

# Review of: "Analysis of Gender Representations in Recommended Biology Textbooks Used by Senior School Students in Nasarawa State, Nigeria"

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The work exposes the relevance of biology for human and collective growth. This information is correlated with well-referenced research on the construction of misconceptions about biological phenomena and the difference between the sexes of living beings. But here, a relevant concern appears. In the article, is biological sex considered as gender, a sociocultural construct? The issue requires precision, given that it is about gender, but in the data analysis, they address the biological categories of "male" and "female." The objectives express that the research is developed around the problem of the cultural vision of sex of the living, which is a major problem with anthropological, political, philosophical, and social implications. The reader is also left with the expectation of some definitions, such as *over-representation* and *neutral*. These terms would require an explicit definition, surely from a linguistic or semiotic perspective.

An issue that would require greater attention is that of a linguistic and semiotic nature, given that it involves the analysis of the recurrence of words in a language and the colors of the iconography and layout of each book. But this would require more detail in the study, since words with masculine, feminine, or neuter marking are specific to each language and are subject to contact with other languages, especially in a culture with great ethnic diversity, such as Nigeria, where the official language coexists with Yoruba, Hausa, Igbo, and Fulao languages, which leave traces in the use of English, including taboos, prejudices, religious values, and cultural resistance and struggles. So, it will be worth asking whether linguistic uses are biased by the authors of the textbooks or by a cultural condition that requires much more than a study of frequencies of use of terms in each text. In this way, it must be kept in mind that the criteria for selecting words that refer to sexes, genders, as well as colors, are inextricably linked to many cultural causes and are not limited only to practices of recognition of sexes and genres.

Furthermore, the article could involve how the words and colors related to the feminine, masculine, and neutral respond to the intentionality of the statement - not only to a sum of words independently of the syntactic and pragmatic ordering in which they appear. Thus, a characterization of the types of terms used (grammatical categories) and how they relate to the intentionality of the statements would be relevant, keeping in mind that the words of a language or the colors of a chromatic system respond to communicative pragmatics and not only to a classification of terms. Furthermore, in many languages, the words that refer to feminine biological conditions are masculine and vice versa, which responds more to the history of the language than to intentional uses in the present.

In the discussion of the results, a value judgment appears around the authors of the books under analysis, who are suspected of being negligent in taking care of the language; for this, various causes are related, but these nor the alleged negligence itself are demonstrated by the study of statistical frequencies of terms in textbooks. Such uses could correspond to many cultural variables. The use of colors in the representations of the sex of living beings could be due to editorial decisions related to graphic design, layout, and marketing policies, aesthetic values anchored in culture. This could be correlated with the consideration, made in the text of the article, that “this outcome could be as a result of the fact that Biology pictures and diagrams are not about the level of beauty and attractiveness to the reader but rather the quality and quantity of the labeling, the neatness, and the size of the pictures and diagrams.”

The article stands out for the relevance it has in the investigation of social and educational practices, and the text is very interesting, but questions remain unanswered. The answers would allow the data analysis to be solidified. Is the purpose of textbooks for learning biology aimed at understanding knowledge about living beings, or do they deal exclusively with the biological condition of human beings? Is a general characterization of the population that attends the educational centers in which the textbooks analyzed are used possible? This information would make visible the relationship of the findings with socioeconomic conditions and cultural parameters, such as access to secondary education in the research environment. These questions seek a deeper understanding of the phenomenon, without detracting from the need to “revise your textbooks and modify the inequality observed in gender representations to avoid the promotion of gender bias and partiality among the next generations,” and given that the article seeks to avoid the promotion of gender prejudices in the sociocultural sphere.