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TALKS

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THE ACCLAIMED LANDSCAPE OF KNOWLEDGE SHARING

"Harmony in Spaces : Blending Heritage, Nature and Design"

E-PROCEEDING

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THE IMPACT OF BIRD SANCTUARY AT HIGHER INSTITUTION LEARNING IN PERAK TOWARDS STUDENTS' MENTAL HEALTH

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ABSTRACT

The transition into adulthood during college is one of the most stressful phases of an individual's life. In fact, stress among undergraduate students has been on the rise. The objectives of this study are to investigate the effectiveness of bird sanctuary towards students' mental health and to identify the element of bird sanctuary that contributes to happiness. Students' awareness, happiness level and engagement tendency towards on-campus bird sanctuary were evaluated using structured questionnaires. The assessment was conducted using Perceived Stress Scale and Perception and Responds towards Bird Sanctuary. Gender, age, field study, engagement, perception towards bird sanctuary was collected for research indicators . The results outlined the restorative value of bird sanctuary in recovering happiness among the university students. These findings discussed the factors in contributing for direct impact of bird sanctuary presence.

Keywords: s*tress level,landscape ecology,bird sanctuary and students*

INTRODUCTION

In a person's day-to-day life, stress can manifest itself in various ways. A way to look at stress is as the body's neurological and physiological response to a novel situation (Franken,1994). For a student, stress may be caused by failure in academic, financial problems and transitioning into a new environment (Habibah Elias, 2011). A sudden change in life may

affect a student's lifestyle and happiness level in furthering their study. The impact of a stressor leaves on students depending on how they take the tension. University provides students' tertiary education and psychosocial development (Tao er. al,2000). Past research shows that first- year university students were found especially prone to tension (Towbes & Cohen; 1996) and experienced high levels of stress due to college life transition.

The local application of the Sustainable Development Goals, particularly Goals 3 and 4, "Good health and Well being" and "Quality Education", is currently challenging. According to Dahl, human development, focused on enhancing well-being, evolves throughout life, with measurability being a key component. Goal 15, Life on Land, aims for a sustainable future, highlighting the broader contribution of land to human well-being. Research indicates that exposure to natural landscapes and green spaces, through activities like bird watching and walking, can reduce psychological stress. However, the impact of human engagement with the natural environment, such as bird sanctuaries, on stress reduction remains a concern.

One of the accessible realms that students can explore is their own campus. The built environment there has potential in attracting migrating birds as it could fulfil the need of native elements for birds to feel safe. A good quality of life on land increases the interaction of human and nature which is eye-opening for students' how beneficial nature is in coping with stress levels and as a step to halt biodiversity loss. However, few studies have been done in the Malaysian context. The need to embark on this study is thus justified. Thus, the objectives of this paper are to investigate the effectiveness of bird sanctuary towards students' mental health, and to identify the element of bird sanctuary that contributes to happiness.

LITERATURE REVIEW

Relation Built Environment and Stress Level

For many of us, the built environment is no more conspicuous than the surroundings. The built environment, like air, only enters our consciousness

when it specifically harms, discomforts, pleases, or amazes us (Craig Zimring,1984). There has been a lot of great experimental evidence that has demonstrated strong restorative outcomes associated with natural scenes and settings, yet it is a lack of evaluation on built environments and psychological distress among university students. Asma and Zahayu (2019) conducted a study in Universiti Utara Malaysia to determine which one is a strong determinant as factors of stress, i.e., social factor,academic factor and environment factors. Based on the result, the social factor has the highest level of internal consistency with 8.279 followed by the environment factor, 6.672. This showed how long-term exposure to such an unfavourable environment can result in the emergence of a number of psychological problems that have a profound impact on our mood and co-occur with serious mental disorders.

Physical contributors such as insufficient light amount, poor air quality and noise cause direct effects on mental health (Chua et al.,2006; Fang et al., 2004; Kamaruzzaman and Sabrani,2011; Seppanen, Fisk and Lei, 2006; Wargocki et al.,2006; Bakó-Biró et al., 2012). The indirect impacts include the interferences in psychosocial processes like disturbing the sense of belonging, well-being, self efficiency, engagement and satisfaction (Evans, 2003 ; Carlson et al,.2012). The built environment in most campuses is rarely created with design features that are deliberately meant to improve mental wellbeing as it had the greatest psychological recovery effect for blue spaces, followed by green spaces , sport fields while it was least pronounced in grey spaces (Int. J. Environ. Res. Public Health, 2021).

Jahncke,Hygge, Halin, Green and Dimberg (2011) explored attention restoration following fatigue in office settings and discovered that listening to office noises did not significantly increase self-reported motivation to work as much as exposure to a natural soundscape, such as bird and river sounds. In the content of Stress Recovery Theory, Alvarsson et al. (2010) analysed that similar natural soundscapes such as birds chirping and running water was rated as more pleasant than the sounds from the built environment, as indicated by skin conductance level, and prompted a quicker recovery from stress.

Landscape Ecology In Campus

Landscape ecology is defined as studies of the interactions between the environment and the communities within a particular area of a unique landscape (Troll, 1971). In a global context, it was observed a notable shift in the way that higher education is delivered at the university level, with an emphasis on social and environmental obligations that point to specific developments in campus design (Dey G, Hasan M, T, Mazumdar A and Das S., 2021). Since the 1960s, universities have focused on transforming their campuses to serve as models for environmental sustainability (Schoenfeld, 1979). At that era, ecological issues for the physical development of universities included habitat preservation, biodiversity conservation, and ecosystem flow. It is hardly found for any studies, focusing on integrating landscape ecology in university and remains unclear to what extent it addresses wildlife habitat.

Campus environment has powerful influences on the psychological and social behaviour of students (Banning, 1989). An observation by Boyer,1987, stated students who are familiar with influential aspects such as buildings, trees and well-kept lawn ; become accustomed to settings and locations that promote healthy stress reduction (Scopelliti & Giuliani, 2004). Campus landscape engages people with nature by offering chances for diverse forms of engagement and fostering education and biodiversity protection. University shall run a long term development to shape campus life for the increasing number of students every year. As outdoor recreation and nature use the same space in landscape, a quiet ecological corridor is constructed through physical barriers. In order to create a connection between education and the outside world, ecologicalizing education works with internal educational system components (Scholl & Gulwadi, 2018).

Research reveals how the natural environment affects the environmental sensibility for students (Nisbet, Zelenski & Murphy , 2008). Sight, touch, sound and smell guide people to to experience space; taking these feelings into account during the planning process might improve people's perceptions of the area (Dey G, Hasan M, T, Mazumdar A and Das S., 2021). As opposed to a strict linear path, varied uses throughout the circulation would prevent monotony and boredom, and accessible courtyards can foster interactions between users both vertically and horizontally (Nisbet, Zelenski & Murphy

, 2008). Although sustainability in higher education is trending upward, protecting wildlife and their environment is still not given much emphasis (Bosci et al, 2018).

Restorative Quality of Bird Sanctuary

The word "restoration" has been used interchangeably with other concepts in environmental psychology literature, such as stress recovery and improvement of cognitive functions and is connected with recovery of depleted mental resources through exposure to nature which diminish due to daily routine or stressful situations (Ulrich et al., 1996 ; Kaplan and Kaplan, 1989 ; Hartig et al, 1996; Korpela et al.,2008). Restorative environments are those that replicate and support the healing process of human mental resources. Examples of these types of surroundings include scenic views, dense and lush green flora, natural water bodies, and natural imitations like topiary and biomimicry (Farhan, 2019). The Stress Reduction Theory (SRT) highlights how exposure to natural surroundings, such as trees and landscapes, can lessen physiological strain and unfavourable feelings (Ulrich,1986). While the role of biodiversity in nature and its influence on psychological health and well-being have been established, that is, the number of different species within a given area, was found to have a significant effect on well-being (Dallimer et al., 2012). More specifically, plant species diversity was linked to stress recovery (Lindemann-Matthies & Matthies, 2018) and bird diversity was linked to good emotions (Cameron et al., 2020). The setting permits restoration ; a person gains psychological distance from depleting demands that entailed a need for restoration. Then , promote restoration ; features of settings attract and hold attention, helping the person disengage from thoughts and emotional experiences then prolonging a restorative process.

Bird-Watchers Gain Greater Psychological Restorative Benefits

Although the function and impact of nature itself on psychological well being have been established, as well as biodiversity that is, it was found that different species within an area have significant effect on well-being (Dallimet et al. 2012). Cameron et al. 2020 added that bird diversity was related to positive emotions and plant species diversity to stress recovery (Lindemann-Matthies & Matthies, 2018). It seems to be accidental on

the relationship between bird diversity and neighbourhood satisfaction (Hepburn,Smith, Zelenski & Fahrig,2020) as the stress recovery could happen without people realising it (Ulrich et al 1991). However, Nghiem, 2021 has stated a causal link between biodiversity knowledge and it appears plausible that perceptual diversity, which is connected to conscious recognition, exists.

A study proposed in relation to the different influence of nature on health by examining bird-watchers. A significant amount of time is spent by bird-watchers identifying and recognising birds, consequently, they are informed on the diversity of birds. As a result, bird-watching can make people generally happier (Oman, 2021). Most people have positive values on birds (Brock, Perino, & Sugden, 2017; Clucas, Rabotyagov, & Marzluff, 2015). Brock et al. (2017) has demonstrated through a choice experiment that people favour birds that are aesthetically pleasing and species that arouse feelings in humans associated with a species' protective nature.

As birding is an outside, nature-related activity, it is said to be good for mental health because it is a nature-related activity (Clark et al., 2014) . People invest differently for their leisure activity and thus, they participating in a specific leisure activity do form a heterogeneous group rather than a homogeneous one. The generalist, with low involvement is related to affective dimensions as they have attachment and engagement including the centrality to one’s lifestyle and a continued involvement. (Janeczko et al., 2021)

Birdsong And Its Contribution To Stress Recover

Birdsong is an almost omnipresent part of our experience when going outdoors. Despite the fact that avifauna may be less visible, especially in campuses that are situated in urban areas, their calls and songs help people recognise them. Studies that investigate how natural sounds and soundscapes can help with stress recovery and attention restoration frequently include bird noises (e.g. Alvarsson, Wien, & Nilsson, 2010) and particularly restoratives (e.g Kjellgren and Buhrkall,2010, Payne,2012). Kjellgren and Buhrkall (2010) noted that participants responded negatively to the lack of non-visual natural stimuli when observing nature via recorded videos rather than being in close proximity. A participant expressed that they were "missing the

smells and sounds" of the outdoors, while another said that it was "too quiet" (Kjellgren & Buhrkarll, 2010, p.470). In their study, participants noted that the singing birds make them feel relaxed and participants in Fredrickson and Anderson's (1999,p.31) reports on interviews regarding encounters in the wilderness, " It was so incredible being able to hear the birds.'.

However, based on the previous studies, birdsong is used as a general descriptor for the sounds used, yet since this is not a constant stimulus, listeners may interpret various bird noises differently. Additionally, certain bird species may represent phenomena unique and different to a person or a civilization. For example, pigeons on streets are often seen as an annoyance and it's possible that these characteristics are associated with their sounds. The personal connection to nature affects how their perception towards how restorative the bird's presence and their sounds are, then it is perceived differently for every person. To extrapolate, Not every bird has the ability to heal, and not every listener will find every bird to be healing.

METHODOLOGY

Research Design

To collect the information, the present study uses quantitative methods through closed-ended questions to gain insight of the topic of the study. It aimed at clarifying students' perceptions and experiences towards bird sanctuary, which were distilled from their choice of answers as evidence.

Location And Participants

For site selection, 4 higher institution learning were observed and compared for the existing ex-mining lake on and off - campus. Those campuses are Universiti Tunku Abdul Rahman (UTAR) , Universiti Pendidikan Sultan Idris (UPSI) Sultan Azlan Shah Campus , Universiti Teknologi Petronas (UTP) and Universiti Teknologi MARA (UiTM) . Through aerial observation, UTAR has the biggest water bodies, 106.46 acres by 25.8% of 412.67 acres, with diversity of shrimps and fish as well as 7.07+0.20 for mean water pH based on a study by UTAR's researcher, Ng Wei Lin, 2011. Plus, based on a survey for site selection,a few species

were seen such as Halycon smyrnensis in the lake, Copysychus saularus in the green area and unknown bird species from the Bucerotidae family, resting on the rooftop of the library. Next, UPSI has 30 acres by 6.9% of 434.9 acres ex-mining lake that act as a retention pond, yet the water is polluted due to filled sediments where it could not support aquatic life. UTP is surrounded by 58.07 acres by 9.37% of 619.9 acres of ex-mining lake with good water quality and attracts Heron species in palm oil area, yet it lacks research on diversity of aquatic life. Lastly, UiTM campus has the smallest water bodies, 2.76 acres by 1.09% of 254.51 acres which is a man-made lake. The water pH of the water body is 6.28, acidic and the aquatic lives are in surviving state as the greasy and oily condition of the lake. Among these 4 campuses, UTAR is chosen as the optimal site for research for its water bodies that provide important habitat components, mainly food resources and cover. Moreover, it is well-known as on campus - bird sanctuary among bird watchers as it attracts migrating birds during migratory seasons, September until January that move towards Kinta Nature Park, Batu Gajah.

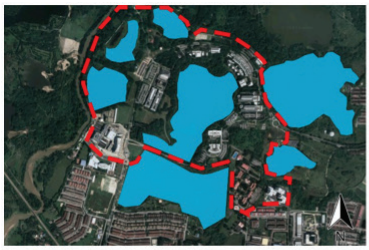

Figure 1 Water bodies in Universiti Tunku Abdul Rahman (UTAR)

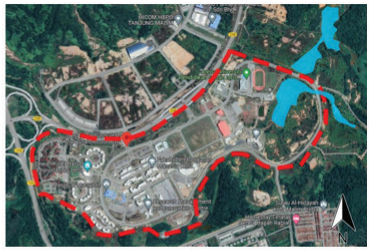

Figure 2 Water bodies in Universiti Pendidikan Sultan Idris (UPSI)

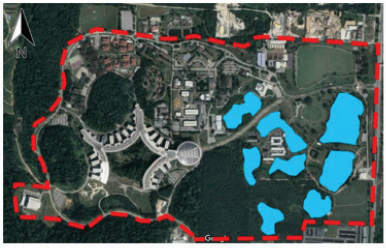

Figure 3 Water bodies in Universiti Teknologi Petronas (UTP)

Figure 4 Water bodies in Universiti Teknologi MARA (UiTM)

Figure 5.: Some of bird species that can be found are Olive-backed Sunbird (left), Blue-eared Kingfisher (centre) and Grey Heron (right)

Source : UTAR official website

Figure 6.: Overview of Point A, Point B and Point C in UTAR

Figure 7 : Point A

Figure 8 : Point B

Figure 9 : Point C

In the campus, there are 3 checkpoints for bird apparition, located around the ex-mining lake. Point A is 386.46m apart from Point C and 766.17m away from Point B. Both point A and B are located on campus, meanwhile Point C is a pathway, off-campus, that is used by students. Point A is a bird watching hotspot which is rich with emergent aquatic plants, floating island and native plants. It is 20 metre above sea level with calming viewing to the lake and secured fenced walkway as well as bushes, to avoid human disturbance towards fauna life. Point B is situated in the radius of UTAR Main Library and building of the Faculty of Engineering and Green Technology. The view towards the lake is blocked by the bushes of emergent plants yet due to fine towering and hollow trees as well as a peaceful environment , the birds make it a resting point. Plus, most of the students walk and ride bicycles as their movement mode that made it calm

there. Point C is open space of West Lake, the interconnected water body between UTAR and West Lake Residence. It was selected as a point since there are students who rent in West Lake Residence and walk to campus through the walkway there. Plus, there are a few human activities such as fishing, jogging and photography which did not interfere with the birds to keep resting on floating islands and searching for food there since the distance of human activities and birds' spot is 360 metres and 593.16 metres which are safe distances.

52 students from UTAR were selected on the principal basis that they experience low to high levels of stress due to study concern,peer pressure and noisy environment.There are differences in the exposure to biophilic patterns and a wealth of natural landscape features at the bird hotspots situated in various orientations and locations. Thus, it was anticipated that there would be a sufficient sample for a fairly meaningful analysis of the gathered data.

Procedure And Sample Size

Before being employed for this study, Point A, Point B and Point C designed, carefully tested and partially adopted three sets of questionnaires :Demography, Perceived Stress Scale (PSS) and Perception and Responds towards Birds Sanctuary (PRBS). Demography variables that were assessed were gender, age,course, year of study and location while answering surveys. Perceived Stress Scale (PSS) is a classic stress assessment instrument. The tool was originally developed in 1983, assessing the perception of what is happening in responders' life in the past month to figure out the stress category depending on their perception based on 5 Likert-scale types. It is possible that emotionally secure students will react better to the PSS, so the Perception and Responds towards Bird Sanctuary (PRBS) was used to identify and record the emotions of the participants that will figure out their happiness index. PRBS was developed based on the study that was conducted in Kashmir, investigating the perception and approach of students towards birds and their conservation.

Data sampling was conducted from November 2023 to December 2023. Random sampling was applied for the subject requirement. Through this technique ,there will be unbiased representation of the total population

and each sample has an equal probability of being chosen. To obtain data, Google Form is used to recruit respondents based on 2 approaches. First, direct contact where 25 undergraduate students were approached in every point and approximated location from points like lecture halls, library and cafeteria. The survey was conducted every Friday evening, from 4 pm until 6.30 pm where most of the students have finished their class and free for recreational activity. They were given a hardcopy of questionnaire and verbal explanation regarding the purpose of the current study then were assured that confidentiality would be carried out throughout the study. The importance of study, time commitment (5 minutes) and instructions for answering the questionnaires were verbally highlighted. Respondents were requested to submit the filled-out questionnaire after answering every question and incomplete data were checked thoroughly. Second, the study was advertised on Instagram through direct messages. This approach is chosen to spread the study broadly. 23 students responded to the advertisement and were briefed about the study and agreed to participate in the study then provide their data.

DATA ANALYSIS

Three different methods of data analysis were adopted. Firstly, descriptive statistics were used to analyse the demographic characteristics, awareness, engagement tendency, perception . Secondly ,categorical regressions were carried out in order to determine the happiness level and the assurance about activity that helps in reducing stress. The resulting regression equation used to predict the impact for combination of three independent variables. The statistical analysis was conducted using the Microsoft Excel, with the significance defined.

RESULT & DISCUSSION

Participants

A total of 105 students (response rate = 49.52 %) participated in the study (61.54% for females and 38.46% for males), with the majority of age range, (59.62 % for 18-21 followed by 38.46 % for 22 - 25 and 1.92% for 26-30). Those participants at the age of 18 - 21 are studying at foundation

level and bachelor level in the early year of study, (34.62 % of Year 1 and 34.62% of Year 2) then the older participants are in Year 3 and Year 4 (30.77 %). The participants stated their location (53.85 % in Point B) as the higher participation rate and Point A as the lowest (17.31%) .

Participants' Perceptions And Responds Towards Bird Sanctuary And Perceived Stress Scale : Point A

Point A is a hotspot for bird-watching, but the participants are not environmentally aware of the existence of this on-campus bird sanctuary, with 88.91 % of 8 participants while only 11.11% of 1 participant is aware of it. The highest frequency of participants who go outdoors is 44.44% (occasionally) while there is a participant who never goes for outdoor and green space. On bird apparition, 33.33% of participants sometimes saw the birds with unique characters, 22.22 % of students often saw the birds and 22.22 % never saw them. The graphs below.

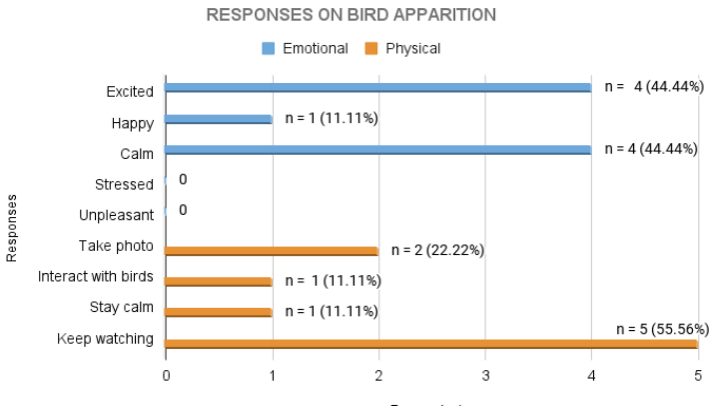

Figure 9. Result of responses on birds apparition

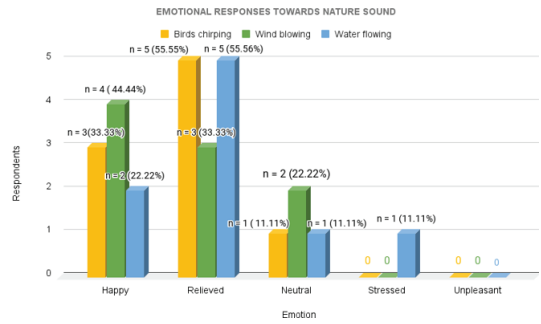

Figure 10. Result of emotional responses towards nature sound

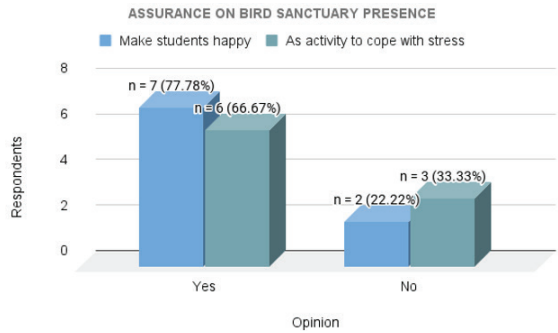

Figure 11. Result of assurance on bird sanctuary presence

Upon seeing the birds, the majority of students (44.44 %) are excited and calm while a male student (11.11 %) is happy to see them. Whenever the participants saw the birds, they mostly preferred to keep watching (55.56 %) then taking photos (22.22 %) and one student (11.11%) to interact with birds and stay calm. Based on the responses, there is significant difference in opinion that birds are beautiful, the majority of students (88.89 %) agreed they are while one student disagreed.

Figure 10 shows the students' emotion when listening to birds chirping, wind blowing and waterflow of lakes. A total of 33.33 % of participants are happy to listen to birds chirping, 44.44 % of them are happy when wind is blowing and 11.11 % of them are stressed to listen to the waterflow of the lakes. After going outdoors, the students define they are happy (n = 6), relieved (n = 2) and feel neutral (n = 1). From that, 77.78 % of students

assured that on-campus bird sanctuary makes them happy while 22.22 % denied it. Then , 66,67 % of students would include bird-watching as an activity to cope with stress. The others disagreed (33.33%) with it. It can be seen that participants in Point A were happy when strolling around there.

The results of the Perceived Stress Scale are presented in Table 1. Point A was predominated by younger students that are in first year but the education attainment indicated a significant sign for stress level, which suggested that higher educational level presented higher degrees of stress symptomatology. In the last month, the majority of participants sometimes (34.42%) stressed which indicates they are neutral, having ambivalence towards their situation and not in a critical level of stress.

Table 1. Perceived Stress Scale in Point A

PERCEIVED STRESS SCALE	1 - Never (%)	2 - Occasionally (%)	3 - Sometimes (%)	4 - Often (%)	5 - Always (%)
1. In the last month, how often do you have been upset because of something that happened unexpectedly ?	0.00	22.22	33.33	33.33	11.11
2. In the last month, how often have you felt that you were unable to control the important things in your life?	11.11	44.44	22.22	0	22.22
3. In the last month, how often have you felt stressed?	0.00	33.33	33.33	22.22	11.11
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0.00	11.11	44.44	22.22	22.22
5. In the last month, how often have you felt that things were going your way?	0.00	11.11	55.56	33.33	0.00
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0.00	55.56	33.33	0.00	11.11
7. In the last month, how often have you been able to control irritations in your life?	22.22	11.11	44.44	22.22	0.00
8. In the last month, how often have you felt that you were on top of things?	11.11	22.22	44.44	11.11	11.11
9. In the last month, how often have you been angered because of things that happened that were outside of your control?	22.22	33.33	22.22	11.11	11.11
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	11.11	44.44	11.11	22.22	11.11
AVERAGE SCORE	7.777	28.887	34.42	17.78	11.11

Participants' Perceptions And Responds Towards Bird Sanctuary And Perceived Stress Level : Point B

The integration of buildings and green space that face the ex-mining lake in Point B affect the awareness of bird sanctuary which is significantly low (89.29%) and only 3 students are familiar with it. Students occasionally (50%) would go outdoors , 21.34% would go out for recreation and bird-watching then 10.71%, a student often spends time for outdoor activity. Most students sometimes (32.14%) saw birds that have a unique character on campus and rarely for students to always (3.57%) see them. The majority of students in Point B defined their emotion upon seeing birds as calm (57.14%) meanwhile those who are happy (21.43%) and excited (21.43%) have the minority of male students.

In descending order, 10 students (35.71%) would keep watching the birds as they respond, followed by taking photos (28.57%), interacting with birds (25%) and 3 students would stay calm (10.71%). The perception that birds are beautiful and good is denied by a student (3.57%). In terms of soundscapes, 17.86 % of students felt happy listening to birds chirping, 60.71 % felt relieved listening to wind blowing through trees and 21.43% of students felt neutral, listening to waterflow. However, 3.57 % of students found it unpleasant towards birdsongs and wind blowing.

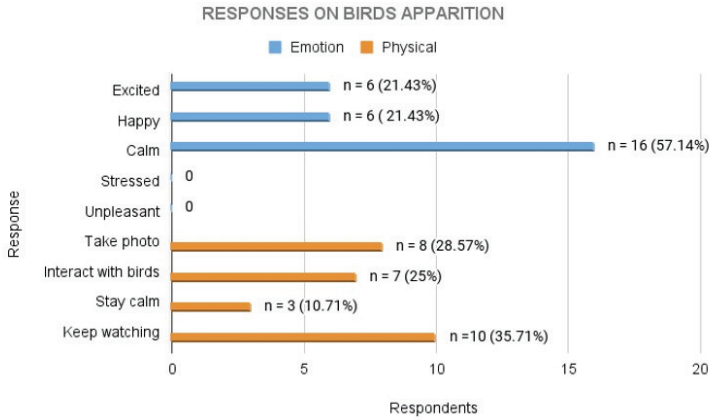

Figure 12. Result of responses on birds apparition

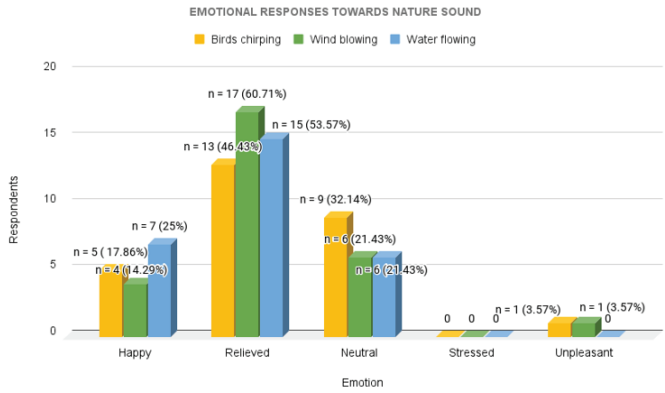

Figure 13. Result of emotional responses towards nature sound

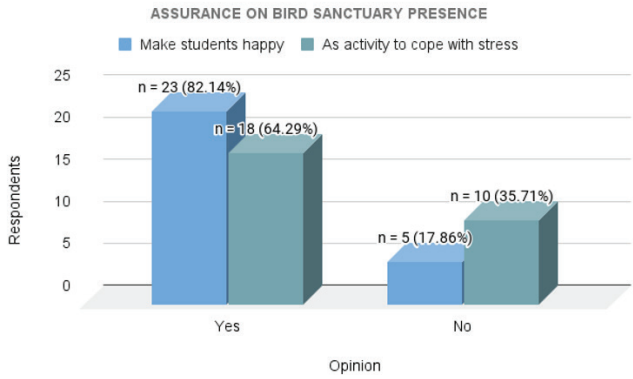

Figure 14. Result of assurance on bird sanctuary presence

After going outdoors, students would be happy (28.57%), lower than feeling relieved (46.43%). For the assurance on bird sanctuary, 82.14% of 28 students agreed with its impact in making them happy. Then , 64.29 % of students decided to do bird watching as their way to cope with stress on campus . Overall, the graph showed Point B is able to make students feel calm with their surroundings and interact well with birds to show the impact of bird sanctuary.

As found for Perceived Stress Scale shown in Table 2, by 43.93%, students in Point B are in a neutral state as sometimes they experienced stress and happy moments in close events. This state can be characterised by a sense of calm, without strong feelings of joy or sadness.

Table 2. Perceived Stress Scale in Point B

PERCEIVED STRESS SCALE	1 - Never (%)	2 - Occasionally (%)	3 - Sometimes (%)	4 - Often (%)	5 - Always (%)
1. In the last month, how often do you have been upset because of something that happened unexpectedly ?	10.71	14.29	46.43	14.29	14.29
2. In the last month, how often have you felt that you were unable to control the important things in your life?	7.14	35.71	21.43	25	10.71
3. In the last month, how often have you felt stressed?	7.14	10.71	39.29	32.14	10.71
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0	25	53.57	14.29	7.14
5. In the last month, how often have you felt that things were going your way?	10.71	21.43	50	17.86	0
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0	50	25	17.86	7.14
7. In the last month, how often have you been able to control irritations in your life?	7.14	32.14	42.86	14.29	3.57
8. In the last month, how often have you felt that you were on top of things?	10.71	17.86	60.71	10.71	0
9. In the last month, how often have you been angered because of things that happened that were outside of your control?	14.29	32.14	46.43	3.57	3.57
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	10.71	14.29	53.57	17.86	3.57
AVERAGE SCORE	0.79	25.36	43.93	16.79	0.61

Participants' Perceptions And Responds Towards Bird Sanctuary And Perceived Stress Level : Point C

The accessibility for bird-viewing and open space, the level of awareness on bird sanctuary has increased to 33.33 % (n=5). As West Lake Residence and UTAR connected, the frequency of students who often (26.67%) go outdoors is still high, after those occasionally (53.33%) do so.

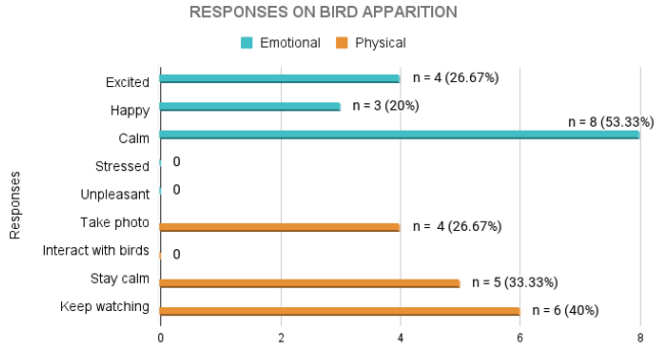

Figure 15. Result of responses on birds apparition

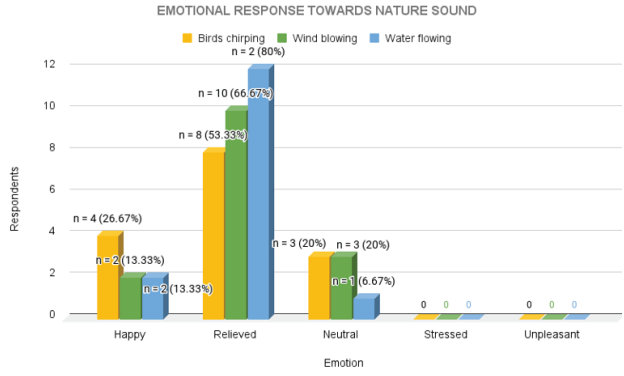

Figure 16. Result of emotional responses towards nature sound

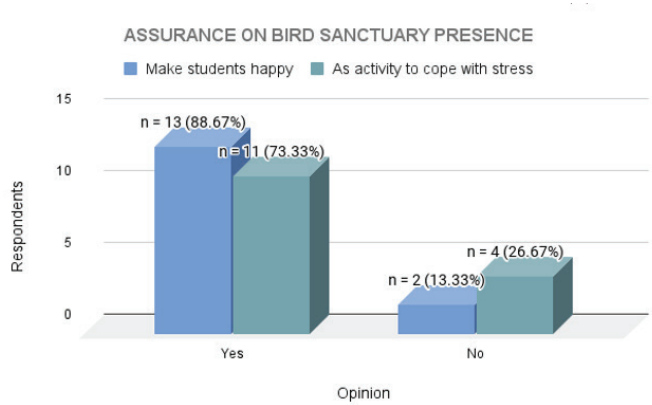

Figure 17. Result of assurance on bird sanctuary presence

The bird apparition here is occasionally (53.33%) be seen by students either while walking to the class or spending time in the lake area. Majority of them would be calm upon seeing the birds by 53.55%, excited (26.67%) and happy (20%). None of them would interact with birds due to the distance between resting point and walking path, yet 4 students likely took photos (26.67%) of birds while others remained calm (53.33%) and kept watching (40%). This reflects their emotion when they see the birds. Next, overall students agreed on the statement birds are beautiful and good based on response and emotion. Located in a wider landscape area, the student dominantly felt relieved, listening to natural sound such as birds chirping (53.33%), wind blowing (66.67%) and waterflow of lake (80%). None of them felt stressed or unpleasant although there are external factors that could affect their emotion such as traffic noise. After spending time outdoors, the participants concluded they felt more relieved (53.33%) than happy (40%). The collected result revealed 86.67% of participants assured bird sanctuary is impactful in making them happy while 13.33% show discouragement about it. In the close context, 73.33 % of participants would prefer bird watching as an activity to reduce stress, on the other hand, the rest of 26.67% refused it to cope with stress.From here, all participants actually tend to feel more relieved than happy..

Based on Table 3 for Point C, students dominantly found themselves sometimes (29.33%) stressed for the last month then, the lower score is those who often (28%) stressed out. Plus, those who occasionally felt stressed

are 24.67% from 28 students. The highest frequency of PSS is students remaining neutral as Point A and B yet this emotion can vary from person to person due to strong result of happy and stressed emotion.

Table 3. Perceived Stress Scale in Point

PERCEIVED STRESS SCALE	1 - Never (%)	2 - Occasionally (%)	3 - Sometimes (%)	4 - Often (%)	5 - Always (%)
1. In the last month, how often do you have been upset because of something that happened unexpectedly ?	6.67	6.67	33.33	46.67	6.67
2. In the last month, how often have you felt that you were unable to control the important things in your life?	13.33	33.33	20	26.67	6.67
3. In the last month, how often have you felt stressed?	6.67	20	26.67	33.33	13.33
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0	26.67	33.33	33.33	6.67
5. In the last month, how often have you felt that things were going your way?	13.33	40.00	26.67	20	0
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	20	20	40.00	13.33	6.67
7. In the last month, how often have you been able to control irritations in your life?	13.33	26.67	20	33.33	6.67
8. In the last month, how often have you felt that you were on top of things?	6.67	40.00	26.67	26.67	0
9. In the last month, how often have you been angered because of things that happened that were outside of your control?	20	20	33.33	20	6.67
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	20	13.33	33.33	26.67	6.67
AVERAGE SCORE	12	24.67	29.33	28	6.0

CONCLUSIONS AND FUTURE WORK

In this study, exploratory factor analysis was applied on items related to stress restoration and revealed 3 distinct dimensions that were labelled experiencing happiness, detachment and details of environment. To label these dimensions, a study (Christoph, 2022) is the preference to control the factor. It was found there is a significant relationship between stress recovery and preferences to an area in the domain psychological restoration. The higher the sense of belonging to the point area is, the higher was the psychological restoration.

The study showed that Point A is the most effective in making students happy with bird presence in terms of detachment and details of environment. The semi enclosed settings provide a mysterious walk-in experience with Hopea odorata as the main structural tree, providing one point viewing , small shrubs and native bushes which seem like a seek out place for enriching environments. As Point A has a low frequency of vehicles, students would directly feel connected to nature on their own then had freedom to explore the area. The stress level among students had a tendency to be lower and in a happy state due to the score difference, 5.55 .

Point C as the second impactful location towards mental health. Having similar settings but due to its wider landscape area and view, students had more opportunity to see Heron species, resting in floating islands as a group yet it is too far for excited students to interact with them. This leads to small frustration. However, the sound of waterflow helps them to relieve their tension as it is interpreted as a non-threatening sound and creates a sense of awe. As the walkway designed lowered that road, it created a separation from the road which students preferred as a recreation path and resting spot. The attachment in this point is not as strong as Point A because it's public space, everyone sharing a spot for bird watching.

Lastly, Point B is in the buildings area where UTAR implements a strong character of green space to balance the natural and built environment. Students tend to feel calm as they are in the middle of a hectic environment like classes, traffic and so on. Seeing lakes and plants after a long class reduces their stress then they recover their tiredness through the sound of nature. The result in Point B is less significant as Point A and C, due to different perceptions on sound instruments there. A student revealed it is unpleasant to listen to birds singing and wind blowing. This might be from the noise of crow or pigeon that is commonly seen as an annoyance.

The limitation in this study is the duration of data collection where only 2 hours and half are spent every 4 weeks, in late evening, which unexpectedly had difficulty in meeting students. Plus, the survey was conducted during study week and examination week in UTAR, contributing to the low number of respondents willing to answer the question directly. Other than that, the questionnaire provided did not include inquiries about the before and after students acknowledged the bird sanctuary on-campus to analyse the wider impact. Some aspects identified for further exploration, including, delve deeper into specific elements of bird sanctuary and investigate how the impact on mental health evolves over time.

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REFERENCES

Ahmad, B., Kumar, P., Ul, S., Anees, M., & Ahmad, I. (2018). *A Study On Students Perception And Approach Towards Birds And Their Conservation*:Ph.D Thesis. https://www.researchgate.net/publication/327971467

Lee, L. K., Zakaria, N. A., & Foo, K. Y. (2022). Psychological restorative potential of a pilot on-campus ecological wetland in Malaysia. *Sustainability (Switzerland), 14*(1).Retrieved November 13, 2023, from https://doi.org/10.3390/su14010246./

Asim, F., & Shree, V. (2019). The impact of Biophilic Built Environment on Psychological Restoration within student hostels. *Visions for Sustainability*, (12),18–33.Retrieved November 21,2023,from https://doi.org/10.13135/2384-8677/3534.

Randler, C., Murawiec, S., & Tryjanowski, P. (2022). Committed Bird-Watchers Gain Greater Psychological Restorative Benefits Compared to Those Less Committed Regardless of Expertise. *Ecopsychology, 14*(2), 101–110. Retrieved December 17, 2023 from https://doi.org/10.1089/eco.2021.0062.

Hipp, J. A., Gulwadi, G. B., Alves, S., & Sequeira, S. (2016). The Relationship Between Perceived Greenness and Perceived Restorativeness 7 of University Campuses and Student-Reported Quality of Life. *Environment and Behavior, 48*(10), 1292–1308. Retrieved November 21, 2023, from https://doi.org/10.1177/0013916515598200.

Ratcliffe, E., Gatersleben, B., & Sowden, P. T. (2013). Bird sounds and their contributions to perceived attention restoration and stress recovery.

Journal of Environmental Psychology, 36, 221–228. Retrieved December 23, 2023 from https://doi.org/10.1016/j.jenvp.2013.08.004

Dey, G., Mazumdar, A., Hasan, M. T., & Das, S. (2021). Integrating Landscape Ecology in Campus Planning: Recommendation for the future Physical development of Shahjalal University of 7 Science and Technology, Bangladesh. *Review of International Geographical Education Online, 11*(5), 3029–3041. Retrieved January 4, 2024 from ,https://doi.org/10.48047/rigeo.11.05.195.

Bocsi, T., Warren, P. S., Harper, R. W., Destefano, S., Bocsi, T. ;, Warren, P. S. & Harper, R. W. (2018). Wildlife Habitat Management on College and University Campuses. *Cities and the Environment, 11*(1).

Elias, H., Ping, W. S., & Abdullah, M. C. (2011). Stress and academic achievement among undergraduate students in Universiti Putra Malaysia. *Procedia - Social and Behavioral Sciences*, 29, 646–655. https://doi.org/10.1016/j.sbspro.2011.11.288

Wei Lin, N. (2011). *Diversity Studies Of Fish And Shrimp Species In Disused Tin-Mining Ponds Of Kampar, Perak.* http://eprints.utar.edu.my/106/1/BT-2011-0804326.pdf

UTAR Division of Corporate Communication and Public Relations (DCCPR). (n.d.). Dccpr.utar.edu.my. Retrieved October 12, 2023,from https://dccpr.utar.edu.my/universityicon_bird_sanctuary.php

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