THE INTEGRATION OF SDGs IN CURRICULA

Are you ready to make a difference in your academic work and contribute to the Sustainable Development Goals (SDGs)?

We invite you to integrate the SDGs in your courses by following the methodology proposed by the TSC Model that is described below.

The TSC Model

The TSC model (Granados-Sánchez, 2022) emerged as a critical analysis of existing models and proposals and by considering an emerging theory and practice of transformative change related to the SDGs implementation. The TSC model is structured in three levels of transformation and in eight elements.

LEVELS OF TRANSFORMATION

1. The adaptation level. This stage means abandoning the status quo to start introducing curricular changes that promote sustainability and the SDGs. Actions in the adaptation stage are characterised by isolated and disconnected individual actions. This makes them fragmentary sustainability projects with limited impact. In the case of the curriculum, they are usually interventions that affect a course and that are circumscribed in the classroom and that are not usually connected with a joint strategy of the educational institution. The classroom, the educational institution and the community are sealed compartments with no unifying relationship or strategy addressing sustainability. The adaptation stage represents a first-order level of change, since the change occurs within the same system and aims to do things better, in a somewhat more sustainable way. It is a style of education that provides knowledge about sustainable development. To do this, it is about adapting and correcting different aspects of teaching practice and adding some new aspects of ESD, so that students can acquire a basic education on concepts, themes, skills and values of sustainability (learning within the paradigm that does not change the paradigm itself).

2. The reform level. The main ideas that underlie the reform scenario are: the permeability between the classroom, the educational institution and the community. As a consequence, this approach implies working with others, opening up to dialogue between subjects and other fields of knowledge and implementing joint actions in the institution itself or with other institutions. Thus, subjects and

disciplines start working together using multidisciplinary or interdisciplinary approaches. The community is used as an object of study and involves work in the community and for the community, but without the community. It represents a second-order level of change, which implies the creation of new meanings. In terms of learning, it implies a double-loop learning that goes beyond the cognitive aspects and emphasises participatory learning and learning for action, levels of reflection and a holistic viewpoint.

3. The transformation level. Curricular sustainability that is situated in a transforming stage makes it essential that what happens in the classroom is connected with what is experienced in the school and the community. It is about adopting a transdisciplinary approach that embraces scientific and other types of knowledge, as well as ideological perspectives and value systems. Transformative learning is third-order learning that allows the recognition of a paradigm for its subsequent reconstruction. This type of learning includes everything that is related with being human and involves a clarification of values and beliefs, and a new way of perceiving and learning (re-cognition) that includes both intellectual and emotional aspects and intuition.

STRUCTURING ELEMENTS

- **The perspectives of sustainable development and the SDGs**. There are three major different perspectives to understand and address sustainable development: the traditional perspective or improvement of current systems, which continue to favour economic growth; the reform perspective, which focuses on the transition to sustainability through technological innovation; and the perspective of transformation, which proposes a change in the prevailing value system in society, as well as a restructuring of power relations.

- **Sustainability Education (ESD).** There are several approaches in relation to ESD: a). An education about sustainable development (and the SDGs). b). An education that promotes sustainable development. c). A sustainable education that implies learning by living sustainably and contributing in the achievement of the SDGs. This last type of education is a transformative learning process in which students experience sustainable development by doing and living it.

- **Institutional integration.** Traditionally, curricular sustainability has been understood to mean just changes in the curriculum and in-classroom programming. In those initial approaches, the operationalization of curricular sustainability consisted in defining themes for each course, the identification of possibilities for embedding, the implementation and the assessment. The process was differentiated in terms of adaptation (where changes were implemented on an existing curriculum) and genesis (when the creation of a program or curriculum occurs from scratch). Today, we understand that curricular sustainability transcends the mere curriculum and what is taught and learned must be in tune with the reality of the educational institution in all its dimensions. For this reason, we must contemplate the integration of the actions that are implemented in the four key areas of educational institutions: direction and management; teaching and learning; research and knowledge creation; and the relationship with the community.

- Knowledge. All subjects can contribute towards achieving the SDGs, but knowledge for sustainable development must be transdisciplinary, since it transcends subjects and implies the interrelation between fields of scientific knowledge and other areas of knowledge and manners of knowing.

- Learning. The process of achieving sustainability implies a transformative learning process. Transformative learning affects all dimensions of the human person and therefore alters feelings, thoughts, and actions. There are three levels of knowing, or orders in learning and change. The first order is focused on cognition. The second order includes metacognition, while the third order entails epistemic learning and change. The third-order change is the most transformative one because the learner reflects and transforms his/her worldview. Transformative learning transcends the intellectual process and the reflection phase, and individuals should show action engagement by planning a course of action, experiencing new roles, testing, and integrating solutions into their lives. Learning ecologies are described as temporary learning experiences that unite different agents and social groups through community sustainability challenges. Those experiences imply the development of trust, social cohesion and the exchange of perspectives and knowledge, as well as constituting a way of learning to work in cooperation with others, which in turn opens the door to new challenges and projects.

- Context. The actions for a sustainable curriculum that teachers wish to undertake should be circumscribed in a context. There are three types of contexts: a context of isolation is when there is not communication between educational spaces and structures, both horizontal and vertical. A context of connection is when spaces and structures are permeable, and it enables communication and collaboration. And a context of interrelationship is where a common vision is shared, the community is committed and works for the common good. According to transformative learning theory, the context is key in determining the learning conditions.

- Change. What is needed in education today is a systems design approach to educational change that considers the scope of the change process, the focus of the change process and the relationship between the educational system and other systems in the community. The scope and the expected level of change or transformation must be clear (whether it is partial or systemic, and if it supposes a micro, meso or macro scale), realistic and feasible (know what possibilities exist and which can be created).

- The community. The concept of community is linked to aspects such as territory and geographical location, identity, the circumstances of a common problem, interest in and affiliation to a group, or a collective [78]. There is a need to define what we understand by community, and what place and role is ascribed to it in our courses.

Table 1. Synthesis of the TSC Model

ELEMENTS	LEVELS OF TRANSFORMATION		
	ADAPTATION	**REFORM**	**TRANSFORMATION**
PERSPECTIVE OF SD & SDGs	Sustainable development and the SDGs framework focus on improving current systems and structures.	Sustainable development is a process that should be brought about through technological innovation.	Sustainable development implies changing the system.
ESD TYPE	It is an education about sustainability and sustainable development and has an adaptive purpose.	Education for sustainability. This is education that shows how to move towards sustainability.	This is sustainable education or education as sustainability, which encourages living in a sustainable way arising from educational practice.
CONTEXT	The context is limited to the classroom and has a low impact on the promotion of change of the current situation.	The context of action is the educational institution.	The context is variable: it integrates various scales, from local to global, depending on the object of the action or project and the partnership created.
INSTITUTIONAL INTEGRATION	Internal actions in the fields of management, research, teaching and learning and the relationship with the community could exist, but there are no interconnections between these actions.	An institutional strategy or project is created which integrates and designs sustainability in its own systems in a unitary way. In this way, there is a connection and coherence between the measures adopted in the different institutional areas. There is an overall vision and a strategy or project for the institution.	Creation of alliances for the co-creation of sustainable initiatives that go beyond the institution and link it to various groups and social actors in the community.
TYPE OF KNOWLEDGE	Knowledge is disciplinary (geographical analysis). Geography provides knowledge about how the SDGs are advancing and/or met around the world.	Knowledge is interdisciplinary, with a holistic and synthetic view of geography. It is a knowledge for acting upon the SDGs (normally focused on one or few SDGs at the same time).	Knowledge is comprehensive as it brings together all human facets. It includes different types of knowledge and ways of knowing (ecology of knowledge). It is complex, transdisciplinary, and integrative (since it includes different perspectives, values and/or ideologies). SDGs must be tackled in an integrative way, so holistic approaches to knowledge are required.
LEARNING	Student learning is cognitive (mainly conceptual and factual) and focused on the individual. Assessment is based on geographic content related to the SDGs.	Learning is cooperative and a learning community is created. Learning is systemic and includes individual and collective assessment through metacognition and reflection on what has been learned and developed, and its relevance for sustainable development.	It implies a higher order learning of all those involved, in which they acquire a new perspective on reality and on how to approach it. Learning sustainability from creating, experiencing, and living it. Assessment: transdisciplinary and transformative competence (what involves working with others for the implementation of actions for sustainability).
TYPE OF CHANGE	Teachers who carry out adaptations for curricular sustainability change their teaching practices and incorporate new methodologies specific to ESD.	Whole institutional change: the change involves a profound reform of the organisation and its operations in its entirety.	There is a transformation of reality as a result of the co-creation of collective actions. This process constitutes a paradigmatic reconstruction in which new meanings are co-created and shared.
THE COMMUNITY	The community is conceived in two ways: as an object of study and as a source of information for disciplinary study.	It is an external reality with which the educational community interacts.	There are diverse communities, which are common spaces that are the object of involvement and co-responsibility for the co-creation of fairer and more sustainable realities.