Electronic Supplementary Material (ESI) for Environmental Science: Advances.

Supporting Information

A) Survey questions

Characterisation of the respondent
In what role do you work with LCA?
- as an academic
- as a consultant
- as a decision maker in a company
- as a public policy maker
- other

How long have you been teaching and/or practicing LCA?
- 0 - 2 years
- 2 - 5 years
- 5 - 10 years
- more than 10 years

Table S1 presents the 22 survey statements.

Table S1: Survey statements. Each statement was accompanied by the following prompt: "Please indicate the degree to which you agree with the following statements."

Classification	Survey Statement
State of LCA: Robustness of Results	S1 - I acknowledge results may be biased but do not see this as a threat.
	S2 - The main factor behind different results is real differences in the systems modelled.
	S3 - LCA results representing a similar system vary as a consequence of different data usage, but also due to inconsistency in methodological choices between different practitioners.
	S4 - In my applications of LCA, published results tend to be discrepant.
	S5 - Disparate or contrasting results is an issue, e.g. because results can be used for greenwashing.
State of LCA: Standardisation	S6 - I think there is one right way of applying LCA.
	S7 - The LCA community can agree on a common LCA approach.
	S8 - The ISO 14040-44 standards are good enough for guiding LCA practice.
	S9 - We need greater standardization (i.e. lower variability in the application of LCA) to ensure consistency of results.
	S10 - The proliferation of LCA guidelines has not helped cementing the robustness of LCA as a tool.
State of LCA: My practice	S11 - The LCA studies I conduct are ISO compliant.
	S12 - My LCA practice reflects a consequential approach.
	S13 - My LCA practice reflects an attributional approach.
	S14 - I avoid allocation in my system model
	S15 - I handle co-production via allocation
Values reflected in my LCA practice	S16 - I value consistency over flexibility.
	S17 - I value accurate results over precise results.
	S18 - I value minimizing uncertainty of results over precision of results.
	S19 - I value representativeness of results.
	S20 - I value reproducibility of results.
	S21 - I value LCA as a tool for making decisions.
	S22 - I value LCA as a tool for learning.

Do methodological choices determine LCA results?
One of the main methodological choices to which results are sensitive is (multiple options can be chosen):
Check all that apply.
- the way in which co-production is handled.
- the degree to which market-mediated effects are included.
- methodological choices regarding LCIA characterisation models.
- LCI database used.
- the system model adopted.
- methodological choices regarding data (marginal vs average).
- the degree of completeness of the background system (input-output vs process).
- all of the above in (more or less) equal weight

B) Heatmap of survey responses

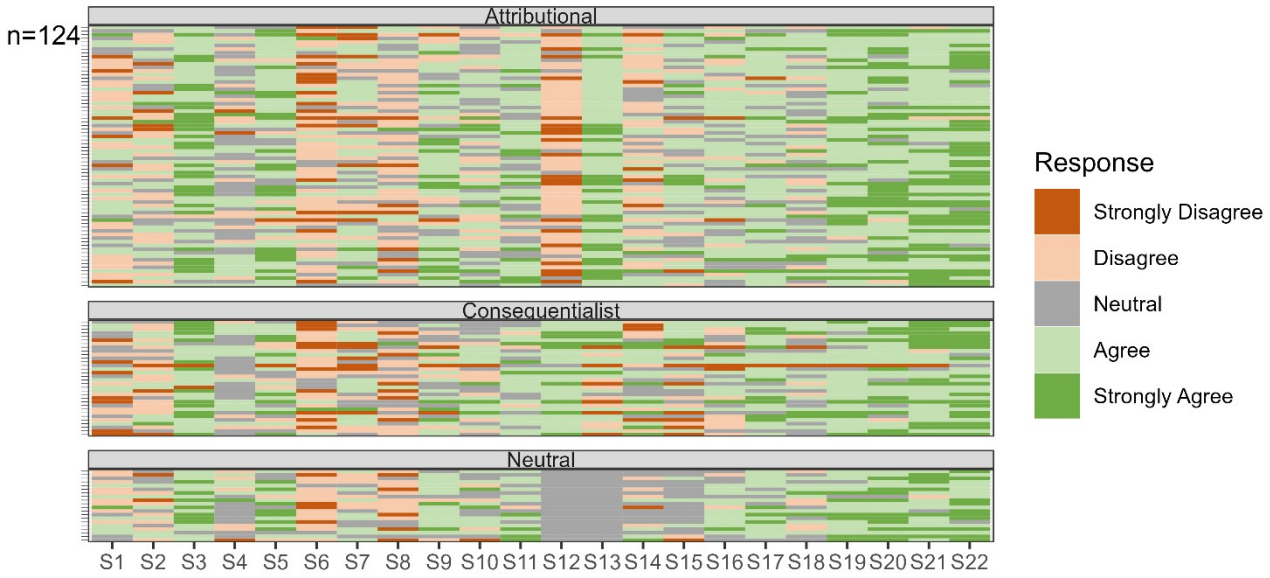

Figure S1: Heatmap showing every response (S1 to S22, columns) from every participant (n=124, rows). S12 and S13 are statements referring to attributional or consequential approaches in their LCA practice, which we used to divide participants in 3 panels.

C) Statistical Analysis Results

C1) KNN Results

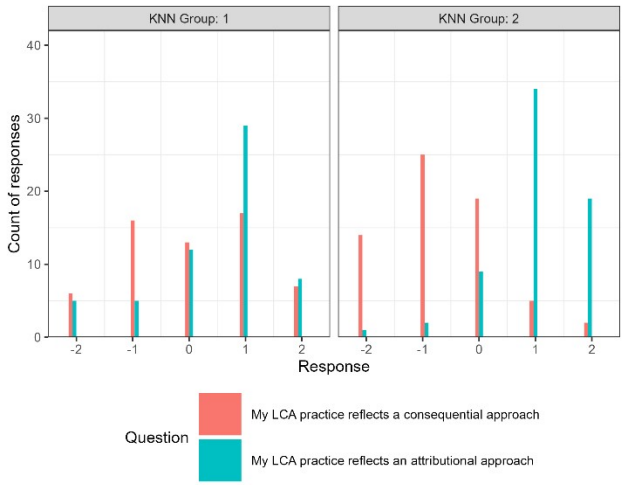

Figure S2: KNN Algorithm clusters using k=2. Size of groups are 57 and 67, respectively. KNN with k=3 and k=5 showed clusters similar to cluster 2, where pure attributional practitioners can be identified.

C2) Spearman Correlation Matrix

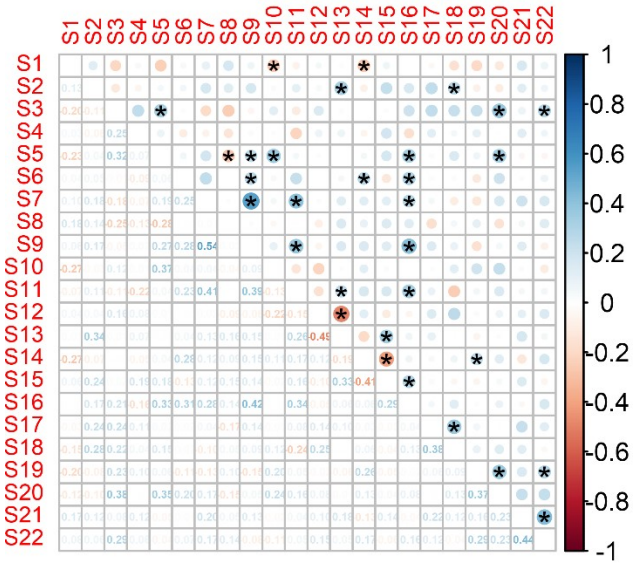

Figure S3: Spearman Correlation matrix between all 22 statements ($p<0.05$). Conversion Scale: Strongly Disagree = -2; Disagree = -1; Neutral = 0; Agree = 1; Strongly Agree = 2. Figure was created using the R library "corrplot" [25].

C3) Other models: Attributional as dependent variable

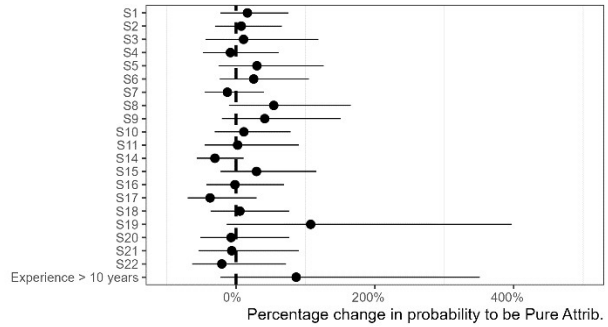

Figure S4: Full Logistic regression model to predict adherence towards attributional LCA preferences. n=124. Prediction accuracy: 67%.

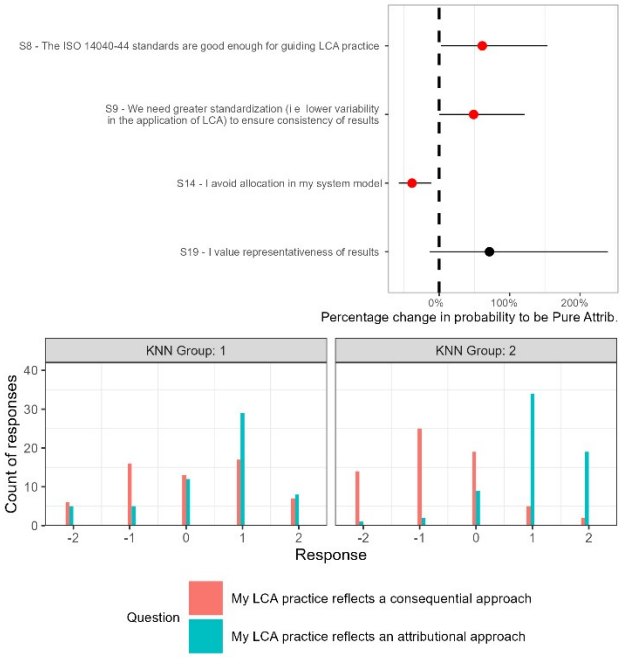

Figure S5: Backwards stepwise logistic regression model to predict adherence towards attributional LCA preferences. A red dot indicates a statistically significant effect found at 95% level. n=124. Prediction accuracy: 67%.

C4) Other models: Greenwashing concern as dependent variable

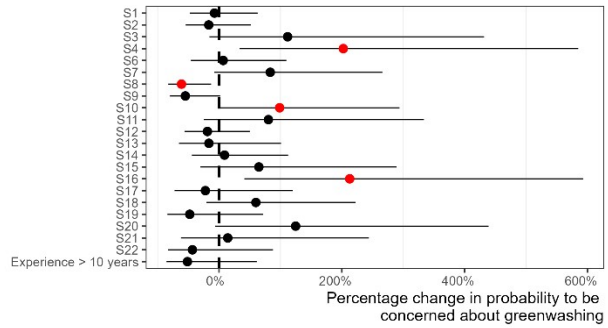

Figure S6: Full logistic regression model to predict concern greenwashing due to disparate results in LCA. A red dot indicates a statistically significant effect found at 95% level. n=124. Prediction accuracy: 80%.