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Creative learning for boosting bioeconomy within HEIs' curricula: between floating and immersing

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Bioeconomy and sustainable development became two central pillars of many countries' national policies (Issa, Delbrück, & Hamm, 2019). By facing environmental challenges, the bioeconomy is intended to have socioeconomic benefits, such as fostering economies' competitiveness, stability and meeting the rising demand (Zabulioniene & Pranskuniene, 2021). Taking into consideration the importance of bioeconomy it is crucial to prepare the actual students as they will be the "future decision makers and a key future workforce shaping and enabling it." (Masiero et al., 2020, 1925). So, attracting students to this area is fundamental, making them more interested and with more awareness.

In order to better understand the possible challenges and possibilities of the diversity of creative learning for boosting bioeconomy within HEIs' curricula learning, it is presented the theory "Submerging interactivity" developed by Pranskuniene (2015). This theory let us to rethink the boundaries of learning, even the case of analysis was chosen for museum education, but it still could be useful to creative learning for boosting bioeconomy within HEIs' curricula as well.

"Submerging interactivity" expresses the floating and immersing circle passing through four stages: boredom, seeking to avoid boredom, activation and overdosing is presented as the superficial expression of education. The concept of "the wheel of boredom" emerged in this interaction. Boredom occurs as characteristic of traditional teaching methods – its environment is monotonous and lacks stimuli. Therefore, the seeking to avoid boredom occurred not by chance. Interest is directly related to active activity, i.e., activation. Thus, activation helps escape boredom since it is interesting; it stimulates more actively. However, when students get too high doses of activation, they overdose, resulting in boredom again. Thus, the category of "overdosing" appears as a complex challenge, able to "draw" it into "the wheel of boredom".

Floating begins with boredom, educators perceive the problem, so they seek to avoid boredom and make educational efforts focusing on activation. However, if the purpose of activation is formal, this activation gives only temporary results, and efforts to increase formal activation leads to an overdosing, which leads to the return to the original state of boredom. It spins "the wheel of boredom". So, as museum visitors, students float on the surface of the education: it's boring, it's interesting, it

is boring again. So, to prepare students for the future, creative learning must go further, and contribute to immersing.

Immersing arises in the context of hooking, (self)involving, wakening of the doubt is presented as the expression of in-depth education. The category of hooking is directly connected with students, in particular, seeking their deeper interest. But education wants not only attract students, but also expecting to their get involved in knowledge. Then, wakening of the doubt appears as initial possibility of critical thinking, allowing the student not only to be hooked, (self)involved, but also to have the possibility to doubt. The further possibility to raise questions and look for answers by themselves is given by this stage, which allows not only the possibility to change/influence education but also an endless immersion possibility.

Thus, every student would have the possibility to bring their understanding, and to present their personal version, thus, developing a new view; and there would be virtually no rules, how to do it, and classes could become a free space of self-expression. Thus, the main subcategory of immersing (revealed by hooking, (self) involving and wakening of the doubt) is formed as process of in-depth education, offering an in-depth solution of problem, caused by boredom. It means that immersing seeks for in-depth experience of students and deepening education and stimulates students to reflects and act according more in the future.

The theory of submerging interactivity is important, that not only demonstrates possible constructivist principles application variety, but also reveals today's transitional situation in the context of education theories application (Pranskuniene, 2015). Activation as a superficial activity is not enough and can even be counterproductive, resulting in overdosing and more boredom. Creative learning must find a way to create real immersive activities, which hook the students, gets more (self)involvement and, as a final goal, sow doubt. Only trying to solve these doubts, students assume a central role as future stakeholders in bioeconomy.

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