

All knowledge starts with access!

Why is quality education not the norm for all?

Neeru Khosla

Billions of people live in extreme poverty. They do not even have the most basic amenities, such as running water, a roof over their head, and food to eat. This thought keeps me awake at night. How can we let this happen?

The key missing ingredient all over the world is a lack of knowledge and understanding of the common language that gives one the tools to participate in the world economy: an education! For this reason, CK-12 was started 15 years ago.¹⁾ This non-profit foundation develops digital teaching-learning tools in the USA to make this content available free of charge worldwide through its website. Since then we have served 150 million users across the world based on our vision statement.²⁾

The main impetus for this initiative came when I saw what good education could look like and the great impact it had on my children. Their education was based on “learning by doing”, deep thinking and constant reflection. Social-emotional thinking was central to their learning at the Nueva School – one of the leaders in pioneering social emotional learning and gifted education. I too learned a lot there when I worked there for 15 years.

Although a molecular biologist by profession, I began to ask myself: Why couldn't we give all children such an education? So, at the age of 50, I changed my career by getting another degree in education from Stanford. As a lifelong learner, it was important for me to understand what was preventing the provision of quality education.

The second key question was whether this kind of education is scalable at all. Education is typically dependent on the quality of the teacher or an adult mentor. We know that education forms the foundations of later specialization. However, there are many artificial rules and regulations that have out-lived their usefulness – such as that learning has to be demonstrated at a constant pace for all students, that the highest quality educational resources need to be expensive, and that only publishers can provide good one-size-fits-all content!

The truth is that we are all different! The way we learn and the speed we learn at is very different and complex. Thus, we need personalization. The current pandemic has shown the willingness of people to be digital or hybrid learners but has not yet demonstrated personalization.

Therefore, the question “What can digitization do for learning?” became a driving force of CK-12. We strive

» Education is a basic human right!



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to help students and teachers alike by enabling rapid customization and experimentation modified from the knowledge known about learning in the classroom modernised for the digital world.

Today, devices and internet connectivity are widely available in many schools. We are ecstatic because we had set our sights on creating digital content for maths and science that can be customized for personalization. The goal is not just to provide content but also to help students learn. We have built into the repertoire of our tools the ability to learn and teach using different modalities such as simulations and interactivity strengthened with real-world examples. CK-12 does not just provide access, but access done “just right”. To that end, CK-12 developed a comprehensive concept-based network and the concept's relationships to inform the student and teacher of their progress.

Teaching and learning is a complex process. Schools make this even more difficult by not leveraging data and patterns in learning. Today at CK-12, we use sophisticated Machine Learning (ML), Artificial Intelligence (AI) models, and algorithms to bring the power of data, analytics, and recommendations to teachers, students, and authors at scale. We have built a ML/AI based tutor to help individualize learning for all students at their level. In the future, a perfect AI tutor will assist every child, guided by their teacher, to provide personalized education. Providing insights and recommendations in real-time truly helps to understand learning.

Access and equity are age-old problems. Data suggest that children account for half of the world's extremely poor. When you are hungry, not feeling well, or have no way to get out of poverty – education seems less pressing. But we can't just accept this! CK-12 is committed to keep providing quality education to students worldwide and to present to them the tools they need for their future.

Die unter der Rubrik „Meinung“ veröffentlichten Texte geben nicht in jedem Fall die Meinung der DPG wieder.

1) www.ck12.org/student, see also the article „Interaktiv im Physikunterricht“ in this issue.

2) PDF: www.ck12info.org/wp-content/uploads/2012/10/ck12-vision-document.pdf