

"The role of teachers in fostering transformational change towards low emission and climate-resilient development"

In March 2017, a global Alliance on Climate Change and Education was launched at the Global Education and Skills Forum in Dubai. The purpose of the Alliance is to define the role of the education system in helping the world achieve inclusive development while combating climate change.

As top-10 finalist of the global teacher prize, it is my duty to focus on how education as a strategy can help solve the climate challenge.

Climate change needs to be understood in the broader context of planetary boundaries. We need over the next 30 years to create a new society that lives within these boundaries and repairs the damage we have done to them. IN the next 30 years our children will become adults so this is fundamentally their challenge, as well as ours as teachers.

We need to all upgrade our mental and ethical maps to navigate this new world. Almost every activity in life is affected. Effectively responding to climate change requires all to act responsibly, i.e. to act and see the world differently. **It is not something that we can leave to governments or specialists to fix. It demands of all of us that we understand and engage with what's happening.** This is not just a matter of passing on and generating new kinds of knowledge, it requires a new ethic of responsibility and inculcation of the values of global citizenship.

Education is now a lifelong task, so we need to learn this from

childhood through to old-age. ***Education needs to help us become true ecological citizens, understanding where we need to limit our actions and how to ensure an ethical restraint and a total protection of future generations. We need to extend education to focus on our behavior and our stewardship of our planet, and to reconsider why we are here and how we should treat our world. While climate change education cannot be about every single interrelated environmental problem, addressing climate often has beneficial impacts on others problems in the commons. Education should break down and make more actionable the huge problem of the commons. (For example air pollution makes health of communities the target)***

Let me in this speech focus on children, given that I am a teacher

The role of teachers in fostering transformational change towards low emission and climate-resilient development is that we educate the next agents of change. We have an impact of the development and knowledge of children, and how they will succeed in society when they are grownups. Because schools represent a primary socializing influence that has enormous impact on the course of people lives and, in turn, on society. We can change societies through education! **WE CAN CREATE true ecological citizens!**

Our response in getting children to know and understand the huge changes in the world – in their future world – including the changes required to drive a climate solution, is inadequate. For example: instead of teaching general climate literacy on the science and impacts, context-specific education on climate impacts is more useful for children. Its difficult teaching climate change because it can just be abstract knowledge. Children need to play and be actively involved to get an understanding on how the world is in reality itself. Throughout

play and being actively involved, it will be not anymore abstract knowledge. It will be practical knowledge and hands-on knowledge.

This is a pedagogical challenge.....

Children need to understand and find out by themselves. This is possible throughout learning: it is action orientated and cooperative learning. Children learn to take over responsibility and find solution for the climate change by means of self-organized, action orientated learning and participation. Throughout self-determined action in cooperative learning forms, students thus experiences belonging, participation, recognition and responsibility. These aspects are fundamental to education and to educate the real agents of change in the future. We have to enable children to become self-organized learners and to help students to be engaged in thoughtful discourse and examined different perspectives. Furthermore this has been proven to increase students' self-esteem, motivation, and empathy. These factors are important to learn to take over social responsibility. Students who perceived their teachers to be autonomy supportive reported higher levels of intrinsic motivation, perceived competence, and self-esteem than did students who perceived their teachers to be controlling. Promoting greater self-determination, that is, a greater sense of choice, more self-initiation of behavior, and greater personal responsibility, is an important developmental goal, and it is becoming increasingly clear that promoting self-determination is the avenue to attaining outcomes such as creativity, cognitive flexibility and self-esteem.

Autonomy support by teachers (adults) begins with taking the child's frame of reference. By understanding a child's motivational and cognitive starting point, we can relate to him or her in a way that encourages internal motivation for engagement in the education enterprise.

It is difficult teaching climate change.....

Most children are exposed to some talk about climate change and may associate real climate shocks with knowledge that these may be connected to climate change. Yet even climate literacy at its most basic is largely absent from curricula. When presented, climate change is usually an 'extra', and often descends into basic scare tactics. The resulting fear is mostly debilitating and plain disempowering. At the same time because some areas of climate change (see above) are tricky to understand, and teachers themselves have less than adequate knowledge (and feel that they have other set priorities), little is done to beyond this. But it should be a focus of education to be a ***true ecological citizens*** and to take over responsibility for climate education.

Climate education should focus on the skills and knowledge needed to solve the climate crisis through building roadmaps of action and implementing them. These skills extend to almost all fields of endeavor, from engineering to finance, from land management to design. .

What should we focus on.....

We need this learning and teaching to cover three broad areas of climate literacy: why the climate is changing (climate science); how we can try to manage the change and reverse it (mitigation); and how we will need to adapt to its impacts (adaptation).

The action-oriented concept recognizes that knowledge acquisition is more effective, more sustained and more multi-dimensional. For example "learning stations" that address a specific climate theme or themes: at learning stations, children can work individually or in

groups to solve, experiment, research and relate in practice to a part of an assignment focusing on one of these three challenges. The basis for change in education to more active student involvement is much broader than the need to supply the accounting professions with graduates who possess wider skills and competencies. Active student engagement is seen as an essential ingredient to all student learning and the developing of lifelong learning skills.

Pedagogically, this educational experience is an integrated one, with every subject having relevance. Also it is scaled across age development so that older children start to grapple with more detail.

I would also like to talk about the body, and the value of activity here.....

Enhancing an active and physical Lifestyle can reduce the air pollution: What can we do? One empirically fact is that if we get the children be physically active in daily activities, they will be physical active when they are adults. They won't use the car, they would use the bike to come from one place to another. And if they are not using the car, we avoid air pollution and at the same time promoting a physically active live-style. Physical Self-concept has a central role in promoting health-related physical activity and exercise (Marsh & Craven, 2006). The causality of physical self-concept and physical outcomes has important practical implications for practitioners (like teachers): They should strive to improve both simultaneously. In industrial countries like Germany leisure-time pa typically takes place in organized structures (like sports clubs). Exercise time in daily life and self-organized pa has strongly been decreased - *epidemic of inactivity in youth* (Ghanbari, 2015; WHO, 2004).

Conclusion.....

Education has a key role to create ***true ecological citizens*** and that students taking over responsibility for the environment. Intercultural exchange in classroom is essential and necessary to educate global and ecological citizen. However, we have a huge backlog, and have scarcely started to address this challenge. An international focus on education and climate change is overdue.

I call on the state holders to support teachers and students to combat the climate change. Learning in school should be context-related and interdisciplinary. For this we need more teachers in school, more team teaching concept, psychological training in University and it has to be in the curricula. If we want to combat the climate change, we need to stand up now, because time is really running out.