# **Suggestions for our Research**

1. **Sample Size, Population, and Reliability Checks**
   * Sample Description
     + Sample Size: The survey collected responses from 50 volunteers, representing approximately 33% of the total Sustainable Merton volunteer population (150 individuals).
     + Demographics:
       1. The dataset includes key demographic variables such as age, gender identity, and ethnic background, which allow for an assessment of diversity within the sample.
       2. Volunteers’ levels of involvement are reflected through engagement and commitment measures.
   * Representativeness
     + The sample size is moderate, covering one-third of the population, providing a snapshot of the target group. However:
     + Strength: A third of the population is significant for volunteer studies.
     + Limitations: The small sample size limits generalizability to the broader Sustainable Merton volunteer base. There may also be potential response bias, as more engaged volunteers might be overrepresented.
   * Reliability Checks
     + To calculate Cronbach’s Alpha, I used Python, leveraging statistical libraries to ensure accuracy and efficiency. First, I gathered responses for all items within each scale (e.g., Motivation, Engagement, Satisfaction) and ensured the data was properly aligned. Using the variance formula, I computed the variance for each individual item and the total variance across all items. These were then applied to the Cronbach’s Alpha formula, where is the number of items in the scale. The resulting Alpha value, 0.872, indicates high internal consistency, confirming the reliability of the scales used in the survey.
     + Cronbach’s Alpha for the scales is 0.872, indicating excellent internal consistency. This suggests that the scales used to measure Motivation, Engagement, and Satisfaction are reliable.
   * Summary of Average Scores
     + Motivation (scale: 1–7):
       1. Career: 2.83 - Relatively low, indicating less career-oriented motivation.
       2. Social: 3.58 - Moderate, reflecting some social motivations.
       3. Values: 6.02 - Very high, showing strong alignment with personal values.
       4. Understanding: 5.18 - High, suggesting volunteers seek knowledge or self-development.
       5. Enhancement: 4.31 - Moderate, reflecting some desire for self-growth.
       6. Protection: 4.14 - Moderate, showing some concern for self-protection.
     + Engagement (scale: 1–7):
       1. Vigor: 4.09 - Moderate, suggesting average energy levels in volunteering.
       2. Dedication: 5.03 - High, indicating strong emotional commitment.
       3. Absorption: 4.19 - Moderate, reflecting moderate involvement in activities.
     + Satisfaction (scale: 1–7):
       1. Task: 5.95 - Very high, showing satisfaction with the tasks performed.
       2. Organization: 5.42 - High, indicating satisfaction with Sustainable Merton’s management.
     + Commitment (scale: 1–5): 3.67 - Moderate, reflecting some intent to continue volunteering.
   * Conclusions
     + The sample is diverse enough to provide insights into the volunteer population’s motivations, engagement, and satisfaction.
     + High reliability of scales ensures robust findings.
2. **Overview of Core Constructs**

* Summarize descriptive statistics (means, standard deviations) for the following constructs:
  + Motivation (6 VFI subscales: values, career, social, understanding, protection, enhancement).
  + Engagement (3 subscales: vigor, dedication, absorption).
  + Satisfaction (2 subscales: satisfaction with tasks and management).
  + Commitment (derived from selected questions).

1. **Comparing Scores Across Demographics**
   * Use a respective tecnique like one-way ANOVA, linear regression etc. for group comparisons of motivation, engagement, satisfaction, and commitment across demographic variables (e.g., age, gender, education).
   * Conduct post-hoc tests (e.g., Tukey’s HSD) only when ANOVA results are significant.

* Our measures are as follows an you can find **scoring info** on the Appendix section:
  + **Motivations:** 30 Item VFI measures Motivations
    - Subscales: values, career, social, understanding, protection, enhancement
  + **Engagement:** 9 Item Utrecht Work Scale measures engagement
    - Subscales: vigor, dedication, absorption
  + **Satisfaction:** 11 item satisfaction scale
    - Was normally 3 subscales, we used 2: satisfaction with tasks (4 items), satisfaction with management (7 items)
  + **Commitment:** We don’t have an official scale for the commitment but we could **maybe** use following questions to measure commitment:
    - “For the next six months, do you plan to increase, decrease, or maintain your current level of volunteer hours?”
    - “How long have you been volunteering with Sustainable Merton?”
    - “I would encourage people to volunteer with Sustainable Merton” (1 = Strongly Disagree, 5 = Strongly Agree)
    - Have you ever encouraged someone else to volunteer with Sustainable Merton?

1. **Facilitators and Barriers**

* An overview of **facilitators** and **barriers:** Main facilitators and barriers and their relationships with engagement, satisfaction, and commitment. Introduce clustering or factor analysis to group similar facilitators/barriers into broader themes. Explore the relationship between facilitators/barriers and volunteer demographics using logistic regression.
* Other volunteering demographics overview:
  + Previous experiences and how did they first get into volunteering?
  + What projects are they involved in? relationships with motivations?
  + What kind of projects do they find **most rewarding?** relationships with motivations?
  + Hours of volunteering?
  + Relationships with personal demographics
* Conduct a frequency analysis to identify the most common facilitators and barriers.
* Use logistic regression or chi-square tests to examine relationships between facilitators/barriers and demographic variables or engagement levels.
* Simplify clustering or factor analysis for facilitators/barriers if sample size constraints make these methods impractical.

1. **Volunteering Demographics**
   * **Summarize:**
     + Previous volunteering experience (Yes/No) and how participants started volunteering.
     + Project involvement (e.g., which projects they work on) and most rewarding projects.
     + Hours volunteered (weekly).
   * **Analyze relationships between:**
     + Project involvement and motivations using chi-square tests.
     + Hours volunteered with satisfaction, engagement, and demographic variables using linear regression.
2. **Sustainability Awareness**

* **Sustainability Awareness:** Analysis to explore whether sustainability awareness has a meaningful relationship with motivations, engagement, and satisfaction.
* Use descriptive statistics to summarize sustainability-related responses (e.g., familiarity with sustainability, impact perception).
* Explore relationships between sustainability awareness and motivations, engagement, and satisfaction using correlations or simple regression.
* Frame these analyses as exploratory due to limited survey depth.

1. **Communication Preferences**

* **Communication Preferences:** Regression or correlation analysis to test whether the perceived effectiveness of communication channels predicts satisfaction, engagement, or intent to remain.
* Analyze perceived communication effectiveness as a predictor of satisfaction, engagement, or intent to remain using linear regression.
* Summarize communication challenges (e.g., delayed responses, overwhelming volume) using frequencies and thematic coding.
* Examine relationships between communication preferences and demographic variables using chi-square tests.

1. **Compare new volunteers to old volunteers:**
   * Categorize volunteers into new (<1 year) and old (>1 year) groups.
   * Compare key metrics (satisfaction, engagement, motivations, perceived impact, respect) using:
   * t-tests for two groups (e.g., new vs. old volunteers).
   * ANOVA for more detailed tenure categories (e.g., <6 months, 1-3 years, etc.), supplemented by post-hoc tests if significant.
   * Analyze intent to remain (e.g., "In the next two years, are you likely to continue volunteering?") using logistic regression or chi-square tests.
2. **Decision trees** 
   * Use decision trees to identify demographic predictors of satisfaction or engagement. Simplify models to avoid overfitting.
   * Avoid random forests due to the limited sample size.
   * Present results visually (e.g., feature importance rankings).
3. **Open-Ended Questions**
   * For open-ended questions like "What motivates you in your own words?", you can process responses by first cleaning the text (removing stopwords and standardizing formatting). Use keyword extraction techniques like TF-IDF or word clouds to identify frequently mentioned terms. Apply thematic analysis or clustering methods (e.g., LDA) to group responses into themes such as altruism, career growth, or social connections. Sentiment and emotional analysis tools can gauge emotional tones (positive, neutral, negative), while coding responses into categories enables frequency analysis (e.g., 40% altruism, 30% career). To deepen insights, correlate these themes with variables like engagement or satisfaction using regression or chi-square tests. Finally, visualize findings with bar charts or heatmaps to reveal patterns across demographics or other factors. This approach converts qualitative responses into actionable, quantitative insights.
   * If there are certain limitations like time, prioritise simpler thematic coding and keyword extraction for processing open-ended questions. Start by manually reviewing responses to identify common themes (e.g., "altruism," "career growth," "social connection"). Assign responses to these themes and calculate their frequencies to identify dominant categories. Use basic keyword analysis with tools like Excel or simple Python scripts to extract frequently mentioned words or phrases. This streamlined approach provides meaningful insights without requiring advanced techniques like LDA, making it more practical for immediate analysis and reporting.
4. **Reporting and Practical Implications**
   * Use clear visualizations (bar charts, scatterplots, heatmaps) to present findings.
   * Provide actionable recommendations for:
     + Enhancing facilitators and addressing barriers.
     + Improving communication strategies.
     + Retaining new and old volunteers by targeting motivations and satisfaction.
   * Emphasize limitations (small sample size, lack of validated commitment scale) in your reporting.