. A study that took place in

South Korea analyzes the student's satisfaction with their education environments and

determines what *physical* factors play the biggest roles.

South Korea has faced increasingly competitive markets throughout their higher

education institutions. They have had a "remarkable decrease in the number of high school

students… from 1.944 million in 2011 to 1.538 million in 2018…".[27] Strategies are being

developed onto how to bring students back into educational institutions. To counteract these

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[25] Pizmony-Levy, Oren, Michel 15.

[26] Pizmony-Levy, Oren, Michel 17-18.

[27] Heesup Han, Hyeongeun Moon, and Hyerin Lee. 2019. "Physical Classroom Environment Affects Students' Satisfaction: Attitude and Quality as Mediators." *Social Behavior & Personality: An International Journal* 47 (5): 1–10. http://bryant.idm.oclc.org/login?url= http://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=136385554&site =ehost-live.

numbers, universities have worked to enhance the quality of the education they provide, along with the actual physical settings related to education. The people in charge of operations carry out various attempts to increase student satisfaction with their courses. For them to be successful, instructors need to understand their students and what they must do to keep their students actively engaged.

The factors that have been determined to make up a physical environment span across different elements. These elements include "ambient conditions, such as temperature, air quality, noise, music, odor."[28] These dimensions have been connected to students' "cognition, affect, satisfaction, and future behaviors."[29] By setting guidelines on how to determine a student's attitude towards a specific factor, the directors and instructors can make key decisions on what to include and exclude from the physical classroom productivity. Focusing on what the students require to have a successful educational experience will increase productivity output by the students while increasing enrollment rate. This is due to qualities required by students being met by upper level management within the education districts.

When choosing a college, many people look at the surroundings of the campus to help them determine whether it is a place they can live for the next four years of their lives. Once those college students graduate, that same thought process is used to figure out where each person feels comfortable starting their long-term career. Scientists Steve Cinderby and Sue Bagwell conducted research together to explore the benefits of urban green infrastructure improvements on businesses and their workers. By surveying managers from a diverse selection of companies, they were able to come up with a correlation between the use of green spaces and worker productivity.

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[28] Han, Moon, Lee 2.
[29] Han, Moon, Lee 2.

When interviewing businesses, one variable they studied was that green infrastructure could help with workers well-being while they are on the job. Of the people surveyed, 72% of workers utilized a green space during the break hours on a weekly basis.[30] Also, 86% of workers had a positive reaction to the green spaces at their workplace. Workers were then asked about the importance of green infrastructure in business campuses.[31] In 2014, many of the workers rated the importance of green spaces at a one, meaning very important, with 57% of the vote. When asked if they felt happier with the presence of green spaces, 67% of workers chose one, meaning they strongly agree.[32] A vast majority of workers utilize green spaces to their advantage, which increases their productivity and morale at their job. When the same test was done in 2012, the number of people choosing very important and strongly agree had risen by 16 percent and 13 percent, exemplifying how societal trends have focused on the presence of green infrastructure.[33] Green infrastructure is essential and a worthwhile investment for companies to make. Not only will they be preserving the environment, but also increasing efficiency with their worker productivity and in turn, saving money. Bryant has a bounty of green space, however, there can be a way to better preserve the land and use the green infrastructure as an outlet for student's stress.

A company, no matter the size, must accommodate their employees. Executives of bigger corporations must deal with hundreds of branches that are composed of thousands of workers. To maximize productivity, the upper management operators must understand what factors influence

[30] Cinderby, Steve, and Sue Bagwell. "Exploring the Co-benefits of Urban Green Infrastructure Improvements for Businesses and Workers' Wellbeing." *Area* 50, no. 1 (March 2018): 126–35.
http://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=128210e.052&site=ehost-liv.
[31] Cinderby, Bagwell 19.
[32] Cinderby, Bagwell 19.
[33] Cinderby, Bagwell 19.

their workers' performance. An employee opinion survey was conducted on a major U.S bank. This survey included 193 branches to consider whether there were workplace components that makeup employee attitudes. These attitudes would then be compared to the performance output for these branches and be used to determine whether they influence each other.

One of the tests conducted focused on the connection between employee attitudes and workplace components. The psychological aspects that make up an employee's attitudes dictate their productivity output. Results from a test that involved questions about employee attitudes revealed that "branches with positive employee attitudes are significantly more likely to have a higher sales performance". It also works the other way; branches with lower employee attitudes would generally have lower sales performance. This highlights the importance of a deep understanding that should exist between the upper management of large corporations and the branches that work for them. With these understandings of what makes up a healthy work environment, whether it be the neighborhood they are in or the physical components of the office space, companies will be able to maximize their output while supporting their employees.

How has Bryant incorporated Green spaces?

Bryant University has made efforts to integrate green spaces into the student environment. From building sustainable initiatives through student-led clubs to tracking each tree existing on campus, steps have been made to lead a more environmentally friendly campus. These efforts work in tandem with the student's mindsets. This is demonstrated when the students use their voices to speak out against unethical practices. When these practices are discontinued, Bryant is one step closer to a more sustainable university. Based on the research conducted on this topic, we have learned that Bryant has plenty of opportunities to become a cleaner campus. One way they had already committed themselves was when SustainUs, a student

led club, incorporated recycling bins into the new academic building, the Academic Innovation Center. Going further on their initiatives, we believe that Bryant can take additional steps to make Bryant green spaces an area for people to escape the stresses of daily life.

Conclusions

Environmental studies have incorporated a multidisciplinary attitude that has been determined to be beneficial for the students of Bryant. We have learned that Bryant struggles in keeping a student's mental wellbeing as a top priority. Since the workplace environment betters itself with the presence of green spaces, it would be within reason for Bryant to promote unity among students and faculty. If the presence of increased green spaces can both strengthen students' productivity while developing one's life mindset, it will also enhance the reputation of the University. It is suggested that green spaces have helped many people with mental health issues. Furthermore, it helps the social aspect of the university. Green spaces provide more social interaction, leading to an increased social life. If directors of Bryant made efforts to understand the students more and realize what is needed to help them thrive in this environment, student success rates would soar.

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