

Evaluation Report

BA Thesis 'Analyza vysokolske chemicke ucebnice z genderoveho hlediska' by Alena Voskova

In her BA thesis A. Voskova deals with a highly topical, difficult and under-researched research topic: the gendering of (North American) textbooks in biochemistry and organic chemistry currently used in Czech higher education. Is there evidence that the ways in which these textbooks talk about science, the role of the scientific investigator and the objects to be investigated have a gendered subtext, and that they use a more 'student-centered and context-based approach' (p. 3) that initiatives on gender equality in science have long advocated?

The thesis is well structured, fluently and engagingly written (particularly the literature review and the methodology) and makes use of a variety of Czech and international sources. The literature review explicates the concept of gender, the historical gendering of nature and of science and summarizes the existing literature on gendered language, concepts, metaphors and narratives in scientific textbooks that thus far have been explored predominantly in the social and biosciences. The methodology chapter explores conceptions of language as discourse and explicates key tenants of critical discourse analysis after Fairclough. The empirical analysis is organized around the construction of science, nature and the specific interdisciplinary field, as well as imagery and pedagogical approaches used and compares how these issues are portrayed in the textbook introductions and prefaces, and in one substantial chapter (on proteins).

Voskova adds to the existing body of knowledge several interesting findings. (i) One of the most interesting (and from a feminist perspective perhaps surprising) findings is the very traditional (almost Baconian) conception of science and scientific knowledge in the introduction and prefaces of the 14 textbooks under investigation: nature is depicted as variable, manifold and mysterious and has to be ordered, controlled and rationalized in its underlying principles by the inquiring mind of the scientist; scientific knowledge production is described in terms of bellicose metaphors of advance, conquest and control of nature (p. 28) and of linear progress from chaos, complexity, disease to order, simplicity, and cure. There is no mention of contradictory findings or scientific controversies and little acknowledgement that existing knowledge is necessarily partial, open for revision and mediated and enabled by specific technologies. As Voskova writes, the scientist and knowledge production remain unambiguously coded masculine in these narratives (p. 40), and nature appears as feminine and subjected.

(ii) In the substantive chapter under analysis nature/scientific facts appear to speak for themselves: the protein is presented as a fixed circumscribed entity: it 'is' and 'does' certain things, without references to how and by whom this knowledge was generated (p. 30) – there are no references to experimental studies in the main texts of the textbooks

(unlike e.g. in sociology textbooks). The conceptions of the protein as entity and fact is enhanced and enabled by a range of visual imagery that attempts to represent aspects of its structure and composition using a range of 'models' (balls and sticks, ribbon, space filling models). Although it is not reflected in the textbooks, the very multiplicity of models may be taken to suggest that full representation (and hence knowability) of proteins in all their complexity is not possible for the human observer (p. 34). Models are always partial, they render visible certain features and obscure others.

(iii) In terms of implicit and explicit pedagogies Voskova highlights three important findings: First, in most textbooks there is some effort to bring in 'social context'; e.g. through references to macroscopic phenomena (diseases or environment) to trigger interest in an inquiry in what goes on at the molecular level. Voskova suggests that the variety of contexts may attract women chemists. However such contexts remain marginal and cordoned off in special interest boxes (p. 35), thus leaving the masculinist epistemology (facts speaking for themselves) intact. Second, while there is explicit acknowledgement that mere memorization is ineffective and that students should be actively engaged in problem solving and discussion, exercises are again separated from the main text and usually presented at the end of the chapter, an organization that enacts the student as a passive consumer of basic knowledge (p. 40). And third Voskova notes the under-representation of women scientists both as authors and contributors to the textbook and as representatives of the scientific community, and the negative consequences this may have for female students.

While Voskova should be congratulated for tackling a difficult subject with few precedents, her work also exhibits some shortcomings. First, she sometimes seems to endorse (or not sufficiently critically discuss) an essentialist understanding of binary gender where women are attracted to science when they are sufficiently 'feminised' e.g. by integrating social context (p. 36) (thereby uncritically repeating the assumptions of equity initiatives) or using 'pleasing colours' (p. 33). How exactly does gender 'make social life easier' (p. 5) and for whom? Second, her reading of the statistics presented in the introduction and appendices lacks nuance and precision: the statistics do *not* show that women in post-socialist countries are less represented in science than in Western Europe (p. 2) or that women are under-represented as students. (and: The National Contact Centre for Women in Science does *not* offer funding for equality initiatives). Third, at times the claims of her analysis are not sufficiently clear: e.g. how is the new science connected with accusations of witchcraft (p. 8); is it science itself or its applications that have lost public appreciation after WWII (p 8-9)? Further, why does she discuss at length that different textbooks target different audiences (p21; 25-27) when this distinction is not explored with respect to her foci of analysis? At times interpretive claims could be made more explicit (e.g. with respect to the different forms of address of the reader), and it would be worth to explore a special interest box in more depth and their 'traces of female features' (p. 35).

Overall I recommend the grade 2.

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