Historical classification scheme: 2

Asking “Is this an animal” and why (free

Showed via PowerPoint 20 photographs and 20 terms of different

In other words, “The cells in similar tissues and organs in other

Majors: Biology (AAS, 2009)

One of the most general distinctions among organisms is between

Subsample of survey participants (14 biology majors and 10 biomed

Age: Range was 20

Although most students realized that mushrooms are not animals, nearly a quarter of survey participants conceptualized that mushrooms are plants and almost a quarter of interview participants thought fungi, in general, are photosynthetic. Since this was a free-response portion of the survey, more survey participants may have thought that mushrooms are plants but did not feel it necessary to write it. Several students simply put “fungi” in their free-response. Half of the interviewees did, on the other hand, provide scientifically accurate characteristics.

Comparisons to Other Studies

Are students using the two-kingdom classification system?

Survey Participants (N = 59)

- Majors: Biology (n = 31), Biomedical (n = 26), and Secondary Education (n = 2) at Western Michigan University
- Class: Juniors/3rd year (n = 11) and Seniors/4th year (n = 48)
- Sex: Males (n = 30) and Females (n = 29)
- Age: Range was 20-39 years, 75% between 21 and 23 years
- Completed in upper-level biology courses that did not explicitly teach about organismal diversity: Ornithology (n = 23), Neuroethology (n = 6), Synthetic Biology (n = 12), & Great Lakes Environ. (n = 18)

Methods

Survey

- Validated by both university professors who taught organismal biology
- Showed via PowerPoint 20 photographs and 20 terms of different organisms, including a picture of and the term ‘mushroom’ (2 classes were shown the first term, the other 2 the pictures first)
- Asked “Is this an animal” and why (free-response) they chose their answer

Interview (N = 24)

- Semi-structured, one-on-one interviews 4 to 7 weeks after surveys
- Subsample of survey participants (14 biology majors and 10 biomed majors, 5 juniors and 19 seniors, 11 males and 13 females, average age was 22 years)
- Purpose: validate survey responses and ask about differences between plants, animals, and fungi

Data Analysis

- No significant differences between course answers (Independent-Samples Kruskal Wallis test; α = 0.05) or demographics (chi-square test; α = 0.05) except for major (which take same introductory courses)
- Combined all courses and performed qualitative and frequency analyses

References

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Teaching Implications: Need to use explicit AND implicit instruction of a current classification scheme in the classroom