



E2C (Earth2Class) em Diamantina: Expanding a Model for Student Learning and Teacher Development

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Effective models for sharing cutting-edge research and innovative educational technologies with pre- and in-service teachers are rare in Brazil and many other countries. The “E2C em Diamantina” model was developed at the UFVJM (Federal University in the Valleys of Jequitinhonha and Mucuri) in Diamantina, State of Minas Gerais, to address such concerns. “E2C em Diamantina” is both an extension of the Earth2Class program based at the Lamont-Doherty Earth Observatory of Columbia University and a place-based response to local needs. The E2C model developed since 1998 at Lamont-Doherty centers around monthly Saturday workshops connecting scientists, teachers, and students. The accompanying website, <https://earth2class.org/site>, provides archived versions of these programs and a vast collection of educational resources, widely accessed by US teachers and students. Building on initial meetings at LDEO by a UFVJM visiting scholar and the E2C founder, and follow-up visits in Brazil, “E2C em Diamantina” was created with three UFVJM professors. As a first step, the team used the model and platform created for the E2C website to construct their “E2C em Diamantina” website, <https://earth2class.org/site/?p=12652>. It provides wider dissemination of related projects developed by the professors, such as Projeto GAIA (Geociências, Arte, Interdisciplinaridade e Aprendizagem) and LAUR+ (Laboratório de Estudos Urbanos e Regionais e de Práticas Pedagógicas) do Centro de Geociências da UFVJM (CeGEO-UFVJM). Next steps focused on identifying priority needs for pre-service students and in-service teachers. These resulted in the first “E2C em Diamantina Workshops,” held in November 2017. More than 70 undergraduate students, in-service teachers, and others attended this inaugural outreach event. The program opened with a full-group welcome and introduction to the E2C approach. Then, participants moved to three laboratories to engage in chosen hands-on activities. “Model Construction” presented 3-D student-constructed models of tectonic plates, biomes and Espinhaço Range Biosphere Reserve as effective communication resources. Participants learned about the power of cartography models as an effective method for representing space and studying scientific problems. “Geoscientific Video Production” provided training in using innovative instructional technologies to create a video about the rocks and minerals of the Serra do Espinhaço-MG. This strategy enhances skills vital for communication and production of regional didactic materials. The third workshop, “Mapping and Teaching using Drones Technology,” described factors that allow teachers to work with sets of GIS and cartographic skills, exploring mapping elements and establishing topological relations in their own communities. Response to all components and the general format for such professional development was highly favorable. Resources from the first Workshop have been added to the “E2C em Diamantina” website to provide more permanent access for participants and others who did not attend. Planning is now underway for the second Workshop and expanding website resources. The “E2C em Diamantina” program can serve as one model for developing similar projects to serve the needs of sharing research and technologies in other Brazilian universities and elsewhere. It is low-cost, establishes connections with recent graduates now in classrooms, and motivates creation of future programs.