

Supplementary Material to “Trailblazer: the Brazilian Cerrado as a resource for Botany teaching”

Supplementary Material S2 - Text of the initial and final questionnaires circulated as part of the nature trail experience with students answers.

Trail Blazers - Initial questionnaire:

1. Gender (Replies = 15 male, 21 female)
2. Age (Replies = 15 x 4, 16 x 29, 17 x 3)
3. Name three typical plants from the Cerrado (see word cloud, Figure 8A)
5. Define botany (Replies = 2 x study of living beings; 34 x study of plants).
6. Do you know the vegetation of the Cerrado? (Replies = 5 x No, 31 x Yes)
7. Choose which is the main vegetation type of the Cerrado (correct reply = savanna)? (Replies = 15 x savanna, 20 x Caatinga, 1 x Amazon Forest)
8. Choose which are the main characteristics of the Cerrado (Replies = 5 x dry, cold climate, 31 x creeping vegetation and small trees)
9. Choose which is the main threat to the Cerrado (Replies = 30 x deforestation, 5 x global warming, 1 x air pollution)
10. Choose what are the main plants in the Cerrado (Replies = 32 grasses and small trees, 2 x orchids and bromeliads, 2 x cacti and succulents)
11. Define Botany and the importance of this science (free, open answers, 7 out of 36 said they did not know).
12. Name the main characteristics of the Cerrado and how they influence the fauna and flora of the region (these were free, open answers, Replies = 25 x did not know, 3 x gave answers)

copied from before – creeping vegetation and small trees, 2 x gnarled trees, and 4 had more complete answers).

13. What are the typical plants of the Cerrado and how are these adapted to the regional climate? Give examples. (these were free, open answers, Replies = 22 x did not know, 7 x plants that do not need much water, 1 x buriti, 6 x ipê, 1 x cactos, 1 x chuveirinho, 2 x pata de vaca).

14. Have you ever been to a Cerrado nature trail? (20 x No, 16 x Yes).

Trail Blazers - Final questionnaire

1. Name three typical plants from the Cerrado (see word cloud, Figure 8B)

2. How do you evaluate the interpretive trail for your understanding of Botany contents and knowledge about the biome (very important, important, of little importance, without importance, don't know) (Replies = 3 x important, 33 x very important). This question had follow up comments that were used directly in the text.

3. How do you evaluate the trail and further activities (herbarium specimens, cyanotypes, plant identification) in relation to what was formerly explained in the classroom? (Replies = 4 x considered it a review of content already seen in class, 32 x considered that they learned new topics). This question had follow up comments that were used directly in the text.

4. What were the positive points of the interactive trail for learning Botany? The students listed a variety of advantages, from practical experience, group activity, to see plants in nature helped them understand how they 'work', fun and engaging activity, to explore a new place, new focus on the subject, new subjects, see the structures better close up, activities out of the usual, memories to treasure, plant identification, learning about new plants, dynamic learning, habit, function and habitat insights.

5. Choose which factors, in your opinion, interfere in Botany learning (Replies = 5 x students lack of interest, 23 x nomenclature, difficult names and concepts, 8 x few practical activities).

6. Regarding the cyanotypes do you consider it (31 x important as it allows to learn botany in a different situation, 5 x indifferent for learning botany).