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| **Reviewer’s comments** | **Author(s) response** | **Changes to the paper** |
| **Reviewer #1** | | |
| **#1** Abstract: Abstract is clear but need to add core argument or research gap being addressed |  |  |
| **#2** The literature review requires substantial revision. From my perspective, the authors start by introducing the topic in too broad of a context. Given that this is a single case study, I suggest framing the topic around more proximate variables—rather than distal health status. Singapore as a case study can be brought forward as a critical context in which to study the phenomenon. |  |  |
| **#3** Authors should clarify if the study is about the act of participation or the UGS itself (the former seems to be the aim). Why is Singapore relevant and useful to the discourse in general? What is novel or innovative about this study? | Singapore provides unique contexts in which biophilic design and green spaces are widely available. However, few spaces have integrated nature placemaking in the process. Also, most of them have been made and maintained by the government, hence there is lack of case studies on these spaces involved with NGOs |  |
| **#4** Please define that many terms or remove jargon for a broad academic audience. |  |  |
| One case study is not adequate for a research paper. |  |  |
| **#5** It is unclear how the "5Gs" relate to psychological/social wellbeing impacts of nature-placemaking. |  |  |
| **#6** Clear conceptual framework of mechanisms is needed. |  |  |
| **#7** It is also unclear how environmental awareness relates and should be included in the conceptual framework. | We used the connectedness to nature scale (CNS) by Mayer and Frantz (2004) to measure the degree of nature connection among the GUI members. Validation study of the CNS (Mayer & Frantz, 2004) found that connectedness to nature is associated with environmental awareness and ecological behavior. Therefore, we have included it in our study. |  |
| **#8** Grounded theory analysis does not apply to this research design—the authors' used existing measures. I don't understand how Grounded theory applies especially since the authors were not focused on theory building. | Grounded theory is to analyze qualitative data, which informed the selection of variables and scales for quantitative surveys |  |
| **#9** Remove Fig. 3 | Why? |  |
| **#10** "A two-tailed test of significance indicated that there was a significant positive relationship between the frequency of engagement and commitment and the number of programmes attended" - These variables should be treated as having collinearity—rather than correlated to each other. |  |  |
| **#11** Authors cannot claim impact, only correlation. This was not a longitudinal study. It is just as likely that those with greater sense of community would be more likely to engage more frequently. This is also true of social cohesion. While the authors used appropriate statistical tests, interpretations are incorrect. | Rephrasing, interpretation is correct.  Results of focus group discussions suggest that sense of community increases over time through engagement. Hence, the study concludes that more frequent and longer engagement would lead to higher sense of community |  |
| **#12** Level of significance of tests is not reported so it is unclear which correlations are even significant. | Diagram is included, include the table |  |
| **#13** The discussion needs to more clearly link back to the literature and surface key findings. I am still confused at this point because the study is not about nature—it is **about** participation. Furthermore, the authors acknowledge they did not measure the environment. This paper is less about health/wellbeing and nature and really about social benefits of participation. | Disagree.  Social participation has an impact on health and wellbeing. (check the literature review). |  |
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| **Reviewer #2** | | |
| **#14** My main query is about the underlying gap in knowledge. It is not clear what contribution to knowledge this paper is making. |  |  |
| **#15** Don't we already know about these relationships between facilitating nature connectedness and wellbeing - why exactly is it useful to read about this case in Singapore? This novelty needs to be made much clearer. At the moment, I am not sure what research question is being asked and why. |  |  |
| **#16** Even though the title tells us this is about the facilitators in this case in Singapore, I think this is what we learn least about in the paper. It's not until we see the numbers in Table 5 and Figure 6 and a statement on pg. 21, lines 43-45 that 'ultimately, the volunteers of this group [2] become the facilitators and guides for those in Group 1'. This is really important, but you describe them all as participants and so makes it difficult for the reader to decipher the findings and their implications. |  |  |
| **#17** It also might help explain your tiny sample numbers in this group (although not justify completely, as the same explanation isn't made for the even smaller numbers in Groups 3 and 4). |  |  |
| **#18** queries about the research design - you make so much of the role of facilitators - but you don't compare it to programmes without facilitators or any kind of comparative analysis which makes it difficult for the reader. Did you consider a control (i.e. self-moderated nature placemaking without any facilitators) to compare? Is it possible to use GUI sites without any facilitation? This constraint should be outlined in the methods section as it is only broadly touched in in the Limitations section. | Yes, we considered having control group. However, interactions with the GUI facilitators are inevitable in the GUI campus. All existing programs have extensive involvement of facilitators. Even by just visiting the campus, visitors will have some interactions with facilitators. Hence, it was not feasible to have control groups within the GUI campus. This could be addressed in the limitation section. |  |
| **#19** Introduction - you start with a discussion about stress - why? Is this a measure you use later? |  |  |
| **#20** Definition of nature placemaking really needs defining more clearly. Does this mean that all previous place-making has not involved nature? Why is there a need for this distinction? Is this the only concept - is this about place-making or is it about place-keeping, stewardship, engagement with nature, connectedness to nature? I'm not sure why the concept you use is best described as 'nature placemaking'. |  |  |
| **#21** You talk about how the benefits of 'programmes' 'can be traced back to the participative character of placemaking, which have been found to enhance sense of belonging and sense of community' (pg. 2, lines 37-39). Are you there claiming that NATURE placemaking (or whatever you call it) brings even more enhanced sense of belonging and sense of community because it is in nature? If so, you need to explain this more and make it more explicit. |  |  |
| **#22** Jennings and Bamkole (2019) paper do not agree that they concluded that that 'a reflexive process of social learning and co-creation…could facilitate urban environmental planning' (pg. 2, lines 53-56). Take care not to lose the meanings when summarising findings from other work. |  |  |
| **#23** How does listening to the voices of the often-silenced (pg. 2, line 58) stimulate environmental awareness and enhance sense of place - I don't understand a. how this fits with your work, or b. where this conclusion is coming from. |  |  |
| **#24** Facilitators of place - what exactly does a facilitator do that is distinct from a volunteer? And why is it NGO-led facilitating that is of interest to you (pg. 3, lines 12-13)? Is this part of the gap in knowledge? Or is the gap related to a lack of sources written about Singapore? Does that mean we know lots about facilitating by other sectors? You need to make this all clearer for the reader. |  |  |
| **#25** Pg. 3, line 40 - what is a 'nature self-motivating environment'? This does not make sense to me. |  |  |
| **#26** You do not explain why an in-depth case study method is your chosen approach - explain/ justify this for the reader. |  |  |
| **#27** You need to explain why the 5Gs are so important and how they are imparted to volunteers/ participants. |  |  |
| **#28** Make a decision about the terms you use - is it volunteers/ participants/ facilitators? When does a volunteer become a facilitator? Shouldn't you be treating them differently in your analysis - hencethe underlying focus of the paper…yes? |  |  |
| **#29** Does the nature placemaking happen at the GUI headquarters? Where are they? How close is the site for people to reach? Do you need a car to get there? Is it easy to get to? How large is the site? Can you provide a plan? |  |  |
| **#29** what do you mean by naturogenic (pg. 4, line 40)? Do you mean 'natural'? |  |  |
| **#30** A river (or stream?) not only supports environmental awareness and nature connection in NPM, but it is also a habitat (pg. 4, lines 35-7)…you are taking a specifically anthropocentric view of nature throughout your paper which seems to be at odds with your claims of this connection to nature. |  |  |
| **#31** Why were FGs conducted with core staff members from business development, finance and marketing? What was the rationale behind this? And it is not possible when reading your quotes to work out who the specific quote comes from and which area of GUI they work in - I think that would be useful. |  |  |
| **#32** It isn't clear about the volunteers in the FGDs - are these people who actively help or facilitate or are they part of the 130000 people who have benefited from GUI activities? |  |  |
| **#33** Table 1 - personally, I don't the specific dates of the FGDs are important. |  |  |
| **#34** If you did your FGDs on GUI premises, are there any problems with this - might this have influenced the data collection? There is no critique at all about GUI in any of the commentary, and I'm wondering if doing the data collection on site was problematic/ inhibit responses in any way? |  |  |
| **#35** Can you explain the rationale behind the question: 'How do you think GUI has contributed to your personal life development?' and the answers - did everyone really say that it did? |  |  |
| **#36** Pg. 7, line 27 - you state that 'these findings informed the design of the online survey…' - in what way did they inform it? |  |  |
| **#37** Table 2 - are you claiming that the psychometric scales are measures of enhanced wellbeing? Where is 'wellbeing'? How did you decide on these scales and why? For example, the social cohesion work by Forrest and Kearns was not designed as a psychometric scale. |  |  |
| **#38** How and why did you decide that you wanted individuals who had been engaged in programmes for a minimum of 3 months? Did you ask them about their perceived wellbeing before they started the GUI? It's hard to understand the rationale behind the questions you asked and unpicking the way in which the input from the facilitators had an effect on people's wellbeing. |  |  |
| **#39** Why is your final sample size for the survey so small? I was expecting a larger number that 104 given your statement of the 130000 people who have benefited from GUI activities. Why did you stop at 104? |  |  |
| **#40** Some of your quotes do not demonstrate the point you are making in the text -e.g. you state that 'these 5 values have been integrated in the mindset of many of the participants' - a. how can you claim this is the case? And b. I don't think the quotes on pg. 10 demonstrate this, particularly not the quote by Sophie FGD3. |  |  |
| **#41** pg. 10 line 56 - you say that the principles are 'inculcated' - is that in the people who work for GUI? You need to explain more about the sample in this way. |  |  |
| **#42** Pg. 11, line 1 - what do you mean by 'as part of a free will process'? |  |  |
| **#43** Figure 5 - where is the statistical significance shown - is that what green means? This is not clear. You say that 'this suggests that individuals that report having a sense of community doe to their engagement in GUI NPM developed feelings of interest….' - I am nervous about the use of the term 'due to'. You are suggesting causality when you are only analysing the correlations, so you should change your text to reflect this. Does it rather show (or indicate) that the values people hold around sense of community are closely related to those around social cohesion etc. That has been borne out in other studies. |  |  |
| **#44** Is IMI overcoming obstacles and getting things done efficiently? This strikes me as different to the statement sample included in Table 2. |  |  |
| **#45** Pg. 18, line 30 - you state that 'GUI tends to attract new members who have a high sense of nature connection'. This might not be the correct assumption to make - research from the IWUN project www.iwun.uk found that increases in nature connectedness was most marked in people who had not been connected beforehand. Might this be a reason for the strong scores? | Our reasoning for this argument is that, firstly, the FGDs and survey results show that the main reason to visit GUI was to interact with nature at GUI campus. This suggests that those who come to GUI have already high interests in and, perhaps connection with nature. Based on this result and the result of no significant differences in the degree of nature connection across the GUI members, we concluded that those who come to GUI are interested with nature interactions and have already high sense of connectedness with nature.  Since we cannot examine if the newer member's nature connection has increased in the beginning of their engagement at GUI because we do not have longitudinal data. Therefore, this could be examined in the future study with longitudinal research design. |  |
| **#46** Pg. 18, lines 44-45 - you state that '…suggesting that the long-term engagement with GUI could enhance sense of community' - but looking at the stats in Table 6, it doesn't look like Groups 1 and 4 are so very different when you consider that they would all be rounded up/ down to a 5, so how can you make that statement? (Can you explain the numbers in brackets/ parentheses)? I think you need to qualify this. | A |  |
| **#47** you talk about 'the sense of community in GUI' (pg. 18, line 51) - is this the sense of community that you are measuring? Rather than sense of community more widely, as defined by Forrest and Kearns? If so, then yes - of course this would increase if people are spending time doing GUI activities**.** | The sense of community we refer in this paper is based on Mcmillan and Chavis (1986): it consists of four dimensions including needs fulfilment, group membership, influence, and emotional connection. |  |
| **#48** Figure 6 really does demonstrate the disparities in the numbers across the groups - so I really think you should explain to the reader why there aren't comparable numbers in the groups, and why you felt it was statistically valid to have one group of only 2 individuals. | Groups were identified by PCA and cluster analysis based on the three measures of engagement |  |
| **#49** Pg. 19, line 54 - you talk about facilitators but don't mention them in any of the tables/ figures. Where are the facilitators in your sample. |  |  |
| **#50** I don't understand the statement on lines 58-60: 'people interacting in GUI NPM activities undergo a self-reflective process' - who exactly does this? If they are facilitators, is this part of their training? What training do facilitators have to undergo? |  |  |
| **#51** Figure 7 is misleading. Why is C where it is on the diagram? Are you suggesting that there are minimum attendance rates? Should there be a D in the diagram because you had 4 groups? |  |  |
| **#52** Pg. 20, lines 48-50: you do not mention in the analysis that new participants 'seek in-depth knowledge about environmental sustainability through direct interaction with nature' - where has this finding come from? | Make it clear in GUI description |  |
| **#53** Pg. 21. Lines 1 - you need to provide more explanation of the statement 'volunteers are encouraged to reflect on the GUI principles': this information should be provided in the GUI case study section (alongside how the 5Gs are communicated to volunteers/ part of the facilitator training?). And this links to information you tell us on line 43 that 'ultimately the volunteers of this group become the facilitators and guides for those in Group 1'. This should be made much clearer earlier on in the paper. At the moment, it is not at all clear who is facilitating whom. |  |  |
| **#54** Pg. 21. Line 9 - you talk about 'transference of the GUI values' which is making me nervous. Are you really claiming that all volunteers had none of these values before joining GUI? How can you separate their own values from GUI values? To claim transference is a bold statement. |  |  |
| **#55** Pg. 21. Lines 20 and 22 - where do 'sense of restoration' and 'self-awareness' appear in your analysis? |  |  |
| **#56** Pg. 21. Line 52 - you talk about an 'alternative path' - alternative to what? |  |  |
| **#57** Pg. 22. Line 1 - what do you mean by 'appreciation of the natural environment offers new perspectives already recognised in some of the components envisioned in future knowledge systems'? This does not make sense. |  |  |
| **#58** Pg. 22 Line 18 - did you ask people about making decisions and overcoming difficulties in the research to be able to make this statement? | Add some statements from FGD? If I remember correctly, some participants mentioned about overcoming challenges |  |
| **#59 (#29)** Pg. 22. Line 43 - I think you need to provide some information about the physical setting as it seems that it is integral to the study and understanding the findings. See my earlier comments on this (in Methods). It would be logical to expect that because you are examining connection to nature that conducting this research in a natural environment would glean a positive association. This is not a new finding. |  |  |
| **#60 (overlaps)** Pg. 23. Line 14 - can you say more about what other organisations do and their methods of facilitating nature placemaking - that might be helpful early on in the paper to clarify the novelty of this paper and its contribution to knowledge. |  |  |
| **Reviewer #3** | | |
| **#61** I find the study of living environments and their effects on wellbeing and human behaviour is important and an understudied subject. The paper presents results of sequential mixed-methods study that was quite impressive in terms of its set-up and approach. The study applied enough rigour to capture important aspects of placemaking including social cohesion, sense of community, self esteem, and self-efficacy. |  |  |
| **#62** The abstract flows very well, clearly identifies the topic and the scope of the inquiry, and briefly summarizes the methods used and findings. |  |  |
| **#63** I appreciated that this paper viewed placemaking in the context of connecting people with nature and then a) how that connection effects human wellbeing and b) how facilitators influence that effect. |  |  |
| **#64** The reader could benefit if the authors provided some additional context related to the concept of place. In this vein, it is argued by environmental psychologists that connections with place is based on emotions, beliefs, understandings, and values for a locality. In this sense, what I get from the authors is a somewhat narrow focus, whereas sense of place ought to be broader. This does not affect the study in any way, but I think it is important that the authors set the context for place in this way. For instance, it may be worthwhile to provide a definition of place from Tuan or Relph… "What begins as undifferentiated space becomes a place as we get to know it better and endow it with value" (Tuan, 1977). It would also be interesting to theorize about what it exactly is about urban environments vs. natural environments that lead to differences in wellbeing. |  |  |
| **#65** I think this is acceptable to maintain a narrow focus in this regard, however, the authors need to articulate the restricted definition of their study and the existing research specific to their application. In doing so, they should highlight the broader body of knowledge. |  |  |
| **#67** The authors have has undertaken a well developed and very appropriate methodology that clearly illuminates the importance of examining how facilitators might influence psychological health and wellbeing of those taking part in nature placemaking, particularly from its particular construct and context through the eyes of those who participated. The resulting findings are important to our better understanding of the influences of the subtleties of place as they affect externally developed and applied theories. |  |  |
| **#68** I do think the authors could, given the type of research, provide additional explanation related to how impartiality and detachment from personal bias was ensured. The authors acknowledged the use of independent researchers to compare and validate the results; however, in a more general sense, I think it is important that the authors articulate how the discussions took place to ensure participants were not led to a particular answer. |  |  |
| **#70** The methods used are very appropriate given the scope of the study. The approach garnered fruitful results through a rigorous exploration. It is my view that the authors completed a thorough review using effective techniques. The description of the data analysis is solid, and the amount of research is appropriate given the nature of the study. And for this reason, the work is technically rigorous. |  |  |
| **#71** The research goals I thought are well defined and researched using a robust and comprehensive method. The use of seven focus groups was thorough; however, there is a disproportionate number of female respondents versus male respondents for the survey. I do not believe that would effect the results, but the authors may want to dedicate a couple of sentences to acknowledge and address it. |  |  |
| **#72** In my opinion, this is important work that highlights the importance of the facilitator and the care and attention need to be considered in terms of how the process of placemaking occurs - not just in nature settings, but also in urban settings. The results also bring attention that the layered richness of variety of and varied perceptions weave a complexity of place that seems to have a greater sense of self. While it brings attention, I believe the door is open to explore nature placemaking in greater detail, particularly from a deeper human perception perspective. This particular study is narrow in that regard as it tackles the participants' subjective sense of wellbeing based on limited theoretical framework. Again, that is fine, but that should be further explained. |  |  |
| **#73** Much of placemaking, however, ignores an ecological approach and thus, there is a lack of literature related to nature placemaking. Hes et al. (2020) posited that people's connection with the natural environment enhances wellbeing; however, the conventional conceptualization of placemaking overlooks the biophilic element. In that sense, the process of nature placemaking and the role of the facilitator is essential. This study highlights that important connection that people have with nature. The study effectively produces important and relevant findings, particularly that individuals manifest a strong connection and further exploration to the natural environment upon their first experience with GUI. The importance of nature placemaking has relevance  for nature-based solutions for tackling environmental challenges and building capacity and support for sustainable human development. |  |  |
| **#74** |  |  |
| **#75** |  |  |