

A Paradigm Shift in Digital India for Sustainable Education System Part 3 – (SES Tools – Open Schools, Skilled Teachers, Assessment)

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In view of the above, and in view of what we know about learning today, the education of the 21st century needs to increase the time devoted to holistic, interdisciplinary activity in which learners collaboratively work towards a challenging, meaningful outcome; in which they need to deal with different opinions and perspectives and with information coming from different sources; in which the explicit attention to elements of skill is embedded in holistic meaning-making activities; in which learners are provided with feedback on the quality of their work and the progress they are making; in which learners, while in the process of complex problem-solving, also learn how to solve problems, whether they be of a social, cognitive, affective or other nature. In essence, sustainable education systems systematically take the learning process of all learners as their true focus of attention. All activity is grounded in the energy-learning cycle and is set up to maximally feed it. Learning is at the core of the system, not the system itself.

The Open School

Walls, windows, doors and ceilings: that is of what a school building consists. In a metaphorical sense, the school of the previous century was dominated by its walls and ceilings. Students were sitting together in stable groups, based on attainment and separated from other groups by thick walls. Similarly, between the different courses of the curriculum (relating to different scientific disciplines), firm walls were erected. Annual learning development was kept within the vertical space bound by well-described floors and ceilings. Strong walls separated students from the environment outside the school.

Pursuing the metaphor, the sustainable school of the 21st century that attempts to put the above-mentioned pedagogical principles into daily practice may find itself dominated by windows and doors instead. Open doors allow students to move across physical and intellectual spaces to learn with many others, to help their peers learn and to develop social skills while trying to work together with different types of students. Open doors allow for dynamic regrouping of students to create more opportunities for learners to learn at their own pace and for teachers to fine-tune their support to specific learner needs. If classroom doors and windows are opened on a more regular basis,

students may get richer opportunities to apply knowledge and skills from different courses and disciplines to complex cases. Students of different strands and programs and with different talents, skills and prior knowledge can then be deliberately mixed to solve authentic problems demanding the expertise and creative ideas of highly complementary groups that are able to work together efficiently. Doors can be opened to the outside world, too: in that way, students may be challenged to apply their competences to authentic problems in an effort to make a valuable contribution to community life, to develop crucial competences in workplace learning and real-life contexts and to relate knowledge and skills they built up at home to their classroom work [4]. Parents will be invited on a regular basis to talk about their children's development and future prospects. Assessment will be geared towards the discovery of children's unique talents and interests, turning the school into a window of opportunity for every single child in the system.

A nice illustration of these principles can be found in a Flemish secondary school, where students in the vocational strand were asked to teach first-aid skills to students in the academic strand. The vocational students' self-competence was strongly boosted by this experience. Moreover, they developed social skills (explaining and teaching) and first-aid skills (the actual explaining helped them understand the content they were teaching even better) during this activity. Besides acquiring first-aid skills, the "academic" students learned to see their "vocational" peers in a different light. The example illustrates the way in which the principles and practices that are suggested in this section relate to the key principles of sustainable education. First, many of the measures that are suggested in this section have the potential of boosting students' positive energy for learning by being directly linked to the variables that have been shown to raise students' motivation to engage in learning activities: applying knowledge to cope with intrinsically interesting, authentic problems, engaging in joint project work with other people who are eager to pursue a common goal, receiving opportunities to boost self-confidence (e.g., by helping a peer or bringing in expertise the other does not possess) have all been empirically shown to be linked to enhanced learning motivation and task engagement [4].

Second, many of the measures that are suggested in this section raise the chance that the effort students put into learning will lead to successful learning. Peers providing each other with interactional support, contextual support that comes with making the learning environment more realistic and authentic and learners' efforts to try and explain newly-acquired knowledge to others have all been shown to be associated with enhanced development [4].

No Talent Is Wasted

The example above shows that the principles of holistic, cooperative learning may work out fine not only for the talented and gifted, but also for "less gifted", "socially disadvantaged" and "ethnic minority" students. Yet, for the latter groups of students, the bar is often lowered [4]. These students' engagement in shared, interdisciplinary project work calling for higher-order, creative and critical thinking is often put "on hold". Teacher expectations are lowered, and the students are invited to engage in less meaningful, powerful and motivating activities, over-emphasizing subskills or isolated elements. As a result, the balance between the energy invested in teaching and the learning that comes out of it may be severely disturbed, much to the frustration of both learners and teachers involved. As it is pointed out in one reference article[4], the social gap between pupils of low and high socio-economic backgrounds is one of the key factors that turns many of the education systems in the world today into relatively unsustainable systems. Rather than leading to successful learning experiences and being renewed as a result, the positive energy for learning of underachieving students slowly, but surely, gets depleted. These students are at risk of giving up school and giving up formal learning altogether [4]: they risk leaving school early without graduating and without developing a threshold level of the 21st century key competences that were described in which they stated that they are at risk of participating to a relatively minor extent in lifelong learning and realizing their full potential. As a result, valuable human energy, talent and time get wasted rather than turned into sustainable human development.

Therefore, at all levels of the educational system, from the macro-level of system organization to the micro-level of classroom teaching, practitioners have to make sure that all students receive high-level education of a challenging kind. Not a single student should be put on an energy-learning diet. At the system level, early tracking and streaming have been shown to raise the risk of lowered teacher expectations, curriculum reduction and social inequity. Therefore, all students should be offered comprehensive education, preferably up to the age of 14 [4]. At the local level, schools have to join forces with local communities and companies to offer students rich opportunities for workplace and

community learning (in upper-secondary education and second-chance learning, this actually may become crucially important for the students for whom more traditional classroom approaches did not work). At the school level, approaches towards remedial teaching that focus on what students are not able to do may make students feel stigmatized, lowly competent and isolated from the mainstream group. If remedial teaching consists of little more than the mere repetition of the same content and the use of the same teaching procedures that failed to work in the first place, repetition may lose its learning potential. This is probably one of the reasons why the energy (and money) invested in making children repeat a grade often produces counterproductive effects [4]. Therefore, if remedial teaching is organized, it should be as motivating, interesting and meaningful as teaching in the mainstream and, at the same time, should be better adapted to the specific needs of the students involved.

Teachers Make the Crucial Difference

Teachers make the crucial difference [4]. There is no way of getting around this basic truth. In the end, it is not class size or money that does the trick. It is the teacher [4]. Reviewing his meta-analysis of thousands of studies on educational effectiveness, Hattie [4] concludes that "the major source of controllable variance relates to the teacher". This is because teachers are in a privileged position to keep the energy-learning cycle of every single student going. Teachers can motivate learners to engage in meaningful learning activities. They can provide feedback and interactional support tailored to individual learners' needs. They can scaffold reasoning and higher-order thinking. They can model expert performance. They can listen and show that they care. They can establish rich connections with learners and for learners and, in this way, support learners by turning their positive energy for learning into successful learning experiences.

What is more, teachers can do this on a daily, minute-to-minute basis and, so, can forge strong chains of support for every single one of their students. Teaching may be seen by many as a gift, but great teaching, the kind that boosts the energy learning cycle in every single student in the classroom, is a learned competence. The research on expert teachers shows that they engage in deliberate practice, which means that they do not just teach, but consciously reflect on the quality of their teaching and seek support from others in a continuous effort to improve their impact on their students' learning [4]. Being an expert teacher requires (amongst others) a broad repertoire of teaching formats and activities, an alert pair of eyes and ears to observe and analyze the quality of the learning process that different learners are engaging in, a high level of flexibility and skill

to tailor support to students' present and future needs and sophisticated social skills to connect with learners of different backgrounds and character. Great teachers bring out the best in learners: their minute-to-minute decisions in the classroom are not lucky shots, they are the result of a balanced interplay between expert knowledge, skills and attitudes.

Therefore, teachers are learners, too. For teachers-as-learners, too, it is of crucial importance that the positive energy sources for learning they have (their professional motivation and dedication, their prior knowledge and skills) can be turned into successful learning and development. For teachers, too, it is crucially important that the energy for teaching they have does not burn out or go to waste. Therefore, teachers need to be able to practice their profession in favorable working conditions. To foster their development, they need to be given ample opportunity to work together and deliberate with their colleagues, to participate in in-service training and coaching on the floor, to reflect, preferably together, on what they are doing in the classroom in an effort to enhance the impact of their teaching on students' learning.

In this respect, too, education will need to take a social turn [4]. Schools probably constitute the potentially most powerful learning communities in the world. Yet, for schools to become a truly powerful learning community, the available, and virtually inexhaustible, source of energy for learning of the school team needs to be tapped. In many ways, the energy and expertise of the different teachers in the team must be regarded as highly complementary and treated as such: if teachers share ideas, prepare or give lessons together, discuss pupils' progress and together search for ways to optimally fine-tune instruction to the pupils' needs, better teaching and richer teacher development may come out as a result. The extensive research on what effective schools do more and better than less effective schools clearly indicates the crucial importance of collegiality among staff members, joint policy-making, joint staff development, co-teaching and joint deliberation on the impact of education on student development [4]. In this respect, Darling-Hammond [4] concludes that countries that have recently made the greatest progress in student achievement allow their teachers sufficient time "to plan cooperatively and engage in analyses of student learning, lesson study, action research, and observation of one another's classrooms that help them continually improve their practice."

Ultimately, there is very little that gives people more energy than working together on a worthy cause. Additionally, there is very little that drains people so much as fighting for a

seemingly lost cause all on their own. The various members in a school team are all committed to the same worthy cause: fostering their students' development and well-being. Therefore, if team members combine their natural energy sources for teaching (i.e., their motivation, dedication and expertise), teacher learning and development are bound to come out of it; this, in turn, will give teachers new energy for teaching and developing.

It should be noted, in this respect, that parents are not teachers. If parents are expected to do the kind of things at home that teachers are doing at school, education systems may become less equitable. Therefore, parents should primarily be asked, let alone required, to do the kinds of things that all parents are able to do. If necessary, they should be helped to raise their kids in material or financial ways, but above all, they should be listened to and consulted when it comes to designing the child's educational career, discussing their well-being, talents, limitations and worries. Parents and teachers are partners in the shared project of keeping the energy-learning cycle of their children running. What is more, as partners, they are highly complementary. Parents know and see things that teachers do not know and see, and vice versa. True dialogue and exchange between parents and teachers can make a big difference for children. Additionally, allowing parents to participate in that dialogue on an equal footing with teachers and administrators can make a big difference for the parents.

Broadening Assessment

The main goal of assessment in sustainable education is to improve education and to promote learning [4]. In meta-analyses on the impact of education on learning, formative assessment and feedback systematically rank amongst the most influential variables [4]. The research clearly indicates that assessment should primarily serve the purpose of finding out whether students' energy-learning cycle is running and, if not, which obstacles should be cleared. To do so, a broad repertoire of different assessment procedures and methods can be employed, enabling teachers to unravel whether students are activating energy for engaging in a learning activity and how they are coping with the learning task in an effort to turn their energy for learning into a successful learning experience. Building on their observation of students' learning process and output, teachers can then provide learners with feedback, preferably the kind of feedback that drives the learning process forward. Reviewing the extensive research on feedback, Hattie [4] concludes that feedback is most productive when it builds a connection between three crucial questions: where is the learner going (for which learning goals did the learner activate energy for learning), how is the learner going there (how is the learner coping with the task) and where to next

(which kind of feedback and support could help the learner most at this particular stage to learn successfully). In sustainable education, then, assessment is crucially a matter of dialogue, aimed at using information about the learning experience in a joint effort to enrich it. Errors are welcomed: errors, in fact, can drive learning forward in a forceful way if they are treated as sources of information [4].

Hattie [4] further suggests that students should be taught how to critically and objectively self-assess their work (and their peers' work) and to draw conclusions on the efforts they need to make next. In that way, learners can become their own teachers and build up self-regulating skills. In terms of sustainable education, learners should ultimately learn to self-regulate their own energy-learning cycle.

In sustainable education, the curriculum is not dictated by what can be tested easily. Rather, assessment is dictated by what should be taught first and foremost. In line with the previous section, for school teams, assessment has an introspective dimension, in the sense that they use student results to analyze the quality of the education they offered, in an effort to identify aspects that can be, and should be, improved. Finally, in sustainable education, assessment also has a prospective dimension. School teams, students and their parents aim to identify what students are good at (and less good at), what they like to learn and what their ultimate learning ambitions are, in an effort to construct the most optimal match between the students' ambitions and capabilities and their educational trajectory. Therefore, most probably, school teams should not test more, but should do more with the assessments that they carry out.

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