LOCAL CHALLENGE PROJECT 2020: Accelerating the SDGs

SUSTAINABLE DEVELOPMENT THROUGH INNOVATIVE APPROACHES TO THE CURRICULA

PROJECT OVERVIEW

Sustainable Development Education (SDE) requires the integration of sustainability content, such as the consumption of natural resources, into the curriculum. It also necessitates changes in learning, teaching and assessment methods and developing participatory approaches that can engage and motivate students and result in actions towards a sustainable future (Nunez, et al, 2019). The proposal is that there is a need to accelerate the integration of sustainable development (SD) into the design curriculum and that this is of critical importance to contributing positively to Mexico's sustainable economic and social progress.

The project is part of a research that have included case studies, based on investigating student responses to curriculum interventions. These interventions seek to promote the development of SD competencies and with this goal, a complementary tool is being developed: an Online Space to: i) share the results of the current study (with a community of practice: professors and students); ii) establish the means for continuing to disseminate and debate pedagogical developments within SD; iii) share and promote curriculum contents on SDE for the Architecture and Design Bachelors and iv) explore the potential for key findings to be applied at a national level.


PROJECT PROCESS

1. Interviews with 23 academic and business experts in Mexico and England and a “Community of Practice” at Birmingham City University in relation to: 1. Key drivers for SD in Mexico, 2. Obstacles that are restricting SD, 3. Ways to reduce obstacles and restrictions; 4. Ways through which the Higher Education sector might contribute; 5. Current significant contexts and practices, 6. Sustainability-oriented innovations.

2. Application of 28 questionnaires to Design academic experts in 14 Mexican universities (broader nationwide survey of existing learning and teaching approaches in relation to SD in Design Higher Education).

3. Case studies at four campuses of Tecnológico de Monterrey (TEC), using: questionnaires to students, graduates and professors; as well as analysis, observation and photographic registration through the “walking interviews”, a method of participatory cultural mapping for systematic collection of information.

4. Intervention to the curriculum in the Puebla campus of TEC.

SDG CONSIDERED

The goal 9. "Industry, innovation and infrastructure" and the target 9.C. "Universal access to information and communications technology" are considered through the Online platform that is being developed to share the results of the study, establish the means disseminating and debate pedagogical developments within SD, share and promote curriculum contents on SDE and explore the potential for key findings to be applied at a national level.

Targets 11. "Sustainable cities and communities", 12. "Responsible consumption and production" and 13. "Climate action" have been integrated through the curriculum intervention that measures the development of related SD competencies.

Figure 1. The frameworks of the project related to the PND

The “Plan Nacional de Desarrollo (PND), is a five-year plan. It provides a basis for guiding the policies and programmes of the Government of the Mexican Republic. The 2013-2018 PND, published in 2013, was developed with citizen consultation and outlines the main objectives of public policies and establishes specific actions as well as progress measurement indicators. The focus of the PND is to bring Mexico to its full potential, the five goals, which are also the five progress measurement indicators, are: (1) Mexico in peace, (2) an inclusive Mexico, (3) Mexico with quality education, (4) a prosperous Mexico and (5) Mexico with global responsibility. According to the PND, innovation ‘can lead Mexico’ to raise the productivity of the country’s economy.

This project addresses the PND’s ‘quality education’ objective, to ‘make scientific, technological and innovation development pillars for sustainable economic and social progress’ (PND, 2013), see Figure 1.
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COMMUNITY ENGAGEMENT

The four phases mentioned in the project process section have implied the engagement of people: academic and business experts from 14 Mexican Universities and a University from the UK; students, graduates and professors from four TEC de Monterrey campus. Walking interviews, and an intervention to the Curricula at the Puebla campus utilizing interviews with students to gather data on their responses to the development of sustainability competencies. As well as the participation of 16 Architecture and Design professors who were asked to include sustainability contents and assessment criteria to the curriculum of the Design Workshop courses.

PROJECT OUTCOMES

The project leader received funding (~150,000 Mexican pesos) to develop the Online Space to promote the development of Sustainable Development Competencies. The funding was received from the NOVUS annual call of TEC de Monterrey that boosts innovation and educational experimentation projects at higher education. The funding can be used from September 2019 to June 2020.

Based on the students’ responses to the competencies survey, when comparing the semester in which the sustainability and assessment criteria were included in the curriculum via the first intervention (August—September 2018) to the previous semester, without the inclusion of these criteria (January—May 2018), the results show a marked advance, as a result of the intervention, in the students’ perceptions of their development of sustainability competencies. Figure 2, in the right, shows the results of the last survey application in November 2019 (design students).

Figure 2. Results of the November 2019 Survey Application

PROJECT IMPACT

• The pedagogical approach has already shown the potential to contribute significantly to sustainable development education in Mexico. The results of the curriculum intervention so far demonstrate that the students can better recognize their development of sustainability competencies.

• The collaborative environment supports the TEC21 Educational Model with respect to the development of competencies. The Online Space will be the first at TEC to focus on sustainable development competencies for architects and designers.

• The Online Space, open to all the campuses, will facilitate communication and promote debate on pedagogical developments in the field of sustainable development as well as share and develop curriculum contents on Sustainable Development for the Architecture and Design Bachelors.

PROJECT TAKeways

• Today’s students use digital tools in all aspects of their lives: communication, socialization, entertainment, organization and learning. The design of effective digital tools has become important in developing relevant pedagogical methods and approaches.

• The proposal is creating a unique learning environment that allows a scheme of accessible and diverse materials on SD for the Architecture and Design bachelors, as a complement to the classes.

• The Online Space enables access, communication and debate on pedagogical developments relevant to SD across the university campuses.

• Future work can consider extending the findings of the project to inform the development of SD competencies applicable to the rest of the Bachelors’ courses.