Refereed article

Changing the Educational Landscape in India by Transnational Policies: New Perspectives Promoted Through Education for Sustainable Development (ESD)

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Summary

Transnational educational policies are challenging current pedagogic practices in India. The United Nations Decade of "Education for Sustainable Development" (UNDESD, 2005 to 2014) is based on constructivist concepts of learning, and encourages the ongoing transformation from an authoritarian to a participative, student-oriented teaching methodology. The implementation of this global educational initiative in a local developing context is examined in this paper by applying the arguments of Basil Bernstein's (1990) *Sociological Theory of Pedagogy*. Power relations (classification) and control mechanisms (framing) present in Indian classroom teaching as well as current teaching methods and content — specifically on the topic of "water," as taught in Geography lessons — are analyzed in this paper on the basis of classroom observation and of policy and textbook analysis at English-medium schools in Pune. It is elucidated how traditional pedagogic practices, cultural constructions, and social hierarchies are fundamentally challenged. The central role of teachers and textbooks indicate the opportunities and challenges for the current transition process from performance-oriented to competence-based pedagogic practice in the Indian educational system. Furthermore, the potential that transnational educational policies have to effect social transformation is addressed.

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Global change through Education for Sustainable Development

In the classroom of an Indian English-medium school up to 60 students, all in school uniform, are sitting in rows at tables bolted to the floor. Their attention is directed toward their teacher upfront, who is reading facts from a textbook — often the only available educational resource. Knowledge is acquired by rote learning and it is then reproduced in regularly occurring examinations. The more that the students can memorize, the better their grades are. These impressions are based on observations made between January 2012 and February 2013 in 26 classrooms across nine different English-medium schools in Pune, situated in the state of Maharashtra.[1]

In contrast to this reality, educational research shows that student-oriented, cooperative, and communicative teaching methods are central to successful learning. As constructivist learning theories propose, the promotion of thinking within networks, interactive learning, and argumentation skills help students to develop a deep understanding of the subject in question's contents (cf. Budke 2012; Reich 2007; Vester 2002). This hypothesis is also supported by neurodidactic and psychological research, which promote brain-based learning (Spitzer 2007). Besides being a scientific concern, these principles were also a central premise of the United Nations Decade of "Education for Sustainable Development" (UNDESD, 2005 to 2014). To promote the idea that "everyone [herewith] has the opportunity to benefit from quality education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation" (UNESCO 2005: 6), ESD encourages the understanding of complex, interdisciplinary, and controversial topics of present and future concern interlinking the social, ecological, and environmental factors relevant to students' everyday lives. Methodologically, ESD is aimed at promoting systemic and critical thinking, decision-making, and communication skills so as to solve problems, increase the willingness to act, and encourage responsible participation in societal decision-making processes (UNESCO 2005).

ESD came about as the result of growing international political concern over environmental degradation and the depletion of natural resources worldwide (cf. Table 1). At the UN Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, 172 countries — India included — agreed on the new guiding principle of "Sustainable Development" as a way to reduce the use of natural resources by future generations — as had been originally suggested in the Brundtland Report (WCED 1987, Ch. 2). In the key action program "Agenda 21," education is seen as a "means of implementation" (UNCED 1992, Agenda 21, §36.3) of the now required strengthening of sustainable lifestyles through responsible resource usage. Governments worldwide are being hereby encouraged to

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1   Furthermore, the observations were triangulated with the findings from interviews conducted with educational experts, teachers, and students in Pune and Delhi between February 2012 and December 2013.

promote societal participation by establishing knowledge, values, and skills on sustainability as integral parts of their respective national school curricula:

> A thorough review of curricula should be undertaken to ensure a multidisciplinary approach, with environment and development issues and their socio-cultural and demographic aspects and linkages [being taken into consideration]. (UNCED 1992, Agenda 21, Paragraph 36.5b)

At the UN's Johannesburg Summit in 2002, ESD was concretized in the Johannesburg Plan of Implementation. The UNDESD was resolved upon at the UN General Assembly meeting held in December 2002. In 2012, 20 years after the UNCED in Rio de Janeiro, 192 member state representatives — again including India — reaffirmed their commitment to the idea of ESD in Agenda 21 beyond the UNDESD, specifically in the form of a nonbinding document entitled "The Future We Want." Herein it was suggested "to prepare people to pursue sustainable development, including through enhanced teacher training (and) the development of curricula around sustainability" (UNGA 2012: 230). Ongoing political support for ESD has helped develop the idea into a powerful tool with which to critically challenge educational methods and content in classroom teaching in practice, specifically for the benefit of school education in a globalized, environmentally degrading world that is at present experiencing rapidly changing life conditions.

Table 1: Key events in the evolution of ESD in global politics

Year	Conference/ Report/Policy	Focus	Details
1972	UN Conference on the Human Environment in Stockholm	1st UN Conference on environment, beginning of international environment politics, resolution to found the UNEP Inclusion of "Environmental Education" as one of the 26 principles of the Stockholm Declaration	Principle 19: "Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension. It is also essential that mass media of communications avoid contributing to the deterioration of the environment, but, on the contrary, disseminates information of an educational nature on the need to project and improve the environment in order to enable man to develop in every respect."
1977	UNESCO/UNEP: First Intergovernmental Conference on "Environmental Education" in Tiflis	Substantiation of objectives of Environmental Education	Tbilisi Declaration defining the role, objectives and principles of interdisciplinary Environment Education; responsibility and solidarity for the survival and wellbeing of all people
1987	UN World Commission on Environment and Development (WCED): Brundtland Report "Our Common Future"	"Sustainable Development" is the new guiding principle of global environment and development policy	Definition of Sustainable Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Taken as the basis for the 1992 UNCED conference in Rio de Janeiro and for the adoption of Agenda 21

Year	Conference/ Report/Policy	Focus	Details
1990	Jomtien Conference	"Education for All"	Targets to be reached by 2000: - universal access to learning - a focus on equity - emphasis on learning outcomes - broadening the means and the scope of basic education - enhancing the environment for learning - strengthening partnerships
1992	UN Conference on Environment and Development (UNCED) in Rio de Janeiro	Agenda 21 is passed and the new guiding principle is "Education for Sustainable Development"	Initiation of global environmental politics, Reorienting of education toward Sustainable Development
2000	UN Millennium Development Goals (MDGs)	Achieving universal primary education and ensuring environmental sustainability	Eight targets focusing on reducing the gender gap in literacy, biodiversity loss and environmental resources depletion through country policy programs integrating principles of Sustainable Development
2002	World Summit on Sustainable Development (WSSD) in Johannesburg	Decision for the UN Decade of "Education for Sustainable Development" (UNDESD) from 2005–2014	International Implementation Scheme for the UNDESD; Each year a topic, e.g. 2008: Water, 2009: Energy, 2011: City.
2012	UN Conference on Sustainable Development (UNCSD) in Rio de Janeiro	Document: "The Future We Want"	Reaffirmation of the right to education and universal access to primary education
2015	UN Post-2015 Agenda	Development of a global development framework beyond the MDGs' target date of 2015	Report on "A New Global Partnership: Eradicate Poverty and Transform Economies Through Sustainable Development"

Source: Authors' own compilation.

The goals of ESD pose a challenge to the current realities of the classroom in India, as rote learning is still prevalent in most of the country's schools. In the report "Learning Without Burden" submitted by the National Advisory Committee to the Ministry of Human Resource Development of the Government of India, Yash Pal revealed the existence of the convention of "teaching the text" and "an examination system which focuses on information rather than on skills" (1993: 19f.). Sriprakash (2010) observed the "tensions" experienced by teachers when introducing child-centered pedagogic approaches to the classroom. Her study exemplified that these pedagogic models, rather than empower students with skills for democratic participation, in fact "reinforce social messages of control and hierarchy relayed to children" (Sriprakash 2010: 304).

Thus, ESD needs to be reinterpreted for every sociocultural context — not only in developing or newly industrializing countries, but for all national, regional, and local contexts worldwide (cf. Manteaw 2012). UN policies and directives are developed from a generalized — and often Western — viewpoint and, consequently, fail to take regional and social differences into account. To effectively link educational reforms to existent local structures and practices and to identify appropriate teaching methods and content for ESD, an understanding of each respective educational system and sociocultural context of teaching is a fundamental necessity. The microlevel of classroom interactions are embedded in the macrolevel, which are the institutional framework, the sociocultural system, and the infrastructure of a given educational system which greatly influence the conditions under which teaching and learning take place. Institutional standards for teacher training, curricula, syllabi and textbooks — as the central information medium for teachers and students alike — prescribe the content of teaching as well as the time available and knowledge necessary for passing examinations.

In light of this, it is important to see ESD as a broad concept that can be culturally adapted and thereby used to reorientate local curricula, textbooks, and both pre- and in-service teacher training. Furthermore, ESD should be a "decisive element of quality education [...] as ESD makes teaching and learning more meaningful, makes what is learned more relevant, increases the motivation of learners, and raises over-all performance results" (de Haan et al. 2010: 202). Especially in Pune, an emerging megacity of the newly industrializing country of India, Sustainable Development requires a comprehensive problem-, process- and people-oriented approach being taken in order to address the environmental and social challenges of global change (cf. Kraas 2007) — specifically because Pune is a complex and globalizing market-driven urban setting. In India, much of what children know and believe to be true is strongly influenced by traditional knowledge, religious beliefs, and cultural influences that have been absorbed through familial behavioral patterns at home, in the neighborhood, and outside the school environment. The ratio of this mix is influenced by the country's stark socioeconomic disparities, a remarkable urban–rural divide, and the complex urban locality in which children live. Further, the multiple different school systems (such as public/private, English-medium/local vernacular) also contribute their own idiosyncrasies to the country's teaching and learning processes. This produces a great educational heterogeneity within India.

Hence, the current state of pedagogic practices in each respective sociocultural context must first be investigated before introducing new learning arrangements in classrooms. Central to this understanding is the social position of the teacher, as well as the teaching content and methods, because teaching techniques that encourage critical thinking challenge the established hierarchical teacher–student relationship. This iconoclasm can lead to the questioning of the culturally and historically founded authority of the teacher, and its tenets contrast with those of existing classroom and teaching structures. To make educational policies such as ESD "locally

relevant and culturally appropriate" (McKeown 2002: 7) and thereby build bridges between the old and the new, it is thus essential to be familiar with longstanding cultural constructions and social hierarchies.

Research gap: ESD in Indian classrooms

The implementation of ESD as transnational educational objective in local teaching contexts has hitherto been explored by only a small number of academic studies (Mulà and Tilbury 2009). As ESD is of political and not scientific origin, consensus on a standard theoretical framework or empirical approach for this that uses investigation and evaluation methods is currently missing. This has led to several examinations being made in different cultural contexts under various conditions and with alternate objectives. Studies on ESD mainly focus on the stakeholders at the institutional level and in its programs, rather than on individuals at the classroom level per se (Tilbury 2007). Only a few studies have analyzed teaching methods and content in developing countries, and specifically pedagogic practices in Indian classrooms (Clarke 2003; Sriprakash 2012). To develop concrete pedagogical directives for the implementation of ESD on the local level, the didactical consequences for ESD teaching need to be derived for specific sociocultural contexts (Fien and Maclean 2000). Every subject qualifies for ESD coverage, but given that Geography includes human–environment relations and resource utilization it was thus selected as the basis on which to examine ESD principles — specifically, with regard to the topic of "water." Taking a case study from Pune, this paper contributes to the identification and analysis of the possible interlinkages between the global concept of ESD and local implementation opportunities. The following questions are herein addressed:

1. How are the current teaching content and methods for Geography in English-medium schools in Pune/India embedded in the local sociocultural context, and how do they relate to the principles of ESD?

2. What opportunities and challenges does the transnational policy of ESD offer to traditional pedagogic practices in Indian classrooms?

To answer these questions, first, in the next section the performance and competence model of pedagogy formulated by Basil Bernstein (1990) is introduced. The challenges that the transnational educational objectives of ESD pose to local contexts in Pune are then investigated by taking into account local sociocultural, structural, and institutional barriers. Following on, the development and objectives of ESD and the current structures and reforms in the Indian educational system are then outlined. Pedagogic practices are characterized by using the example of the topic "water," as taught in Geography lessons at English-medium schools in Pune. Methods and content are described by way of textbook analysis and classroom observations at nine different schools. On this basis, the degree of fit of ESD to English-medium schools in Pune and any new perspectives that have been successfully promoted through this

policy are investigated with the help of Bernstein's model. His *Sociological Theory of Pedagogy* (1975–1990) stresses the importance of sociohistorically founded power and control in defining the traditional teacher–student relationship.

The challenges posed by transnational educational objectives to local contexts

The implementation of transnational educational objectives represents a challenge to local contexts, especially in developing and newly industrializing countries. Such locations are currently struggling with limited financial and human resources, as well as with ingrained resistance or indifference to changes being made in existing hierarchical power structures and institutional frameworks. The demand for student-oriented teaching methods appears difficult to satiate if basic equipment and sufficient teacher training are lacking. That said, the hitherto difficult realization of ESD is, however, not only a problem of resources. Bonnett, for example, stresses the importance of the life conditions of different countries, stating that "environmental problems and sustainable solutions are historically, geographically and culturally local" (1999: 319). Hence, every society has "to produce its own solutions, for no other society has precisely its capacities, faces its problems, nor has the same possibilities for 'internal' insight into them" (Bonnett 1999: 319). Nevertheless, the "template transfer" (Manteaw 2012) of programs originating from Western industrialized cultures to developing and newly industrialized countries is still common practice. In pursuance of prescriptive standards, local conditions (such as a lack of infrastructure, educational ownership, methodological knowledge and skills) often, however, make it impossible to sustain the implementation or application of standardized program frameworks in the long run.

As a consequence of being an idea originating out of multilateral conferences, ESD has undergone a process of "translation" through different stakeholders operating in different local contexts around the world (Merry 2006). As a transnational "travelling model," ESD is illustrative of how "ideas assembled in one site connect with meanings and practices in another" (Behrends et al. 2014: 4). On different levels, policies are "reworked, reinterpreted, and reenacted contextually" (Mukhopadhyay and Sriprakash 2011: 323) by a variety of national, state, regional, and local stakeholders. Through this, transnational educational objectives are interpreted and transformed in the context of each country's cultural systems and historical developments, both having a significant influence on the educational system. Educational systems not only reflect principles that are regional or national in origin but also intermingle with the latest international political trends. These principles can contain notions of political values (such as "hierarchic" or "democratic principles") that are subsequently reinterpreted in the respective educational systems. For example, British colonialism had major structural, contextual, and methodological effects on India's educational system — ones that continue to influence its institutions,

processes, and output (syllabi, textbooks, and examinations) to this day (Krishna Kumar 1988, 2005; Rothermund 2008).

Whereas "educational quality" often refers to the pedagogies of child-centered, constructivist, or competence-based education, this particular rhetoric is criticized for belonging to a "dominant neoliberal development paradigm, which has tied social and political democratization to economic advancement" (Sriprakash 2012: 1f.). With reference to African countries, Manteaw concludes that the "interpretation of the concept of Sustainable Development from a 'globalist perspective' is not only theoretical and idealistic, but also an indication of [a] geopolitical power-play which tends to privilege hegemonic understandings of the concept" (2012: 381). Thus, it is fundamentally important to understand that "pedagogy is a moral and political practice that is always implicated in power relations" (Giroux 2004: 33). Teaching methods and the content of a particular school subject are not "something unique or logical, but are defined by what those who regulate and control the curriculum believe to be the most useful and desirable [ways] to benefit society. They are social, not logical, facts" (Clark 2005: 36). Stakeholders from politics and science influence the public education discourse, which becomes implemented in schools by political decision-makers and administrative regulations. Hence, school education is always definitively marked by contemporary societal, political, and economic contexts and currents.

Bernstein's *Sociological Theory of Pedagogy*

The British sociologist Basil Bernstein (1924–2000) interpreted the educational system as a site of cultural reproduction that "plays a key role in transmitting [the] dominant ideologies of the society" (Clark 2005: 32) within which it is located. Bernstein's theory argues that pedagogic discourses and practices are a "relay for power relations external to [them]" (1990: 168). Curricula, syllabi, and textbooks are "products" of the educational system and reflect current sociocultural standards. Yet, pedagogic practices are not only a site of reproduction; at the same time, it can also be a hub for social transformation: "Schools, then, and the curriculum which they teach, are at one and the same time sites of cultural reproduction and of potential future transformations" (Clark 2005: 44).

Bernstein's *Sociological Theory of Pedagogy* provides concepts with which to describe and analyze teaching and learning in social contexts. He differentiates between the various principles of control mechanisms and of power relations that are found in pedagogic practices and discourse. The application of Bernstein's concepts thus enables us to analyze the messages vis-à-vis social order — as well as their underlying assumptions — that are found in any given textbooks, syllabi, classroom practices, and teacher training courses (Morais and Neves 2001).

In order to understand if, how, and why the transnational objective of ESD with regard to student-centered approaches fits into the Indian context, Bernstein's

concept can be used to link the microlevel of interactions in the classroom with the macrolevel of overlying sociocultural power structures and control mechanisms. Morais (2002) also identifies a mesolevel of teacher education and syllabi. By embedding pedagogic practices in the meso- and macro-levels, it can be understood in the context of its surrounding sociocultural context. Bernstein offers in-depth views on how to analyze classroom structure so as to understand the basic differences of social hierarchies, and thus his concepts can be used to bring into view simple dichotomies between teacher-centered and student-centered pedagogies in a more nuanced way. Furthermore, the analysis of sociocultural constructs in classroom teaching can help us to understand the challenges to implementing ESD — and how new forms of instruction are interpreted by teachers. Teacher and student roles in a specific sociocultural context are investigated to ascertain how ESD can function as an opportunity for innovative pedagogic practices to take hold in Indian classrooms.

Bernstein elsewhere states that "how a society selects, classifies, distributes, transmits and evaluates the educational knowledge it considers to be public reflects both the distribution of power and the principles of social control" (1977: 85). To describe power, Bernstein uses the term "classification" — referring to the "degree of insulation between categories of discourse, agents, practices, contexts and provides recognition rules for both transmitters and acquirers for the degree of specialization of their texts" (1990: 214). Control is described by way of the term "framing," which refers to the "principle regulating the communicative practices [...] between transmitters and acquirers" (Bernstein 1990: 36). When framing is strong, the transmitter (teacher) controls the selection, organization, and pacing criteria of knowledge. The position, posture, and dress of the communicants, together with the arrangement of the physical space, explicitly indicate the nature of the contemporary social order. If framing is weak, the acquirer (student) has more control over these criteria of communication.

Based on the theory of the educational codes of framing and classification, Bernstein (1975) distinguishes between two generic ideal-types of pedagogic practices: visible and invisible. These opposing concepts can explain the currently used teaching methods (Figure 1). In visible pedagogy, framing and classification are strong. Power relations are explicit, and the selection, organization, and pacing of knowledge are all prescribed. Student performance is important, being measured by the external product of the acquirer. Due to the strong emphasis placed herein on the students' graded examinations, with "an evaluation orientation that focuses on absences (of content, skill, etc.)" (Sriprakash 2010: 298), Bernstein calls this the "performance model" of pedagogic practice.

In invisible pedagogy, meanwhile, framing and classification are weak and the criteria of the selection, organization, pacing, and evaluation of knowledge are only implicit. Invisible pedagogy, which has a rather progressive connotation, focuses more on the student's own internal cognitive, linguistic, affective, and motivational

procedures (Sriprakash 2010). Invisible pedagogy indicates how the boundaries between social relations and learning are merely implicit. In contrast to visible pedagogy, teaching materials herein are "less likely to be pre-packaged (for instance, textbooks) as the degree of teacher autonomy over the interaction is expanded" (Bernstein 1975: 9). In this "competence model" of pedagogy, the student is given space to explore, select, structure, regulate, and rearrange teaching content, while the teacher's role is to be the facilitator of these processes.

Figure 1: Bernstein's performance and competence models of pedagogy

Traditional teaching methods in India: visible pedagogic practice	ESD methods: invisible pedagogic practice
Control: F+ (strong framing) (e.g. extensive talking by the teacher)	Control: F- (weak framing) (e.g. group discussions among students)
Power: C+ (strong classifications) (e.g. clearly prestructured answers)	Power: C- (weak classifications) (e.g. open questions)
Performance	Transformative Pedagogy ⇨	Competence

Source: Authors' own compilation.

Behaviorist, conservative theories of instruction focusing on transmission are visible pedagogies, whereas interactional, progressive theories — such as those of Piaget (1962) and Vygotsky (1962, 1978) — focus on acquisition and are thus supportive of invisible pedagogies (Bernstein 1990). Since ESD underlies a constructivist understanding of learning that promotes student-centered teaching methodologies and flat hierarchies with flexible evaluation criteria and a strong focus on the learning process and on skill development, it is hypothetically an advocate of invisible pedagogic practices. The teacher is meant to have the role of facilitator, and thus classroom interaction is supposed to be weakly framed. Power relations are implicit, and consequently classification is weak. Using Bernstein's terminology, ESD thus represents a competence model of instruction — that is, one marked by weak framing and weak classification. In contrast to ESD, framing and classification of traditional Indian teaching methods are strong. Thus, as a form of invisible pedagogy ESD would need for its success to be culturally adapted to fit with the prevalent visible pedagogy of the contemporary Indian context.

The structure of the Indian educational system

Due to the existence of interrelated administrative bodies, each with multiple responsibilities on the district, state, and national levels, the Indian educational system is a complex and highly diverse entity (Fig. 2). Education is on the so-called

"Concurrent List," which means that it is of concern to both national and state governments in India. The national government ministry responsible for education is the Ministry of Human Resource Development (MHRD), whereas Environmental Education falls under the mandate of the Ministry of Environment and Education (MoEF). This division of labor leads to unclear responsibilities for Environmental Education in schools, because the MHRD does not feel it is responsible for environment education while the MoEF is not concerned with formal school education. The National Council for Educational Research and Training (NCERT), meanwhile, is the executive authority charged with overseeing the development and implementation of educational policies and programs. Both within the most recent (2005) National Curriculum Framework (NCF) and in other publications, the NCERT has provided educational guidelines and developed and revised national curricula and textbooks for each subject. State Councils for Education, Research, and Training (SCERTs) as well as the state textbook bureaus orient their syllabi and textbooks toward NCERT samples. In fact, the SCERTs and the State Textbook Bureaus have full autonomy on public educational matters. However, educational policies are not necessarily effective on the state level, as the Maharashtra state board, for example, has not taken any initiatives to explicitly include ESD principles in their textbooks.

NCERT textbooks are based on the content of the board examinations taken in Class 12, which are developed by the Central Board of Secondary Education (CBSE). These board examinations have to be passed if one is to gain entrance to the country's universities. A number of educational boards each having their own curricula, textbooks, and examinations currently coexist, being funded from either public or private sources (educational trusts, nongovernmental organizations, etc.). Schools can be governmental (public), private, or semiprivate. The most common school type is the so-called "government school" existing at the municipal level, lying under the authority of the District Institutes of Education and Training (DIETs) and Municipal Corporations (MCs). Government schools usually follow the public state board.

The Indian educational system faces multiple development challenges: The national literacy rate, used as an overall important index for development, improved from 65 percent in 2001 to 74 percent by 2011 (Census of India 2011a). Nevertheless, the public school system still to this day lacks basic infrastructural equipment and experiences ongoing administrative issues. Other core problems are low student attendance (Census of India 2011a), high dropout rates, insufficient infrastructure and learning materials, inadequate teacher education, and low teacher attendance (Census of India 2011a). In particular, great discrepancies exist between Indian urban and rural schools with concern to access to, as well as the quality of, schooling (Census of India 2011b). Within cities, stark disparities also exist: private schools generally provide a high-level education, while public schools often lack financial and human resources — resulting in overcrowded classrooms, insufficient teaching materials, and inadequate pre- and in-service teacher training programs.

This results in intra-urban disparities in terms of access to schooling, and in a close correlation between the quality of school attended and the socioeconomic background of the student's parents (Census of India 2011b).

Figure 2: The structure of the Indian educational system
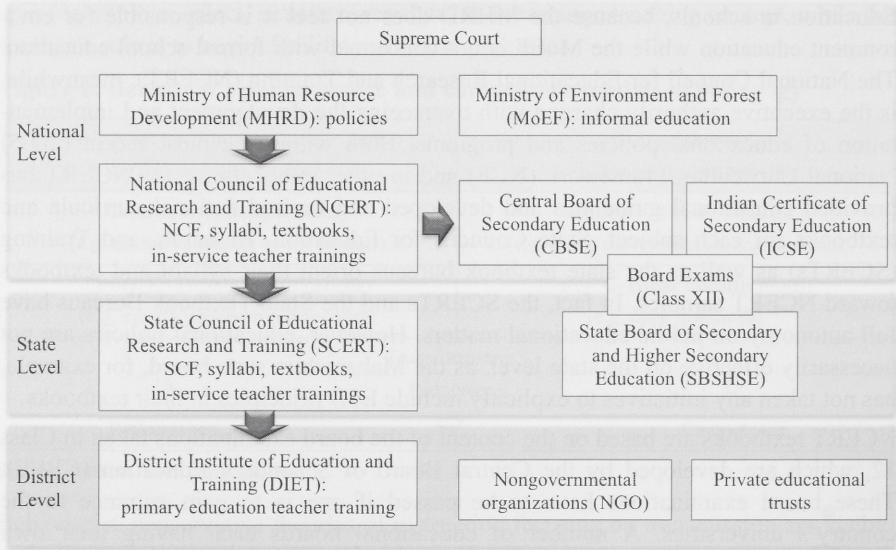
Source: Authors' own compilation.

Educational reforms in India

In the last two decades the Indian educational system has undergone many reforms (see Table 2). Transnational policies such as the MDGs have yielded an increased number of students enrolling in Indian schools by providing basic classroom infrastructure and equipment, especially in rural areas. As a result, members of the scheduled castes and girls have been able to surmount the deep social divides that previously precluded them from receiving an education. National policies by the Government of India (GoI) — such as "Sarva Shiksha Abhiyan" (SSA), the Indian "Education for All" movement — have also been aimed at the universalization of elementary education and the reduction of school dropout rates. In training programs, teachers were sensitized to tribal language, culture, and knowledge systems as well as to activity-based learning methods. Schemes such as the "Operation Blackboard," meanwhile, focused on the improvement of school facilities — for example in the form of the provision of separate toilet facilities for boys and girls, of two teachers per school, and of such learning materials as blackboards, maps, and charts.

The Right of Children to Free and Compulsory Education (RTE) Act was passed by the Indian parliament in 2009, and provides free education to all children between the ages of six and 14 as a fundamental right prescribed under Article 21A of the constitution. Among its many antidiscrimination clauses, the RTE Act also includes the stipulation that federal governments must provide elementary schools within a walking distance of 1 kilometer from every home and secondary schools within 3 km thereof. In addition, free textbooks, writing materials, and uniforms, free special learning, and supporting materials for children with disabilities are a requirement, as is 25 percent of seats needing to be reserved in private schools for scheduled caste children from lower economic classes.

As an attempt to individualize the existing strict examination structures and to reduce the stress experienced in the course of final board exams, continuous and comprehensive examination (CCE) was introduced for Classes 6 to 10. For this, teachers need to write reports for every student after each lesson. Consequently, students are evaluated not only by summative but also by formative assessment. In practice, the implementation of CCE is difficult because of the high number of students per class, often amounting to around 60 learners.

Table 2: Steps taken in the reform of educational policies in India

Year	Policy/Report	Focus	Details
1986	National Policy of Education (NPE)	Creation of national system of education capable of responding to India's diversity of geographical and cultural milieus, while also ensuring common values and competencies along with shared academic components	Common core component in school curriculum throughout the country, achieved through the NCF formulated by NCERT
1987	Operation Blackboard	Program for blackboards and other crucial facilities in government schools	Equipment for schools and teacher training programs on how to use materials
1991	Supreme Court (SC) accepts the Public Interest Litigation (PIL) by the environmental lawyer M. C. Mehta	Decision to strengthen Environmental Education in the national educational system	Introduction of Environmental Education in all subjects or as a separate subject
1993	"Learning Without Burden" report of the National Advisory Committee under the chairmanship of Prof. Yash Pal, appointed by the Ministry of Human Resource Development	Critically analyzing the problem of curriculum load for students and the convention of "teaching the text"	Criticizes performance character in examinations, fact-based textbooks, and poorly equipped teachers — as well as societal spirit focusing on the elite
2000	Sarva Shiksha Abhiyan (SSA)	"Education for All" (EfA) movement through central and state governments, funded by UNICEF, World Bank etc.	Focus on universal primary education, especially for girls, scheduled castes, minority, and tribal children

Year	Policy/Report	Focus	Details
2002	Study on the "Status of infusion of environmental concepts in school curricula and the effectiveness of its delivery" by BVIEER	The Bharati Vidyapeeth Institute of Environment Educaton and Research (BVIEER) revealed that textbooks do not promote pro-environmental learning	BVIEER analyzed 1845 textbooks in 22 languages, finding that environmental information is too limited and general, inaccurate, fragmented, and biased
2005	NCF, Position Paper 1.6: Habitat and Learning	Constructivist pedagogical approach, Environmental Education infused in all subjects and as a separate subject	Promotion of life skills and protection of the environment through projects
2009	Right of Children to Free and Compulsory Education (RTE) Act	Antidiscrimination clauses ensuring access to schools in walking distance, free textbooks, and equal learning opportunities for all	Enacted by the parliament, providing legal support for the implementation of SSA/EFA

Source: Authors' own compilation.

These educational reforms show that over the last 25 years or so a number of radical changes have been introduced on the policy level in India. Nevertheless, their actual implementation is difficult, as policies are often detached in their considerations from the available financial, infrastructural, and human resources. Institutional change is slow, with reforms often being confronted with a lack of implementation strategies and of genuine will to implement proposed schemes. For example, according to SSA each school should have at least one computer — even though many schools do not even have access to electricity. Further, education in India is traditionally based on a guru–shiksha relationship,[2] which up to today has highly influenced the choice of knowledge recital as preferred teaching methodology. For ESD to be successfully implemented, these challenges will have to be faced and overcome. Aiming at enhancing learning, understanding, and taking action for a sustainable future sets a strong focus on the quality of education in a setting where serious quantitative challenges still remain to be tackled.

Environmental Education in India

Environmental Education is the predecessor of ESD, with the former having a stronger focus on nature education. For the past two decades different stakeholders have tried to introduce Environmental Education to Indian schools on the national level. In 1991 the environmental lawyer Shri M. C. Mehta made use of Public Interest Litigation (PIL) and filed a remarkable case in favor of mainstreaming Environmental Education in all schools in India. As a consequence, the Honorable Supreme Court of India ruled that "through the medium of education, awareness of the environment and its problems related to pollution should be taught as a compulsory

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2   In Hinduism, a guru is a spiritual leader guiding disciples, shikshas, to knowledge.

subject" (NCERT 2006: 27). Since then, state ministries for education are obliged either to infuse Environmental Education into each school subject or to introduce Environmental Studies as a separate subject for pupils. In CBSE schools, the subject of Environmental Studies is taught in Classes 3 to 5, with the contents of it focusing on the child's immediate environment. Environmental Studies textbooks for Classes 3, 4, and 5 provide examples of good practice for ESD in textbooks, addressing the themes of natural and manmade changes in the environment, fauna and flora, food, water, air, shelter, clothing, functions and festivals, health and hygiene, transport and communication, and environmental pollution and protection. However, on the state level in Maharashtra, for example, policy initiatives, curricula, and textbooks have not yet been orientated toward explicitly meeting the objectives of ESD.

Despite the official proposition to introduce Environmental Education modules to the country's syllabi and textbooks, the introduction of Environmental Education at the school level has not yet actually been achieved nationwide (BVIEER 2002). Nongovernmental organizations lead a number of extracurricular Green School Projects, in which environmental activities follow ESD principles. For formal education, the study on the "Status of infusion of environmental concepts in school curricula and the effectiveness of its delivery" by the Bharati Vidyapeeth Institute of Environment Education and Research (BVIEER 2002) revealed that environmental examples given in textbooks do not promote pro-environmental activities. Because of a lack of in-depth information alongside the absence of references made to specific localities, it is difficult for many students to make the link between the knowledge they have acquired at school and their everyday lives. Teaching content is not clearly progressing in complexity with increasing class levels, lessons are disconnected from daily realities in terms of content, and environmental concepts are either absent or inadequate. While Environmental Education topics are woven into Science, Geography, and Languages textbooks, they are not identified as being related to the immediate environment of every student. As Environmental Education is not considered a core curricular subject, it is thought of as being of only minor relevance. Therefore, Environmental Education does not sufficiently find its way into the Indian classroom at present. The study's findings suggest that the inclusion of an interactive group work will situate Environmental Education as a distinct subject (BVIEER 2002). Despite its openness and adaptability, the integration of Environmental Education into Indian syllabi, textbooks, pre- and in-service teacher training programs, and classrooms is currently rather limited — which adds to the enormity of the task faced if ESD is to be successfully integrated into the country's educational system.

ESD in Indian classroom teaching

Methods

To investigate how far ESD principles can be and are being integrated with existing institutional regulations and pedagogic practices, in the following we use Mayring's (2002) qualitative content analysis method to scrutinize India's NCF and 20 "Geography" textbooks developed by NCERT and the textbook bureau of the state of Maharashtra. Observations in twenty-six Geography lessons given at nine English-medium schools in Pune were audio-recorded and/or documented through field notes; government, private, and semiprivate school types were all covered. Further, four video recordings of regular Geography lessons as well as the implementation of ESD teaching methods in classrooms after their initial introduction at a teacher workshop were analyzed. The triangulation of the results helped us to investigate teacher–student interactions as a function of institutional regulations. Two schools — in which Geography lessons in Class 9 were video-recorded — follow the public state board, while the other two are CBSE schools. These are not regular government schools but rather privately funded ones, and hence their students' socioeconomic backgrounds range from lower middle to upper middle class. One teacher taught 50 to 60 students per class. Although there are close similarities between English-language textbooks and those in local vernaculars, the translations and local adaptations of textual materials alter the meaning of their content to a certain extent. Urban schools, especially English-medium ones, represent a specific type of educational setting in which students are strongly influenced by globalization and Western notions perpetuated through media channels, television, their urban lifestyle, and clothing.

NCF and textbook analysis

The most recent NCF was, as earlier noted, developed in 2005, having been notably influenced by the "Learning Without Burden" report compiled by the Yash Pal Committee (Pal 1993). This highly controversial report identified unsatisfactory pedagogic practices as being a key structural and societal problem for India; the report furthermore strongly called for a reduction in students' curriculum load:

> The problem of the load on schoolchildren does not arise only from over-enthusiastic curriculum designers, or poorly equipped teachers, or school administrators, or book publishers [...] we continue to value a few elite qualifications far more than real competence for doing useful things in life. (Pal 1993: 24)

Drawing upon the insights from the report, the NCF 2005 promotes "teaching for the construction of knowledge" — meaning a student-centered and critical pedagogy that involves the student's own active participation in the learning process (NCERT 2005). The guiding principles herein include "connecting knowledge to life outside the school, ensuring that learning is shifted away from rote learning" (NCERT

2005: 5). This implicitly supports invisible pedagogy. Concretely, examinations should be "more flexible and integrated into classroom life" (NCERT 2005: 5). This encouraged flexibility promotes weak framing and distances itself from performance-based pedagogy. The need for weaker classification is suggested by the formulation "enriching the curriculum to provide for overall development of children rather than remain textbook-centric" (NCERT 2005: 5). Knowledge should be selected, organized, and paced according to the current developmental stage of the student; thus, the requirements and range of content should progressively increase with age. Hence, the NCF harbors ambitions that are ultimately based on the competence model of pedagogy.

In contrast to this, the contents and methodological approach found in the textbooks of the NCERT and the state of Maharashtra strongly focus on the performance model of pedagogy. The analysis of Geography textbooks showed that the tasks therein are often multiple choice questions, or alternative ask for definitions and lists. Clearly, prestructured answers give little space for students to develop the critical thinking skills promoted by the NCF — or their own understanding of complex topics for that matter. Rather, such textbooks encourage rote learning. Even if questions are open ended, only a limited format answer is expected to be given: "Answer in 30 words: What is water scarcity and what are its main causes?" (NCERT 2009: 33). Featuring in a national Public Geography textbook for Class 10, this task explicitly provides space only for two- or three-sentence answers — in which students can merely list the facts already given in the textbook itself. Thus facts are merely memorized and reproduced, a mode of learning that enforces the performance model of pedagogy.

In Maharashtra state textbooks, meanwhile, one page is dedicated to "life skills education," as promoted by the World Health Organization (2001). "Through the medium of school education" (MSCERT 2009), children are expected to acquire creative and critical thinking skills as well as problem-solving abilities. Despite this, the contents of textbooks are not contextualized to the daily lives of students to help them achieve their skill development. The call to action was framed in a vaguely worded statement in a Geography textbook for Class 8 of the state of Maharashtra as follows: "It is the duty of man to protect all components of the environment" (MSCERT 2009: 32). Such broad generalizations neither encourage students to take concrete action nor does they promote the values encouraged by the WHO, as well as by ESD.

Information given in such textbooks is fact-based and fragmented and does not facilitate network thinking based on the interlinking of ecological, economic, and social considerations. This shows strong classification being achieved in this context through textbooks. Definitions and monocausal relations are listed rather than inter-linked. In an NCERT textbook for Class 12, the following statement is made without further explanation: "Resources are unevenly distributed" (NCERT 2009: 30). The

causes and effects of unequal access to resources are not mentioned however. Thus the complexity of pertinent issues is reduced; nor are these issues explained in an intelligible manner.

The concept of Sustainable Development is introduced in an NCERT textbook for Class 10. The definition of Sustainable Development put forward in the Brundtland Report (WCED 1987) is given, but is not explained with examples so as to help students understand the term's actual meaning. Furthermore the concept is not put in a concrete thematic context, but rather is elaborated upon only by way of abstract notions:

> An equitable distribution of resources has become essential for a sustained quality of life and global peace. If the present trend of resource depletion by a few individuals and countries continues, the future of our planet is in danger. (NCERT 2009: 3)

The textbook chapter "Resources and Development" further covers types of resources, resource planning in India, and resource conservation — specifically with the example of soils. Without any prior thematic introduction to resource depletion or concrete methodological suggestions for its investigation, students are asked to "make a project showing [the] consumption and conservation of resources in your locality" (NCERT 2009: 13). This example illustrates the fragmented information and abstract tasks currently existing in local textbooks. It is difficult for students to grasp the environmental and social concepts therein, as they are not clarified with specific cases — nor are they consistently linked to the students' own everyday lives. By explicitly selecting and arranging the learning content utilized, textbooks are representative of strong framing. In conclusion, the textbooks scrutinized do not include tasks or texts that fulfill sufficiently the demand of the NCF 2005 for child-centered and critical pedagogic practices.

Classroom observations

Observed classroom practices elucidate the structure and order of teacher–student interactions in the specific context and illustrate how the selection, sequence, pace, and evaluation of knowledge is controlled and communicated through the teacher. Teaching content and methods shed light on the steering role of the textbook and the authoritative position of the teacher. Strongly framed classroom communication and learning processes leave only limited space for the individualistic participation of students in their own education. The different uses of space and the diverse availability of resources show how the physical setting present promotes explicit boundaries between teacher and student. Teaching content and methods correspond closely to those prescribed in the textbooks used. As knowledge in Geography lessons is selected according to the texts and tasks in the respective chapters, the principles of the textbooks are thus directly transferred to Geography lessons. The strong framing of knowledge in textbooks is thus recontextualized in actual pedagogic practices. Knowledge prescribed in the Geography syllabi and textbooks is transmitted through the teacher to the students, and only occasionally enriched

with additional information from the teacher's own experience or personal knowledge. The information in textbooks is implemented — or "delivered" — in classrooms and reproduced by students through verbatim repetition. Thus it is the textbook rather than the teacher that governs classroom interaction. Water-related learning content is consequently merely read out in the same sentences and terms as it is found in the textbook chapters on water. For example, the reasons for and effects of water pollution are, as in the local textbooks, not explained in lessons (NCERT 2010: 33).

In the observed lessons the teacher remained standing in front of the class through-out their duration, while the students sat on benches and only stood up if the teacher asked them to answer a question (Figure 3). Through the teacher's higher spatial position and commanding posture, communication with the students was explicitly centered on and around the teacher. Students were not given any time to work individually, in pairs, or in groups. These arrangements thus stress the authoritative position of the teacher. Additionally, the physical layout of the classroom and its furniture make perceivable explicit hierarchies and a visible pedagogy.

Figure 3: Arrangement of inquiry–response cycle in the classroom versus group work outdoors

Source: Authors' own photographs.

Classroom observations showed that teaching and learning are structured through textbooks. The textbook is the central medium, as other teaching tools and media forms are very rarely used. Thus, the textbook steers classroom interaction and contributes to making teaching fact-based and teacher- and examination-oriented. While in some lessons teachers gave lectures or read from the textbook, in others teachers led an inquiry–response cycle and asked for definitions, facts, or lists — which students memorized and reproduced unanimously. The teacher gave little or even no time to respond to questions, and students often did not answer in full sentences, but cited words or phrases — thereby reinforcing a performance-oriented model of pedagogy. There was no room for individual responses, as answers had to be learned by heart from textbooks. The observation of a Class 7 Geography lesson brought to light the use of an inquiry–response cycle between teachers and students, in which the latter practiced for exams on the basis of what they had learned from

the textbook. Students hardly spoke full sentences and repeated answers in unison. The lesson followed a strongly regional approach to Geography teaching, thus focusing on declarative and not procedural knowledge. Students learned the names of places, but these were not linked to relevant local issues (except when listed in the textbook) — as such, students rarely understood why they were important. Further, students were not encouraged to think about problems and develop solutions. Instead the teacher gave facts prescribed by the textbook, leaving students little space to control the learning process — thereby stressing performance-based teaching methods.

The following exchange that occurred in a Class 9 lesson illustrates the central role of the teacher therein, and also the strong framing and control of the teaching content:

> (A short video sequence on the different spheres of the Earth is shown)
> **Teacher:** "Can you see where the lithosphere is located?"
> **Students:** "Yes"
> (Another short video sequence is then shown)
> **Teacher:** "Did you understand?"
> **Students:** "Yes" (some students are nodding)
> **Teacher:** "Has anyone any doubt? Do you have any questions?"
> **Students:** "No, Madam"

To check whether students had understood the learning content, the teacher asked binary questions to which students unanimously nodded. Without asking the students open questions, for the answering of which they would have had to develop their own wordings and interconnect knowledge, it is difficult to tell whether the students really had understood the information presented. As students were not actually stimulated to ask original questions, they did not interrupt the teacher's speech — instead reacting only with a nod. This shows how strong framing is enforced through the teacher, as the extent to which the teacher spoke was very high — whereas students communicated little and could not influence the content or the order of learning. As the repetition of information is expected in examinations, knowledge is understood as being transferable. A performance model of instruction with strong framing, strong classification, and visible principles of instruction marked the observed lessons — these all contrast sharply with the ESD principles vis-à-vis weakly framed pedagogic practices (cf. Figure 1).

Introduction of ESD methods to classroom teaching

To introduce the principles and methods of student-centered, communicative education to local teachers, a workshop on ESD was conducted so as. The latter were encouraged to introduce the competence model of pedagogy, based specifically on ESD principles, into their own lessons. After the workshop, one teacher chose to introduce a discussion on the topic "Should we save water?" to a Class 9 Geography lesson. This lesson was filmed and analyzed so as to make visible how explicit

power and control in prior observed classroom teaching is partly changed through teachers' agency to implicit forms thereof. At first students discussed the question in groups (Figure 3), which gave them space to share their thoughts with their peers. They had to prepare arguments, for subsequent discussion in class, for or against the proposed action. After the group discussion, the students thus returned to their seats in the classroom and joined in a final class discussion. Beforehand, the teacher had chosen a particularly strong student to be the "group leader" who would present a final statement to the class after the group discussion. Through this, a clear hierarchical position among the students was established. Other students could participate in the group discussion, but knew that they would not have to present the results in class. Thus only a small number of students, ones who had earlier been selected as group leaders by the teacher, could participate in the discussion. The selected group leaders were strong, articulate students, while their peers could not contribute to the discussion. Hence, the teacher enforced and maintained hierarchical relationships among the students. Another classroom episode showed how social hierarchies can be reaffirmed in the classroom and how the teacher maintained their central agency by steering the discussion through a predetermined teaching structure. Students were given time to speak, but they did not receive any feedback or questions from the teacher in light of their words. Doing this leads to a series of disconnected statements being made, rather than to an interactive, discursive process unfolding. The statements that ensue are thus fragmented and do not correlate with those of other groups. Thus, these statements are not tested on the grounds of their actual argumentative content.

The vision of the NCF 2005, similar to the objectives of ESD, is to move beyond textbook-based learning and instead promote a constructivist pedagogic approach. Yet, classroom observations in Pune and the analysis of local textbooks demonstrate that, in practice, teaching in the state of Maharashtra is marked at present by strong classification and framing. This implies that the role of the teacher as the central agent of knowledge transmission is neglected in the NCF 2005 (cf. Batra 2005), and that this shortcoming must be overcome if ESD is to be successfully introduced countrywide at the classroom level.

Synthesis: "Transformative Pedagogy"

The empirical data shows how ESD, as a transnational policy, challenges and subverts existing pedagogic practices and social hierarchies in Indian classrooms. ESD as a democratizing teaching approach exists in stark contrast to the traditional hierarchical structures that are reproduced in the country's myriad of educational contexts. Bernstein's codings help to identify the fundamental challenges that ESD poses to teacher–student interactions. The demands of ESD and its current teaching methods and content can be described with the competence-oriented and performance-based models of pedagogy, since the selection, pace, sequence, and evaluation

of knowledge fundamentally differs in the two approaches. ESD promotes weak framing and classification in classrooms, while existent pedagogic practices in the observed lessons uphold strong framing and classification. The example of English-medium schools in Pune reveals that there are multiple challenges to be faced in the contextualization of ESD to the Indian educational system and its local classroom realities. Classroom observations and analyses of textbooks and curricula make clear the central role of the teacher in the learning process. Hence ESD demands a fundamental change of strongly socioculturally shaped classroom interaction processes and challenges the distribution of roles, spatial structures, as well as the pace and sequence of learning content.
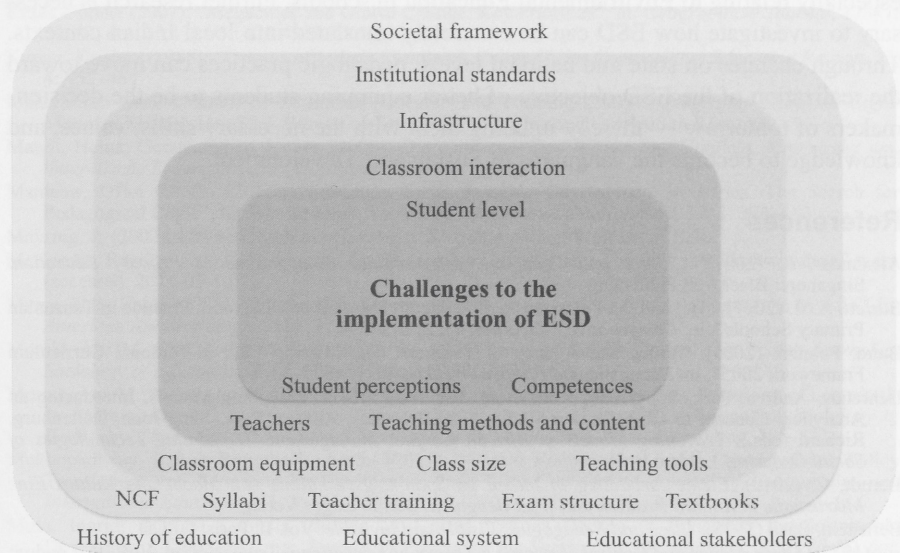
As a broader educational approach, "Contingent Constructivism" (Vavrus 2009) envisages how teaching might best proceed under material, institutional, and (infra)structural constraints. The "cultural translation" (Thompson 2013) of ESD implies the need for a gradual transformation from strong to weak framing, and likewise classification. In India, this will have to be achieved in a progressive manner with gradual changes being brought about in teacher training and in teaching materials. This cannot be done for ESD in isolation; other subjects will also have to be subject to this transition process.

The complex adoption of a radically different pedagogical approach needs to be realized on various levels of society (Figure 4). Thus, a holistic approach needs to be taken so as to attribute ESD with a truly transformative character. Classroom interaction is dependent on (infra)structure such as teaching materials and methods and on institutional standards (NCF, syllabi, textbooks, examinations). These are embedded in the wider societal framework and highly dependent on the preferences of the various stakeholders in the educational system. Thus, ESD requires a process of change to be initiated and furthered through the actions of government institutions at the national level.

The implementation of ESD could be brought forward through the MOEF and NCERT issuing a directive on the amount of learning content and school time to be devoted to ESD, with these stipulations then being rolled out on the state level. The directive would then ideally be modified by SCERTs and passed on to those state government organizations who devise both textbooks for schools and the pre- and post-teacher capacity-building programs. In order to integrate ESD into existing forms of Indian classroom teaching, syllabi and textbooks need new selection and evaluation criteria vis-à-vis knowledge. Tasks in textbooks need to make space available for argumentative answers. For example, a more nuanced breaking down of the causes and effects of local water pollution should replace the current declarative regional geographical knowledge in local textbooks. Through appropriate training, textbook authors and teachers can be sensitized for a content, methods, and task development that focuses explicitly on sustainability in the students' own local contexts. Most importantly, ESD can ultimately be imparted only through trained

teachers. This requires the taking of a concrete approach to Transformative Peda-gogy, and one to be strengthened by thorough pre- and in-service teacher training. Workshops at the district level, information offered in different print formats, and teaching protocols all need to be revised and widely disseminated. Building teacher and textbook writer capacities — specifically through adequate training in explain-ing complex interdisciplinary concepts — will further increase the ability of students to appreciate and internalize the spirit of ESD and the need to personally take action for a more sustainable future.

Figure 4: Challenges to the implementation of ESD in India

Societal framework

Institutional standards

Infrastructure

Classroom interaction

Student level

**Challenges to the
implementation of ESD**

Student perceptions   Competences

Teachers   Teaching methods and content

Classroom equipment   Class size   Teaching tools

NCF   Syllabi   Teacher training   Exam structure   Textbooks

History of education   Educational system   Educational stakeholders

Source: Authors' own compilation.

Despite the significant gap that presumably exists between ESD and contemporary pedagogic practices around the globe, the former — with its comprehensive, student-centered approach — does at least offer an opportunity for the world's respective national contexts to rethink their traditional ways of imparting knowledge in school. The transnational educational reforms posited by ESD do allow sufficient room for local interpretation, but concrete objectives, policies, and financial as well as human resources for their implementation in national, regional, and local contexts need to be further developed and better allocated if we are to see more widespread global citizen participation in Sustainable Development practices. For policy and curricula developers, textbook authors, and, most importantly, teachers, a national ESD strategy included in the next NCF (the due date has not yet been defined) could open up new perspectives on how and why to teach certain content. The analysis that has been presented here of the challenges and opportunities accompanying ESD

make evident the need for the introduction to India's classrooms of democratic teaching methods, similar to those promoted by the NCF. Thus ESD could function as a directive, and thereby orient already existing educational reforms and approaches toward the further promotion of network thinking and the development of critical skills in classroom learning.

ESD functions as a transformative pedagogic approach, one that aims specifically at greater student participation. With the acceptance of a global influence on national educational policies, ESD — as well as the NCF 2005 — is in the process of gradually promoting a fundamental change in Indian teaching methods and content — especially relating to Environmental Education in schools. Further research is necessary to investigate how ESD can be concretely translated into local Indian contexts. Through changes on state and national levels, pedagogic practices can move toward the realization of the ESD objective of better equipping students to be the decision-makers of tomorrow — thereby imbuing them with the necessary skills, values, and knowledge to become the vanguards of Sustainable Development.

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