

THE SKIN WE LIVE IN: A MICRO-SCENARIO ON THE BIOLOGY AND POLITICS OF THE EPIDERMIS

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Abstract

Skin constitutes the largest human organ. From a biological perspective, it acts as a barrier, preventing pathogens from entering the body, while maintaining internal biochemical processes. Interestingly, from a social, political and historical perspective, it also acts as a barrier, on the way societies perceive, read and discipline bodies. In this theoretical proposal, a lesson plan is articulated, aimed at higher education students, from the sciences and the humanities, that discusses the epidermis, employing a biomedical humanities approach. The scope of this educational intervention is to examine how biomedical humanities can improve interdisciplinary thinking in undergraduate education. A series of activities will take place: first, scientists will provide an induction to key skin biological functions, such as homeostasis and innate immunity. Second, students will engage with academic scholarship that examines the skin as a socio-cultural construct; from beauty standards to skin commodification, from medical bias to racism, intersectionality and otherness. Third, they will scrutinize pop-culture audiovisual materials, namely film clips and book excerpts that render representations of the human skin, in terms of scientific accuracy and ethical implications. Lastly, the lesson will be assessed by means of exit ticket reflection. The educational intervention aims to promote interdisciplinary thinking, media literacy, intellectual preparedness and ethical reasoning.

Keywords: *Biomedical humanities, skin, epidermis, media literacy, higher education.*

1. Introduction

Skin, the largest human organ, is organized in three distinct layers: the epidermis, the dermis and the subcutaneous tissue (Lotfollah, 2024). Its biological significance is undeniable; it contributes to the stabilization of our body's internal processes, such as to thermoregulation, also serving as a first-line immunological barrier against pathogens (Coates et al., 2018; McKnight et al., 2022). However, from a historical and societal perspective, human skin has long been a bone of contention, a characteristic used to signify someone's race, economic and social status and perceived level of beauty (Dimitrov & Kroumpouzou, 2023; Hunter, 2013). Therefore, skin can be viewed from multiple perspectives and is subject to different interpretations depending on the context. In the proposed lesson, we employ a biomedical humanities approach to skin education, drawing knowledge from both biology and the humanities (Costa, 2020), to engage higher education students from different academic backgrounds in interdisciplinary, active learning.

2. Methodology

Subject: Biology and the Humanities – Topic: Human Skin– Age Group: University students – Time: 180 minutes.

2.1. Educational goals

This educational intervention aims to: 1) boost interdisciplinary thinking/learning in university students, 2) promote media literacy, 3) develop science literacy, 4) enrich students intellectually and 5) educate students on the ethical implications of skin interventions and skin research.

2.2. Materials

Classroom with internet access, video projector, speakers, printed forms and exit tickets, and an online folder (https://drive.google.com/drive/folders/1nz_fwqjkFJTExXbDI-qdUf7zzdRJtuws?usp=drive_link).

2.3. Procedure

The educational intervention includes three main phases and one evaluation phase, lasting three hours in total. In the first phase, students are educated on the physiology of the human skin and identify the most prevalent skin conditions, assisted by science experts. In the second phase, they are introduced to the concept of colorism through audiovisual materials and academic publications that also tap into the underrepresentation of dark epidermises in medical manuals and a generalized commercialization of the skin. In the third phase, students use pop-culture media to explore the bioethical implications of human skin interventions, while approaching the skin in an existential marginalization manner. Finally, assessment takes place by means of the production of a short poem, enabling students to reflect on the lesson.

2.3.1. 1st Phase (duration: 60 min). Exploring the physiological functions of the skin and identifying the most prevalent skin conditions.

1. Students are introduced to the physiological functions of the skin such as homeostasis and innate immunity, using video content (<https://www.youtube.com/watch?v=OxPICkTKhzY>) (duration: 5:10).
2. Students are randomly divided into groups, asked to navigate through literature, using research databases, to identify the most common skin conditions, their etiology, symptomatology and diagnostic methods.
3. Following that, they prepare a concept map depicting the aforementioned factors for a skin disease they focused on.
4. Based on provided content, students modify and correct their concept maps accordingly, assessing the scientific validity and accuracy of their own findings.

2.3.2. 2nd Phase (duration: 40 min). Investigating the issue of colorism and the socio-cultural implications of human skin.

1. Students are briefly introduced on the social issue of *colorism* (https://www.youtube.com/watch?v=_L4-mOJWhIE) (duration: 10:11), a type of racial discrimination based on someone's skin tone (Charles, 2021). It is conveyed that human skin is a complex socio-cultural construct: a beauty standard, a symbol of status in cultural narratives and in everyday life, and a form of self-expression.
2. Students skim and scan a series of abstracts from academic publications (Borgerson & Schroeder, 2018; Louie & Wilkes, 2018; Robinson-Moore, 2008) on the following concepts: colorism in Afro-Latinx people, the misrepresentation of dark skin tones in medical textbooks and the commodification of human skin.
3. They are requested to pinpoint and document, through a printed form (see file named "Abstract form" on the online folder), the main research question of each publication and add their interpretations on intersectionality and otherness as resulting implications.

2.3.3. 3rd Phase (duration: 60 min). Exploring the representation of skin in pop-culture media and its ethical implications.

1. Students study film clips from popular movies, namely "*The Substance*" (<https://www.youtube.com/watch?v=LNlrGhBpYjc>) (duration: 2:29) and "*The Skin I Live In*" (<https://www.youtube.com/watch?v=PavJUoZNT7g>) (duration: 2:11).
2. Then, they participate in a think-pair-share activity, where they are divided into small groups to discuss the ethical implications of human skin interventions and transgenic research on humans. Lastly, each group shares its thoughts with the rest of the class.
3. Students refer to the online folder (see document titled "Literary excerpts on the human skin") to examine literary texts that approach the skin from a philosophical-existential standpoint.
4. Inspired by the movie clips and the literary texts, students are asked to engage in a writing session, (a) recording their observations on the scientific validity of the sources, and (b) commenting on the permeability and transformability of the skin, as well as the media attention it has received compared to other organs of the human body.

2.3.4. Evaluation (duration: 20 min). The instructor asks students to create a short poem, drawing concepts from the academic and literary sources presented throughout the lesson. The poem serves as an “exit ticket” reflection that demonstrates students’ integrative reasoning, interdisciplinary thinking and creative expression.

3. Discussion

Biological topics, such as the human organ of skin, can be included in an interdisciplinary framework (Burggren et al., 2017), provided by biomedical humanities so to delve into discussions on the human condition.

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