

21st Century Skills – New Ways of Learning and Teaching

Prof. Dr. Frank Thissen

www.frank-thissen.de



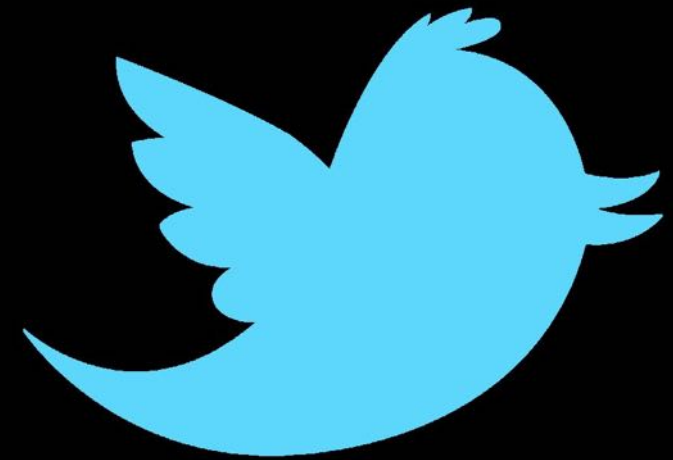
»Technology is only technology to those
born before technology.« Alan Kay



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News

Philippines: Five years on, justice for Maguindanao massacre can't wait

The Philippine authorities are running out of time to ensure that their response to the Maguindanao massacre does not become a mockery of justice, Amnesty International said on the fifth anniversary of what is often called the world's largest-ever single attack on journalists.

**UN vote boosts support for a global moratorium on the death penalty****Gambia: "Aggravated Homosexuality" Offence Carries Life Sentence**[RSS](#) [What's RSS?](#)[More news](#)**Livewire – Amnesty International's blog**[Open letter to Putin – 148 NGOs slam 'foreign agents' law](#)[Racism, segregation, and rejection](#)[Myanmar: the human rights story behind the spin](#)[Tweets by @AmnestyOnline](#)

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In focus

VIDEO

Negligence

Court documents expose Shell's false claims on Nigeria oil spills



VIDEO

"A Prayer for Rain"

Salil Shetty, Secretary General of Amnesty International on the new film about the 1984 Bhopal gas disaster.



Amnesty International



HOW YOU CAN HELP

[Donate](#)[Join](#)[Take Action](#)

HUMAN RIGHTS INFORMATION

GO

GO

CAMPAIGNS

**Stop Torture**

As you read this someone, somewhere is being tortured. Don't turn away.

**My body my rights**

We all have the right to make our own choices about our bodies and our lives.

**Speak Out Russia**

Basic human rights and freedoms are currently under threat in Russia.

**End Enforced disappearances in Syria**

Urge the Syrian government to stop the practice of enforced disappearances.

**Iraq In Crisis**

Urge the Iraqi government to rein in militias.

**Individuals at Risk**

Join hundreds of thousands of people who are standing up for individuals at risk.

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REPORT

MARCH 11, 2014



Digital Life in 2025

Experts predict the Internet will become 'like electricity' — less visible, yet more deeply embedded in people's lives for good and ill

BY **JANNA ANDERSON** AND **LEE RAINIE**

About This Report

This report is the latest research report in a sustained effort throughout 2014 by the Pew Research Center to mark the 25th anniversary of the creation of the World Wide Web by Sir Tim Berners-Lee. He wrote **a paper** on March 12, 1989 proposing an “information management” system that became the conceptual and architectural structure for the Web. He eventually released the code for his system — for free — to the world on Christmas Day in 1990. It became a milestone in easing the way for ordinary people to access documents and interact over the Internet — a system that linked computers and that had been around for years.

REPORT MATERIALS



[Complete Report](#)

Series: [The Web at 25](#)

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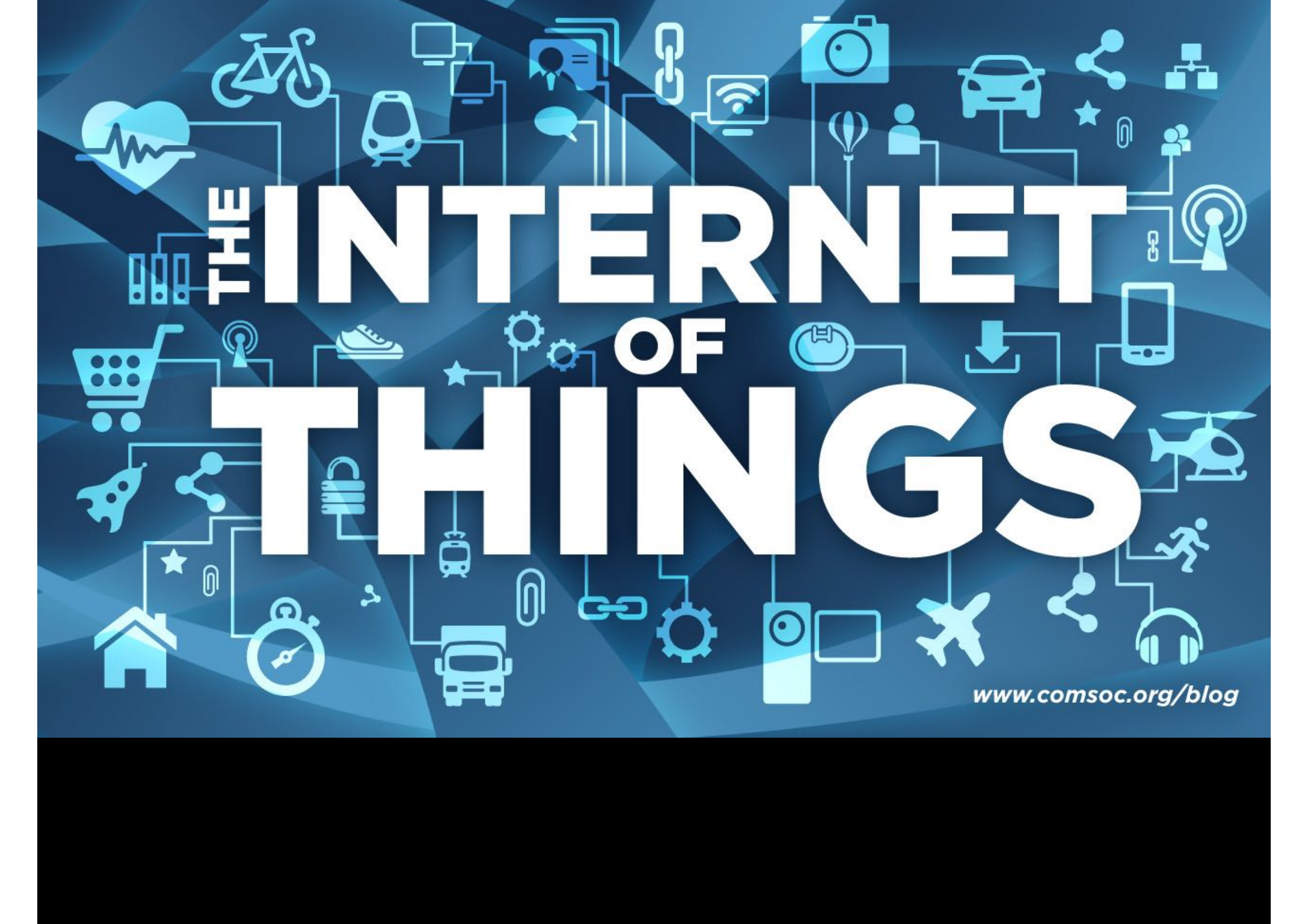
[Pithy Additions — Trendhouses, Microjobs, Metadevices, More](#)

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[The More-Hopeful Theses](#)

[The Less-Hopeful Theses](#)

[The Final Thesis: Today's Choices](#)



THE INTERNET OF THINGS

www.comsoc.org/blog



$$\begin{aligned} a_i &= \frac{1}{2}(a_{i-1} + b_{i-1}) \\ &= (a_{i-1} b_{i-1})^{\frac{1}{2}} \\ c_i &= \frac{1}{2}(a_{i-1} - b_{i-1}) \end{aligned}$$

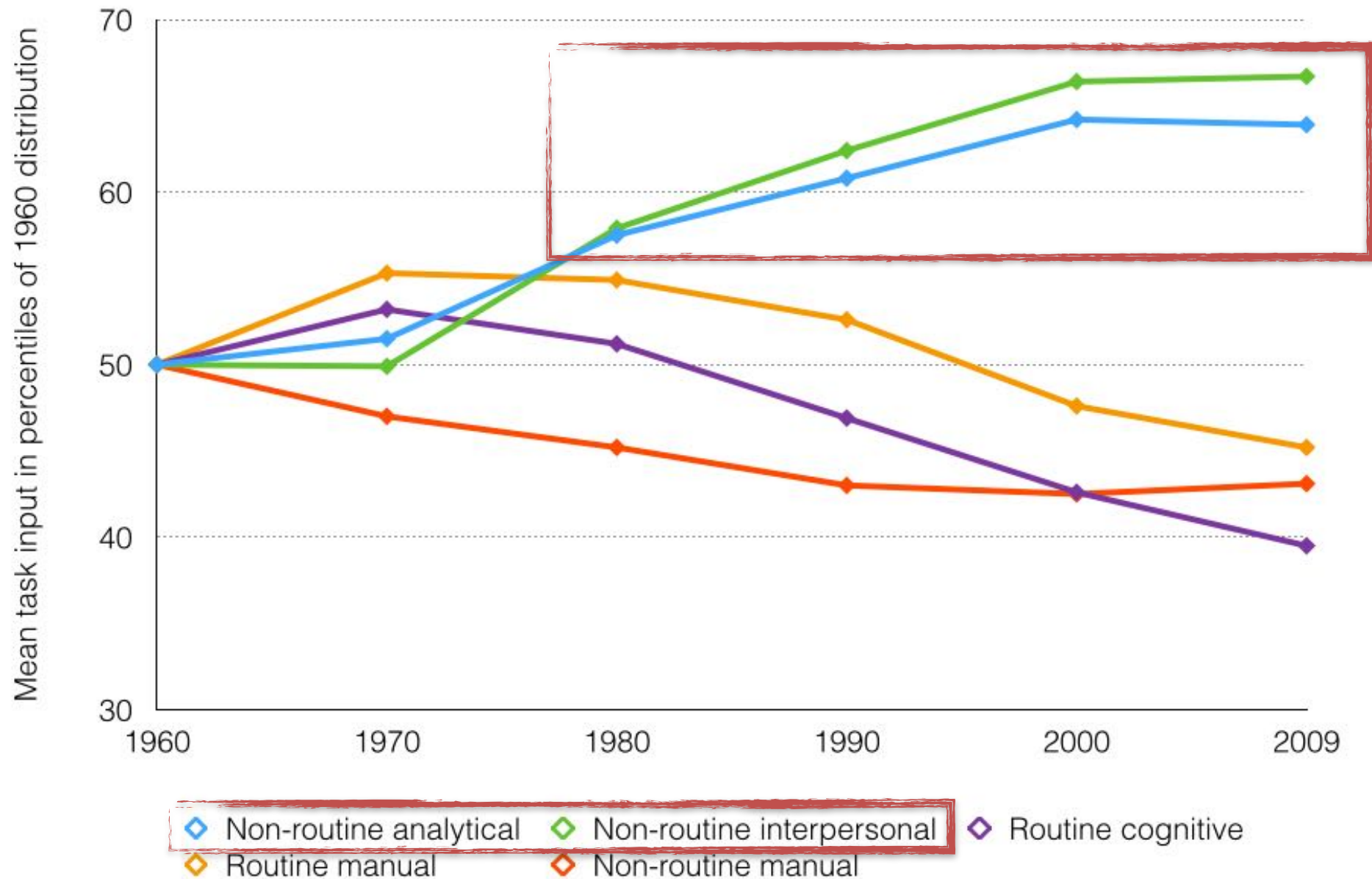


preconduzione di kerato-
kerale
di molte precondizioni

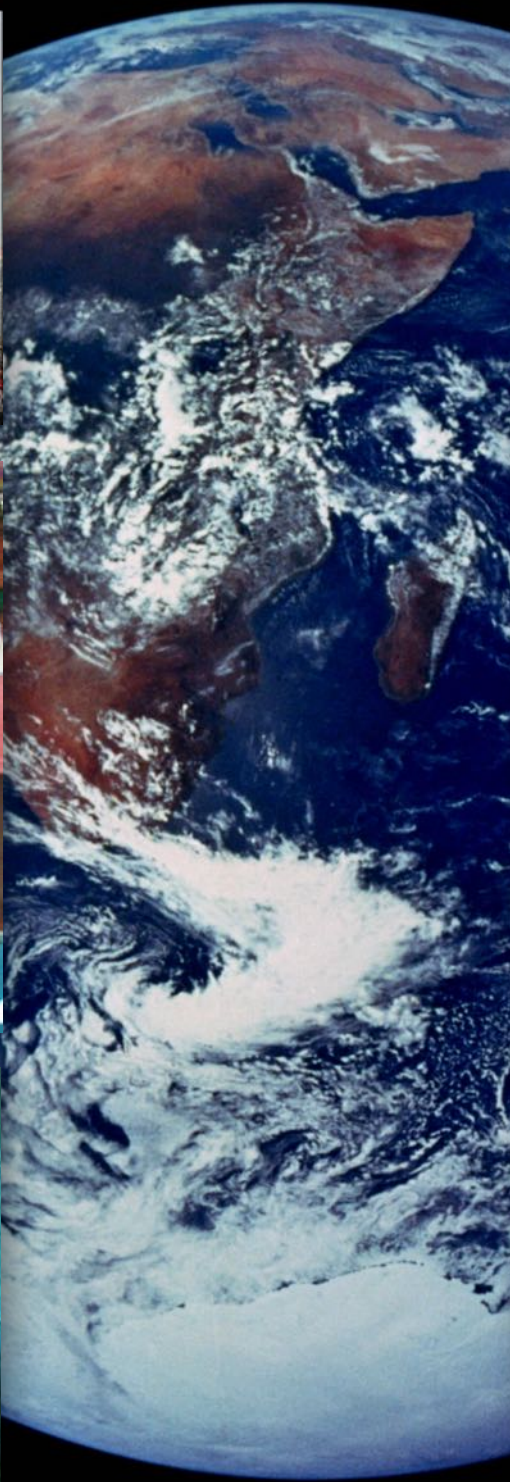


Worker Tasks in the U.S. Economy, 1960-2009

[all education groups]



Autor, D. H., & Price, B. (2013, June). *The changing task composition of the U.S. labor market: An update of Autor, Levy, & Murnane (2003)*. Available at <http://economics.mit.edu/files/9758>



21ST CENTURY SKILLS

LEARNING
FOR LIFE IN
OUR TIMES

BERNIE TRILLING
& CHARLES FADEL

James Bellanca
Ron Brandt
EDITORS

21st century skills

Rethinking How Students Learn

John Barell
Linda Darling-Hammond
Chris Dede
Rebecca DuFour
Richard DuFour
Douglas Fisher
Robin Fogarty
Nancy Frey
Howard Gardner
Andy Hargreaves
David W. Johnson
Roger T. Johnson
Cheryl Lemke
Jay McTighe
Alan November
Bob Peartman
Brian Peters
Douglas Reeves
Will Richardson
Elliot Self

"In this persuasive book, Wagner delineates what skills are needed in a globalized era, why most American schools can't nurture them, and how today's schools could be transformed to cultivate tomorrow's skills."

—HOWARD GARDNER, author of *Five Minds for the Future* and *Multiple Intelligences*

THE GLOBAL ACHIEVEMENT GAP

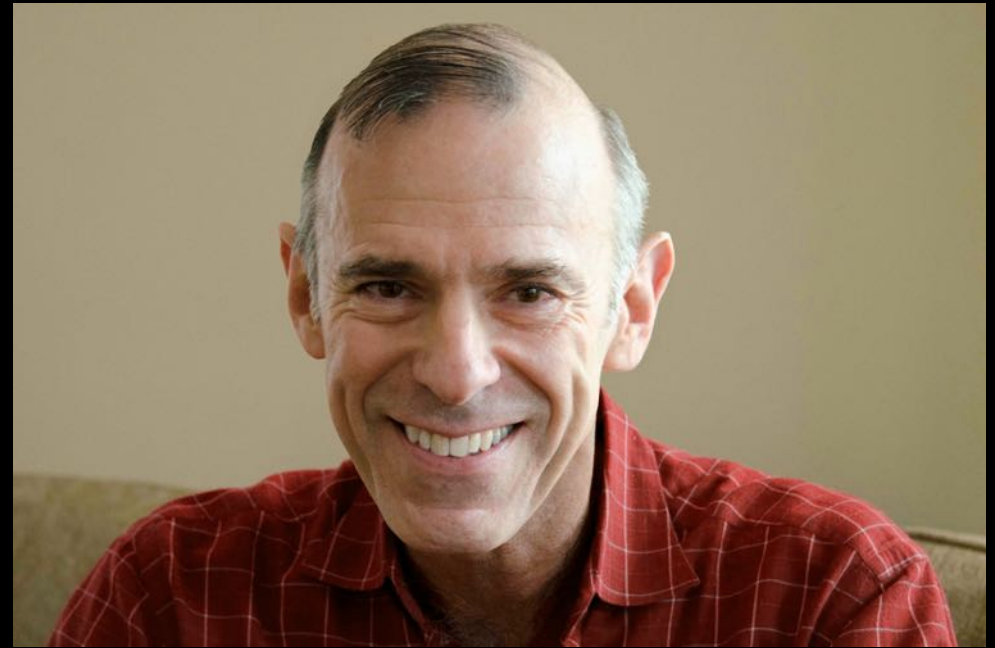
WHY EVEN OUR BEST SCHOOLS DON'T TEACH
THE NEW SURVIVAL SKILLS OUR CHILDREN NEED —
AND WHAT WE CAN DO ABOUT IT



TONY WAGNER

WITH A NEW AFTERWORD BY THE AUTHOR

WITH A NEW AFTERWORD BY THE AUTHOR



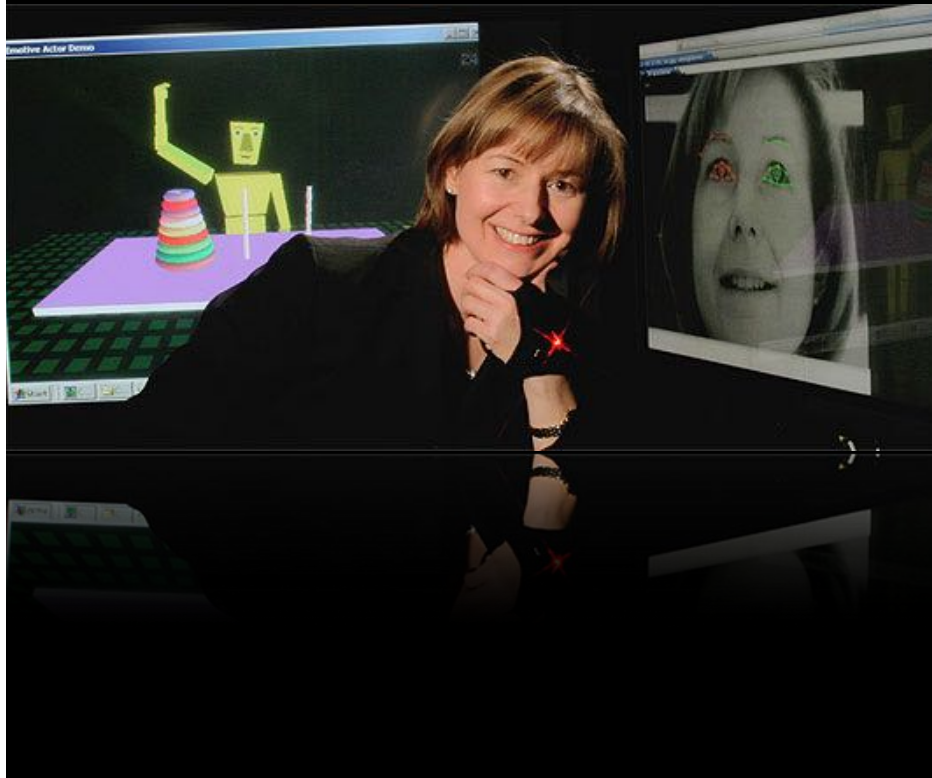
1. Critical Thinking & Problem Solving
2. Collaborative Work in Networks
3. Agility & Adaptability
4. Initiative & Entrepreneurialism
5. Effective Oral & Written Communication
6. Accessing & Analyzing Information
7. Curiosity & Imagination

Lernen & Innovation »The 4 C's«	Digitale Kompetenzen	Karriere & Leben
C ritical Thinking & Problem Solving	Information Literacy	Flexibility & Adaptability
C reativity & Innovation	Media Literacy	Initiative & Self-Direction
C ommunication	ICT Literacy	Social & Cross-Cultural Interaction
C ollaboration		Productivity & Accountability
		Leadership & Responsibility

Responsibility
Engagement
Contentment
Work-Life-Balance







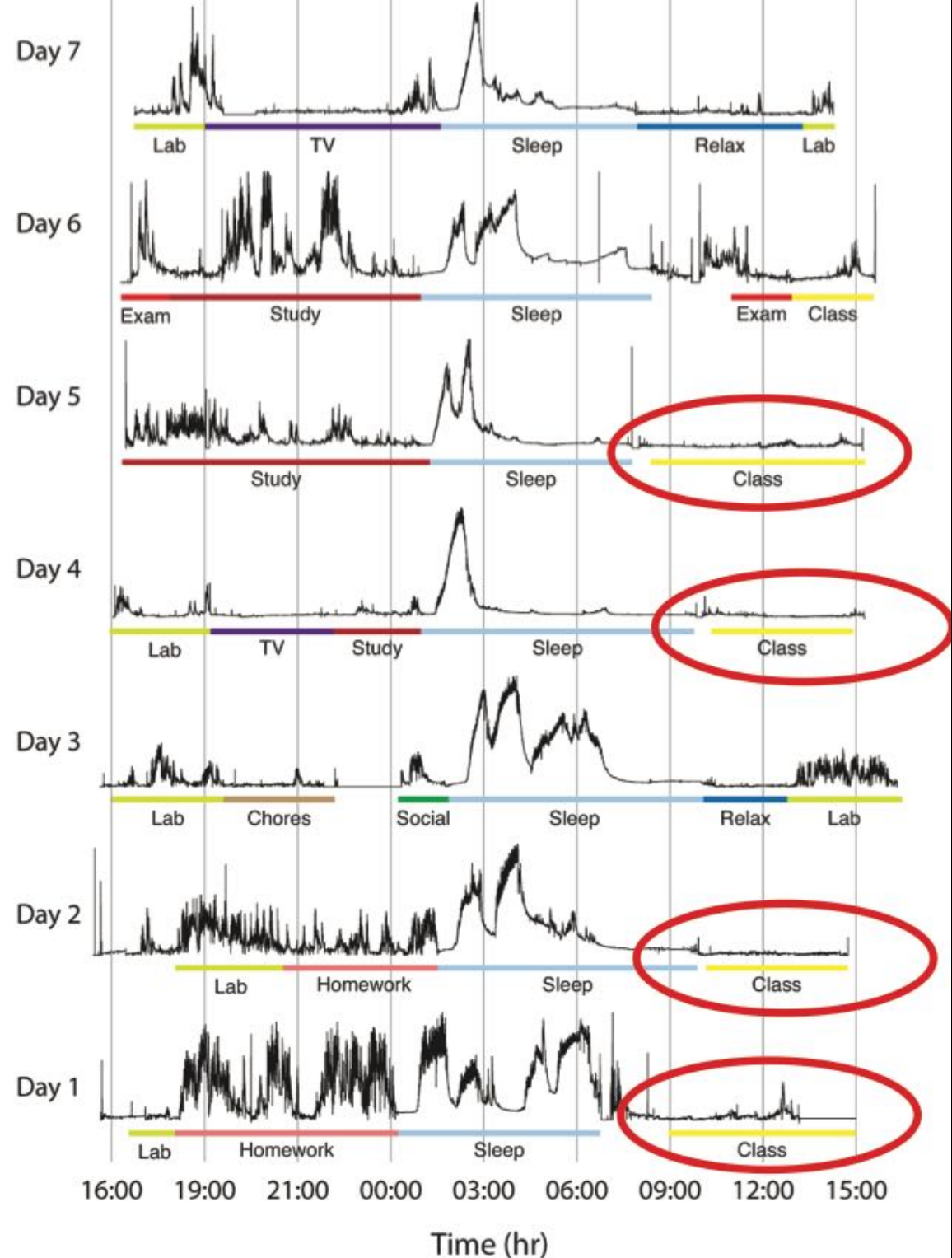
Online Learning Research Shows How Listening to a Lecture Isn't Much Better Than Watching TV

March 7, 2013 By Robyn Tellefsen [Leave a Comment](#)

The advantages of interactive learning over passive lecture experiences have been well-documented through the years, but I would have thought academic lectures were at least a step up from Snooki's antics on "Jersey Shore." Not so much.



During a panel discussion in "Online Learning and the Future of Residential Education," a two-day summit hosted by MIT and Harvard University on March 3 and 4, Harvard physics professor Eric Mazur showed research indicating that students sitting through a lecture have brain activity roughly equivalent to when they watch television. For real!



From Teaching



FROM



TO

Low-Level Thinking

An overwhelming emphasis on students doing lower-level thinking tasks
(factual recall, procedural regurgitation)

High-Level Thinking

Students more often engaging in tasks of greater cognitive complexity
(creativity, critical thinking, problem solving, collaboration, effective communication)

Analog

Local classrooms that are largely based on pens/pencils,
notebook paper, ring binders, and printed textbooks

Digital

Local and global learning spaces that are deeply and richly technology-infused
(devices + Internet)

Teacher-Directed

Classrooms that are overwhelmingly
teacher-controlled

Student-Directed

Learning environments that enable greater student agency
(ownership and control of what, how, when, where, who with, and why they learn)

(the last one's going to be most difficult)

dangerouslyirrelevant.org

Buck Institute for Education (2009)

» There is forty years of **accumulated evidence** that the instructional strategies and procedures that make up standards-focused Project Based Learning are effective in building **deep content understanding**, raising **academic achievement** and encouraging student **motivation to learn**.

Buck Institute for Education (2009)

»Research studies have demonstrated that PBL can [...] **improve** students' mastery of **21st-century skills**.«

6 There is a new emphasis in the classroom on more challenge-based, active learning.

Challenge-based learning and similar methods foster more active learning experiences, both inside and outside the classroom. As technologies such as tablets and smartphones now have proven applications in schools, educators are leveraging these tools, which students already use, to connect the curriculum with real life issues. The active learning approaches are decidedly more student-centered, allowing them to take control of how they engage with a subject and to brainstorm and implement solutions to pressing local and global problems. The hope is that if learners can connect the course material with their own lives and their surrounding communities, then they will become more excited to learn and immerse themselves in the subject matter. Studies of challenge-based learning in practice, including two authored by the NMC, depict an increase in the uptake of 21st Century Skills among learners, including leadership and creativity.

**NMC Horizon
Report (2012)**

NMC Horizon Report (2012)

The Main Course, Not Dessert

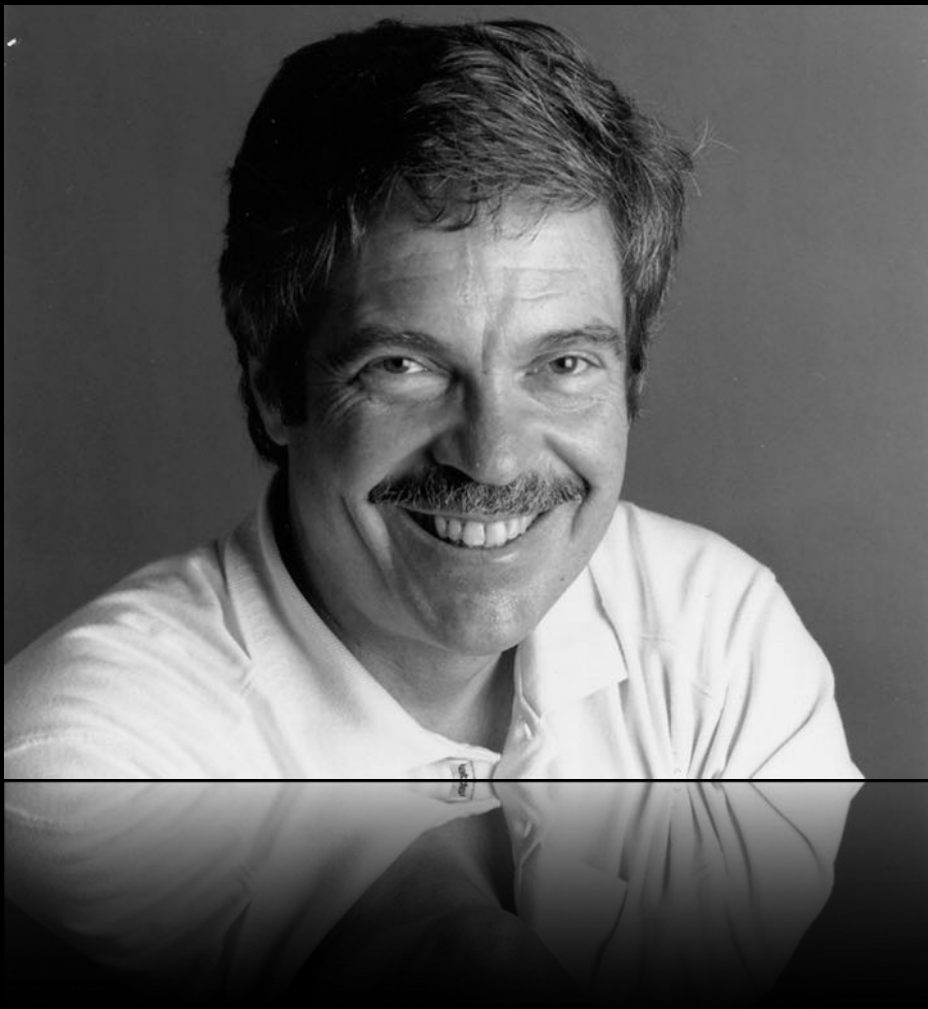
*How Are Students Reaching 21st Century Goals?
With 21st Century Project Based Learning*

John Larmer and John R. Mergendoller
Buck Institute for Education 2010



As the volume level rose, Christina tried once again to convince her group that she was right about how Guatemala should try to increase tourism. "We can't focus so much on the history and the jungle! We should show more on our website about the other reasons! How about the beaches — remember that chart we saw about how warm the weather is in winter? Or the low prices — remember the exchange rate?"

curriculum materials from the National Academy Foundation and the Pearson Foundation. According to teacher Griselda Vile, "Students love the project. They get to share their prior knowledge and have more choice, so they take ownership." She also notes that her ninth graders are motivated to do high-quality work because they know a panel of adults from outside the classroom is going to be



»The best way
to predict the
future is to
invent it.«

Alan Kay

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