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TRIL: Let's Frame the Soil Education Scene

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The need for education in soil science is most limited to one type of institution, limited to a certain type of industry, or bound by national borders. There is need to educate those who do not know about soil and its central role many of societies grand global challenges, as well as, the on-going education of those who work with or have expertise in soil. The Teaching-Research-Industry-Learning (TRIL) nexus proposed an education framework that enabled learners to take more responsibility for their learning, the teachers taking a more facilitatory role. Being student centered and focusing on '*learning-by-doing*' the model also encourages the incorporation of real-world problems and where possible involving those who experience these problems, or work to address them, in the learning environment as well. In some cases, the solutions created are used by the problem's client, secondly the experience not only increases the learner's knowledge of soil science but developing also developing a social awareness or license. This model has now been modified to accommodate the diversification of soil science education across many disciplines and that there are different needs in the depth of soil science understanding. There is still and will always be a need for the soil science expert and this is recognised in TRIL as those who need to – '*know soil*'. There is also a need in early education and for the broader community to be aware of soil and its importance. This requires the adoption of education approaches that weave soil into a narrative, part of the art, included in the school garden, and shows the relevance of soil. Here soil may not be the focus of the learning but part of it and this approach is termed – '*an awareness*' of soil. The bridge between these two dimensions is those who need to know how soil is integrated into their work. This group maybe described as the agronomist, environmental policy maker, market analyst. They place a value on soil and therefore need enough soil knowledge to – '*know of*' soil. This framework is agnostic and can be used to scaffold many learning environments and this will be demonstrated in this talk using some exemplars. The adoption of a student-centered approach is essential as this is focused on know the needs of the student and ensures we as educators know what they need to know about soil. Making it real.



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