IGNITESTEM 2017

KEY TAKEAWAYS

REIMAGINING EDUCATION
Anant Agarwal, CEO of edX and Professor at MIT

1) Digital technology has transformed every area of our lives, from healthcare to workplace productivity.
2) edX, the nonprofit online learning destination, is reimagining education via MOOCs (massive open online courses).
3) edX is pursuing its mission to increase access to high-quality education for anyone, anywhere

SOLVING THE "PRE-K TO GRAY" CRISIS THROUGH INVESTMENTS IN TECH INNOVATION
Deborah Quazzo

1) Widening income inequality in the US means that fewer people have access to the future in terms of career and life potential.
2) We believe that equal access to high quality education is the key lever to achieve equity.
3) We also believe that for education solutions to be successful at scale that digital education solutions have to be front and center.

COMPUTATIONAL THINKING IN THE CLASSROOM
John Dixon, Wolfram Research

1) Computational thinking is a mode of thinking that assumes you have a computer to assist you.
2) All academic fields can and should produce computational thinkers.
3) With a few basic principles and the right tools, you can help students of varying skill levels get started with computational thinking.

CREATIVITY & COMPUTING IN K-5 EDUCATION
Linda Liukas

1) Computational thinking can already be found in many places in your curriculum:
2) Decomposition and logical thinking. Like Ruby says, "Even the biggest problems in the world are just tiny problems stuck together". Every programmer starts by breaking down the problem in hand.
3) Creativity and collaboration. Even though the instructions a programmer gives to a computer need to be exact, in the right sequence and carefully named programming is also highly creative. Try with your friend to instruct each other on how to brush your teeth and see how many different ways there are to give the commands!
4) Debugging and persistency. Learning to program is all about learning to overcome mistakes. Even the best programmers forget a semicolon from time to time and need to go back and find the mistake. This is called debugging.

CODING IN THE CLASSROOM
Melissa Halfon

1) Introducing coding in the classroom via projects around students' interests will maximize student engagement.
2) Coding can be woven into other disciplines, from math & science to language arts and social students. Examples include creating a newscast with a scrolling headline or a war propaganda poster.
3) Bringing coding into the classroom does not require technical expertise from the teacher. Both students and teachers alike can learn computational thinking and fundamentals of programming through an array of online resources and platforms.

HACKATHONS
Mike Swift
What are they? How can we create them? Why does it matter?

1) Students around the world are taking their educations into their own hands, giving up their precious weekends to learn, build new technologies, and share their creations with each other.
2) Hackathons combine the best elements of peer to peer education, gamification, and project based learning, and educators can learn a lot by observing this movement.

FUNDAMENTAL TECHNIQUES IN THE MAKERSPACE
Godwyn Morris

1) Maker projects are low cost and high impact teaching students to work iteratively.
2) There are a variety of skills employed by students from time management to design ideation to effective presentation.
3) Maker projects use hands-on learning to allow students to use creativity to break big problems down.

CODE CAPTAIN
Rohan Doshi & Yuan Wang, Co-Founders

1) Don't reinvent the wheel: Deliver these insights to existing   classrooms by equiping existing teachers.
2) Data-driven pedagogical archetyping: Place students into categories that require different teaching styles and attention.
3) Early warning intervention as a churn problemm: Use data to predict when students are falling behind.

IGNITESTEM OR IGNITE INNOVATION
Derek Lidow, Professor at Princeton University

1) It's critical to understanding the relationship between design thinking and STEM because otherwise you can do a poor job teaching either.
2) Design thinking is a great compliment to STEM coursework because students consider it fun
3) Instructors can use design thinking to keep student's creativity alive while teaching STEM subjects anywhere