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INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

“INTEGRATING CLEANER PRODUCTION INTO SUSTAINABILITY STRATEGIES”

Emergy Accounting and CO₂ Emissions: Accessing and Remaining in the Physical and in the Virtual Learning Environment

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Abstract

The aim of this work is to compare the environmental cost of accessing and remaining in the physical learning environment, during a typical school night, by the students attending a technicians' level course of Management at the IFSULDEMINAS' (Federal Institute of Education, Science and Technology of the South of Minas Gerais) pole located in the city of Jacutinga-MG to the environmental cost resulting from a session -accessing and remaining for a given amount of time - on the virtual learning environment (VLE) by the students from the Inconfidentes-MG pole enrolled in a Distance Teaching version of a similar course carried by e-Tec (Open Technical School of Brazil) during a typical distance teaching study session. By means of emergy environmental accounting it was possible to verify that a typical virtual instruction session carried by students living in locations where the typical Brazilian matrix hydroelectricity is used to feed their computers will demand more from the environment than their counterparts' use of public transportation to commute to the physical classroom. On the other hand, calculations for CO₂ emissions caused by each system unveils a reverse situation, as far as environmental impact is concerned. This study also presents a simulation by which one is able to verify that a student who uses thermo-electric power from a Diesel-operated generator when accessing the VLE would cause higher CO₂ emission levels than does his counterpart who uses public transportation to go to and from school and use classroom facilities.

Keywords: *Distance Teaching, physical learning environment, emergy, VLE*

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