_____

A Paradigm Shift in Digital India for Sustainable Education System
Part 4 – (SE Implementation,)

Prof K K Vyas, Director, SIET, Sikar
Dr. Sandhya Vyas, HOD (Social Sc) BBV Pilani, profsandhyavyas@gmail.com

_____*****_____

Implementing Sustainable Education

Following from the above, a wide range of measures promoting sustainable education, ranging from the macro-level of the education system to the micro-level of the school, could be listed. Amongst others, this list could include the following proposals:

- Introduce a weekly slot of four hours that is devoted to interdisciplinary, collaborative project work.
- Check whether the current curriculum gives top priority to competences that are vital to students' future lives and the future of the planet.
- Create more opportunities for children to develop creative thinking skills throughout the curriculum.
- Provide mentoring by experienced teachers to every beginning teacher during the first two years of their career.
- Provide more outdoor learning opportunities to all students.
- Enhance community life at school by increasing student influence on school policy, organizing peer tutoring and school projects across strands and age groups.
- Invest in the quality of pre-primary education by training nursery teachers to interact in a natural, rich way with children while they are playing and exploring the world around them.

Not all of the above-mentioned measures require extra money. Some primarily require the commitment of practitioners and policy makers, the joint effort of school teams and a fair degree of creativity and belief. Implementing such measures might sensitize many practitioners to reflect on the quality of education, but on the other hand, they might also do little more than scratching the surface of a system that remains otherwise unaltered. If schools raise the number of hours devoted to cooperative learning, but the summative assessment of students is exclusively based on individual tests, then students might still conclude that, ultimately, individual competition rules the world. If students participate in lesson activities that explicitly focus on fighting racism and fostering multicultural dialogue, while at the same time aggressive bullying in the playground is not tackled, students may decide that nice principles in the classroom have no bearing on real life. If the whole team attends an in-service training on complex problem-solving, but every teacher is left to their own devices when it comes to trying new ideas out in the classroom, the impact of the training on teacher development will be close to zero. If the school team purchases an expensive monitoring system for following up on students' development of key competences, but teachers lack the expertise to differentiate between learners, then the energy invested in the administration of the monitoring system may not pay off in terms of student development. Ultimately, making education more sustainable is a matter of optimizing school culture, not school structure.

Futures Thinking. Futures thinking is also known as anticipatory thinking, foresight, or trans-generational thinking. Sustainability requires future thinking. It includes, "the ability to collectively analyze, evaluate, and craft rich 'pictures' of the future related to sustainability issues and sustainability problem-solving frameworks" (5). Futures thinking integrate the ability to think systematically about the future and future generations. In seeking sustainable solutions, stakeholders, policy makers, innovators, and citizens need consider how past decisions led us to the crises we face today. We need to anticipate and imagine how today's solutions could introduce negative cascading effects and become tomorrow's problems. Likewise, we need to work through plausible scenarios of the future that can lead to safer, happier,healthier futures, and work to achieve these futures today. Futures thinking works to answer the question, *where are we headed?* Futures thinking allows for anticipatory approaches to understanding, mitigating, and/or adaptively preparing for future changes, problems, and solutions (5).

Evaluating how unexpected events, such as hurricanes or newly enacted policies, could change our future plans is a necessary element of this type of thinking. Futures thinking challenges us to become more flexible the further into the future we envision. The longer the amount of time between the present and the future, the more uncertain a particular future may be. Thinking about the future requires understanding and being comfortable with uncertainty. Sustainability necessitates learning from the past, exploring the present, thinking about the future, and developing solutions that are adaptable and resilient. Futures thinking include the ability to -

- Discuss how people in the past affected our options today, and how we now affect the options of people in the future.
- Anticipate the potential future consequences of inaction in the present, often referred to as the 'no-action' scenario.
- Envision desired futures and contrast them with the present status quo as a means to build strategies or 'backcasting' (5).
- Recognize emerging trends and their potential future trajectories (5).
- Imagine a diversity of futures based on change in one or more dynamics or variables.
- Recognize different theories of how futures emerge.
- Consider that futures are aspirational, and create futures instead of accepting futures.
- Cope with the potential unintended consequences of interventions, ideas, and/or solutions we fabricate through adaptive management.
- Conceptualize different aspects of futures[5] -

  - Utopian (ideal) or dystopian (repressive)
  - Possible futures (plausibility)
  - Probable futures (likeliness)
  - Value-laden futures (desirability, sustainability)

Educators should consider the broad range of plausible futures so that we can educate society to envision and create a more sustainable tomorrow. Futures thinking can be used in the classroom by beginning to engage students with multiple possible outcomes of decisions and actions. Students can journal about the variety consequences associated with the choices they make, and teachers can push students to engage beyond the obvious first choice answers. Another idea is to make use of scenarios in the classroom. Scenarios are a tool that teachers can implement to help students think about how the future might unfold. Scenarios can take many forms beyond a written format such as visual, auditory, embodied, kinesthetic and/or verbal. Students can work in groups developing alternative ends to stories they are currently reading or discuss and map out a range of possible outcomes. Thinking about the future also requires an understanding of the past. Knowing where decisions and outcomes originated from can support projections into the future. Teachers can guide students as they conduct a macro-history, seeking patterns of change, or consider historical trends. Futures thinking ask teachers to explicitly address multiple futures and prepare students to ask questions, think critically about the past, challenge the status quo, and envision tomorrow on a variety of time scales.

Implications

The need for integration with sustainability as part of teacher education and professional development is an essential component that is largely being overlooked (5). Although preservice teachers have expressed an openness and enthusiasm regarding infusing sustainability topics in their classrooms, they are often not addressed in existing teacher education coursework (5). As Nolet (2009) writes, "In the United States, educational leaders, particularly those concerned with the preparation of teachers, have yet to respond meaningfully to the issues of over-consumption, human-caused environmental damage, and the global and human catastrophe we are creating" (5).

To address this need, SEFT (Sustainability Education Framework for Teachers) was developed to assist teachers with developing sustainability literacy so they are better prepared to produce globally-minded and knowledgeable citizens. This includes being able to address issues from an intergenerational perspective, embrace stewardship, challenge the status quo, identify the need social justice and fair distribution, respect limits, appreciate the importance of local place, understand the need for economic restructuring, see nature as a model and a teacher, and identify with global citizenship as part of their curriculum (Nolet, 2009). In addition, teachers need to be able to take a global perspective to encourage their students to see that issues, people, cultures, and places are interconnected and that complex systems operate on a variety of transparent and hidden levels. Likewise, teachers need to impart critical thinking skills, which are directly linked to decision-making capabilities (5).

Teachers must spend time grappling with the SEFT approach and deploying the process with their own thinking before they can make good use of it as an educator. Once teachers have a better understanding of SEFT, they can begin implementing the approach as described in their classrooms at their specific grade level. Through the framework, teachers will be able to become more nimble with the problem-oriented, solution driven nature of sustainability and how sustainability connects to the curricula they are already teaching in a seamless fashion. The four ways of thinking described by SEFT offer a way to synthesize and evaluate the many facets of the complex and interdisciplinary field of sustainability in a significant yet unobtrusive fashion in the classroom. Utilizing the framework creates an inquiry-based approach to problem-solving (5) that leverages student curiosity and promotes search and discovery skills. Because this framework is meant to act as a landscape in which to situate new knowledge and ideas, teachers of all grade levels can make use of it with their students. SEFT can be implicitly incorporated in lesson plans or activities and/or teachers can use the framework to evaluate new materials for their students. SEFT offers four lenses that work together to support a better understanding of the world we live in today and the one we desire in the future.

Conclusions

In this article, the concept of sustainable education was reinterpreted and redefined as education in which:

- No energy for learning and talent is wasted: education should work for every single student in

the system, irrespective of the students' background;

- Energy for learning is renewed: the energy that students and teachers invest in education is maximally turned into successful learning and development, which produces new energy for learning;
- Crucial needs are addressed: students develop the competences that are crucial for their future lives and for the future of our planet.

Young people have a strong, natural urge and huge sources of energy to learn. They learn in order to fulfill a wide range of social, physical, emotional, psychological needs. Their energy for learning is renewed every time their efforts to learn turn into successful learning, because successful learning provides learners with cognitive, physical, emotional and motivational sources for further learning. In the 21st century, young learners need to tap and continually renew their energy for learning in order to cope with the dramatic changes that are reshaping modern daily and societal life. Acquiring the basic skills of reading, writing and math no longer suffices [4]. To function in societal life and in the labor market, to enrich their personal lives and secure life on the planet, students need to acquire a wide variety of higher order, 21st century skills. Education systems have a huge responsibility and great potential to make this happen. They will be successful to the extent that they can tap students' energy for learning, help learners to build up successful learning experiences and keep their energy-learning cycle running. Drawing on the extensive research on learning and development and on their own energy for learning, school teams can make a crucial difference in students' school careers and their future existence.

The implementation of sustainable education will require substantial government support: first, in terms of taking the necessary steps to instigate and organize the reframing of curricula and key objectives of educational systems in their countries; second, in terms of supporting school teams and individual teachers to further develop their professional expertise. As the above-mentioned research made abundantly clear, investing in teachers' and school teams' motivation and competence will be key to pursuing the three main ambitions that define sustainable education mentioned above. As a corollary, much more classroom-based research is needed to identify what expert teachers and expert teams do in terms of sustainably promoting the key competences of the 21st century with all of their students, irrespective of their social, cultural or ethnic background.

The aim of this article was not to advocate change merely for the sake of change. What we need to do in education is to sustain what goes well and to fight what goes wrong. We need to fight the loss of human talent and potential, the loss of energy for learning, the loss of dignity and pride, the loss of precious time to foster development in crucial domains. Education can be a powerful engine of opportunity for all students, and it is the energy of students and teachers that keeps the engine running.

References

1. http://in.one.un.org/page/sustainable-development-begins-with-education/
2. https://en.reset.org/knowledge/advancing-sustainable-development-through-education-india
3. https://www.tandfonline.com/doi/abs/10.1080/09243453.2012.678865
4. https://www.mdpi.com/2071-1050/7/5/5471/htm
5. http://www.susted.com/wordpress/content/sustainability-education-framework-for-teachers-developing-sustainability-literacy-through-futures-values-systems-and-strategic-thinking_2015_01/

Bibliography

1. https://www.diva-portal.org/smash/get/diva2:830314/FULLTEXT01.pdf
2. https://www.education.ie/en/Publications/Education-Reports/National-Strategy-on-Education-for-Sustainable-Development-in-Ireland-2014-2020.pdf
3. http://www.in.undp.org/content/india/en/home/post-2015/sdg-overview/goal-4.html
4. https://www.smithsonianmag.com/arts-culture/india-teaching-300-million-kids-sustainability-180956494/