

By Matthew Clarke

As a teacher who works in a special education needs school, and an outdoor educator, I am interested in whether regular use of local nature-based spaces can have a positive effect on the levels of trait anxiety of students with SENDs, and improve their mental health and wellbeing.

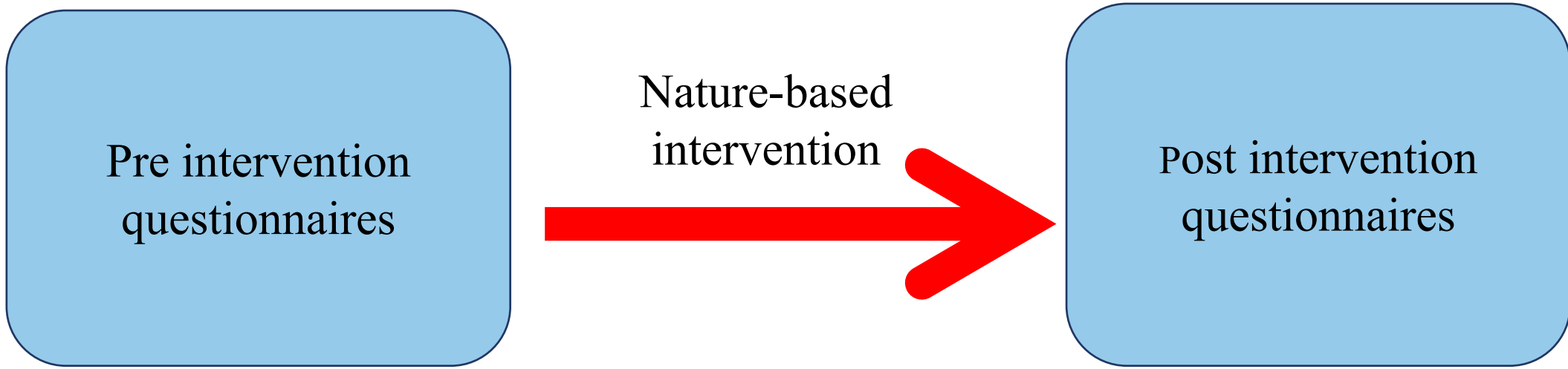
I am interested in understanding whether managing their anxiety levels can help with other aspects of their life. There are multiple theories that link nature to positive effects on people's mental health, wellbeing, and stress levels. These include Wilson's biophilia hypothesis (Gullone, 2000), attention restoration theory (ART) (Kaplan, 1995) and stress reduction theory (SRT) (Ulrich, 1981). I hypothesise that the regular use of local outdoor parks will have a significant effect, and will lead to a reduction in trait anxiety levels in young people with SENDs.

The philosophical paradigm I will use is a post-positivist approach. This will help me to bring together the mix of methods I plan to use. Post-positivism allows for the triangulation of both quantitative and qualitative methods, that explores the diversity of the data gathered, while valuing it all, in a quest to develop knowledge (Panhwar, Ansari & Shah, 2017).

Anxiety is a personal experience, due to it being a person's individual perception of the world and their ability to cope within it (Weinberg & Gould, 2011). This fits well with there being no universal truth, as described by the Post-positivism approach (Panhwar, et al., 2017).

Participants were from Edith kay school, which is a special needs school for student between the ages of 14-19. The majority of the students have autistic spectrum disorder (ASD) along with this, the students suffer with anxiety and depression on some level (Hebron & Humphrey, 2014) and is further exacerbated when that young person is transitioning between adolescence and early adulthood (Uljarević, Hedley, Rose-Foley, Magiati, Ying Cai, Dissanayake, Richdale and Trollor, 2020).

Quantitative data gave me a measurable level of anxiety, collected through validated questionnaires: The State and Trait anxiety Inventory (STAI) questionnaire, developed by Spielberger (1983) to measure anxiety, and the 14-item Warwick-Edinburgh Mental Well-being Scale (WEMWBS) which provides a score reflecting pupils' positive thoughts and feelings. Both were administered pre and post intervention.



Qualitative aspects of the study will help me to understand it in a more personal way, and may help the students to understand what they are feeling, and to report whether the experience of being in an outdoor space has helped to *change* how they are feeling. This data was collected through semi-structured interviews and body mapping.

Body mapping is an art-based research method that is constructed by drawing, painting or other techniques that represent an individual's bodies, experiences, and the world they live in and has been used in educational settings (Boydell, Collings, Dew, Senior and Smith, 2021).

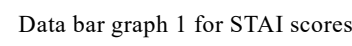
Data analysis utilised SPSS for the quantitative data using a paired sampled T-test.

A thematic analysis was used for the qualitative data, using the NVivo programme

Results from the project are inconclusive due to the lack of data points. Only two people filled in the STAI questionnaire before and after the intervention, one male (Participant A) and one female (Participant B) (see data table and bar graph below) and only one student responded on the WEMWBS. Only one student filled in a body map.

The project could not find any statistical significance ($p=0.05$), a significance of $p=.344$ was found, due to the lack of data points. I was unable to run any ANNOVA tests or give means and standard deviations. However, in the descriptive statistics table the standard deviation has been calculated across genders (Table 2). As you can see from the scores presented in table one, both the male and female scored high levels of anxiety before for the intervention with participant A scoring 8.55 points higher than the mean for high school students and Participant B scoring 25.46 points higher than the mean for female high school students. This puts them well above the average levels of anxiety for their age group for their neuro-typical counterparts and is in line with the Department for Education and Department for Health (2015) and Department of Education (2021) suggestions, that young people who have SENDs suffer with higher levels of anxiety. Their post intervention scores show that there was a drop in their anxiety levels with participant A dropping to 7.45 points below the mean for their neuro-typical counterparts. This is surprisingly large and could be attributed to other factors other than the nature-based intervention.

Participant A was the only person to fill in the WEMWBS questionnaire before and after the intervention. Their scores show that they had a higher level of wellbeing, but still below the average, after the intervention than before, with scores of 30 and 43 respectively. A score of 14-40 is the very low-level bracket and a score of 41-44 is still below average (Warwick Medical School, 2020). Participant A's wellbeing did increase over the intervention period which coincides with the reduction in anxiety levels. They would still be considered to have some form of mental illness. However, they are only 2 points from being considered to have an average wellbeing score (Warwick Medical School, 2020).

Table 2Data table 1 SCORES for STAI

- ❖ Lack of data points means that none of the evidence is statistically significant.
- ❖ While only two students participated, filling in the questionnaires pre and post, going to the park and giving interviews, they both showed a decline in their anxiety levels.
- ❖ They also both suggested, during their interviews, that spending time in nature helped them to relax, and clear their heads.
- ❖ Teachers saw a change in demeanour of students while on the walks in the park.
- ❖ Allowing SEND students time in nature during the day may help them to self-regulate in terms of their anxiety levels, which may help them to concentrate better during lessons.
- ❖ Current practice at my school of allowing students to go for walks when feeling overwhelmed will continue with a recommendation to use green space rather than grey.

References

- Boydell, K. M. et al., 2021. Applying body mapping to research with marginalised and vulnerable groups.. In: K. M. Boydell (ed.) *Applying body mapping in research; An arts-based method*. Abingdon: Routledge, pp. 6-18.
- Department for Education and Department for Health, 2015. *Special educational needs and disability code of practice: 0 to 25 years*, s.l.: s.n.
- Department of Education, 2021. *Special educational needs and disability: an analysis and summary of data sources*, s.l.: s.n.
- Guillone, E., 2000. The biophilia hypothesis and life in the 21st century: increasing mental health or increasing pathology? *Journal of Happiness Studies*, 1(3), p. 293–321.
- Hebron, J. & Humphrey, N., 2014. Mental health difficulties among young people on the autistic spectrum in mainstream secondary schools: a comparative study. *Journal of Research in Special Educational Needs*, 14(1), p. 22–32.
- Kaplan, S., 1995. The restorative benefits of nature: Toward an integrative framework. *Journal of environmental psychology*, 15(3), pp. 169–182.
- Panhwar, A. H., Ansari, S. & Shah, A. A., 2017. Post-positivism: An effective paradigm for social and educational research. *International Research Journal of Arts & Humanities (IRJAH)*, 45(45), pp. 253–259.
- Spieker, C. D., 1985. *Manual for the State-Trait Anxiety Inventory (STAI)*. Palo Alto, CA: Consulting Psychologists Press.
- Uljarević, M. et al., 2020. Anxiety and Depression from Adolescence to Old Age in Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, 50(9), p. 3155–3165.
- Ulrich, R., 1981. Natural versus urban scenes: Some psychophysiological effects.. *Environment and behavior*, 13(5), pp. 523–556.
- Warwick Medical School, 2020. *User guide to the warwick-Edinburgh Mental Wellbeing Scales (WEMWBS and SWEMWBS)*. [Online] Available at: https://warwick.ac.uk/fac/sci/med/research/platform/wemwbs/using/register/resources/user_guide-june_2020_v4.pdf [Accessed 2 May 2022].
- Weinberg, R. & Gould, D., 2011. *Foundations of Sport and Exercise Psychology*. s.l.:Human Kinetics.