

“How to Survive in the Digital Disruption Era”

Prof. Dr. M. Yaşar Özden,

Computer Education & Instructional Technology,
&

Distance Education Institute (Director),

Eastern Mediterranean University,
Famagusta, TRNC,

Mersin-10, Turkey



How do we solve our problems?



'YOU CAN NEVER SOLVE A PROBLEM ON
THE LEVEL ON WHICH IT WAS CREATED.'
A. EINSTEIN



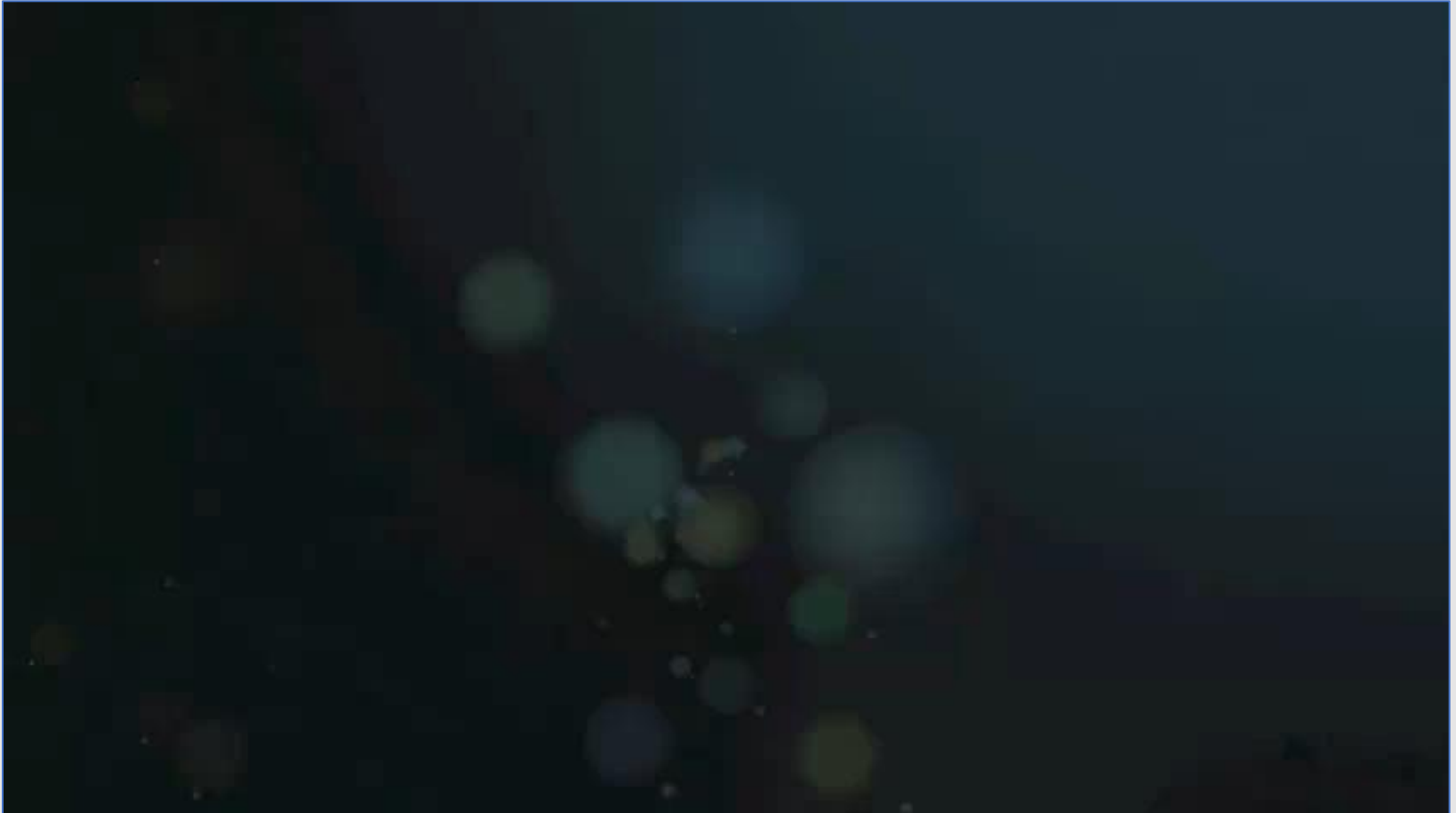
'WE CANNOT SOLVE OUR PROBLEMS
WITH THE SAME LEVEL OF THINKING
THAT CREATED THEM' A. EINSTEIN



First Peoples

The screenshot shows the PBS website interface for the series 'First Peoples'. At the top, there are navigation links for 'Home', 'Shows', 'Video', 'TV Schedules', 'Shop', and 'Donate', along with a search icon. The main header includes the PBS logo, 'Choose Station', and 'Sign In'. The central focus is a large banner image of a man standing on a beach with his arms raised, with the text 'FIRST PEOPLES' overlaid. To the right of the banner is a 'Official Trailer' section with a 'Preview: 51 | 2m 4s' duration. Below the banner, it states 'Premiered Summer 2015' and provides an 'Add to Favorites' button. A descriptive paragraph below reads: 'See how the mixing of prehistoric human genes led the way for our species to survive and thrive around the globe. Archaeology, genetics and anthropology cast new light on 200,000 years of history, detailing...'. On the right side, there are three video thumbnails: 'Eva of Naharon - The First ...' (Clip: Ep1 | 1m 2s), 'A Human Hybrid?' (Clip: Ep5 | 1m 28s), and 'The Secret to Our Success -...' (Clip: Ep2 | 2m 19s). At the bottom right, there is a 'Visit The Official Website' button and a promotional image for 'DOWNTON ABBEY' with the text 'ALL SEASONS AVAILABLE'.

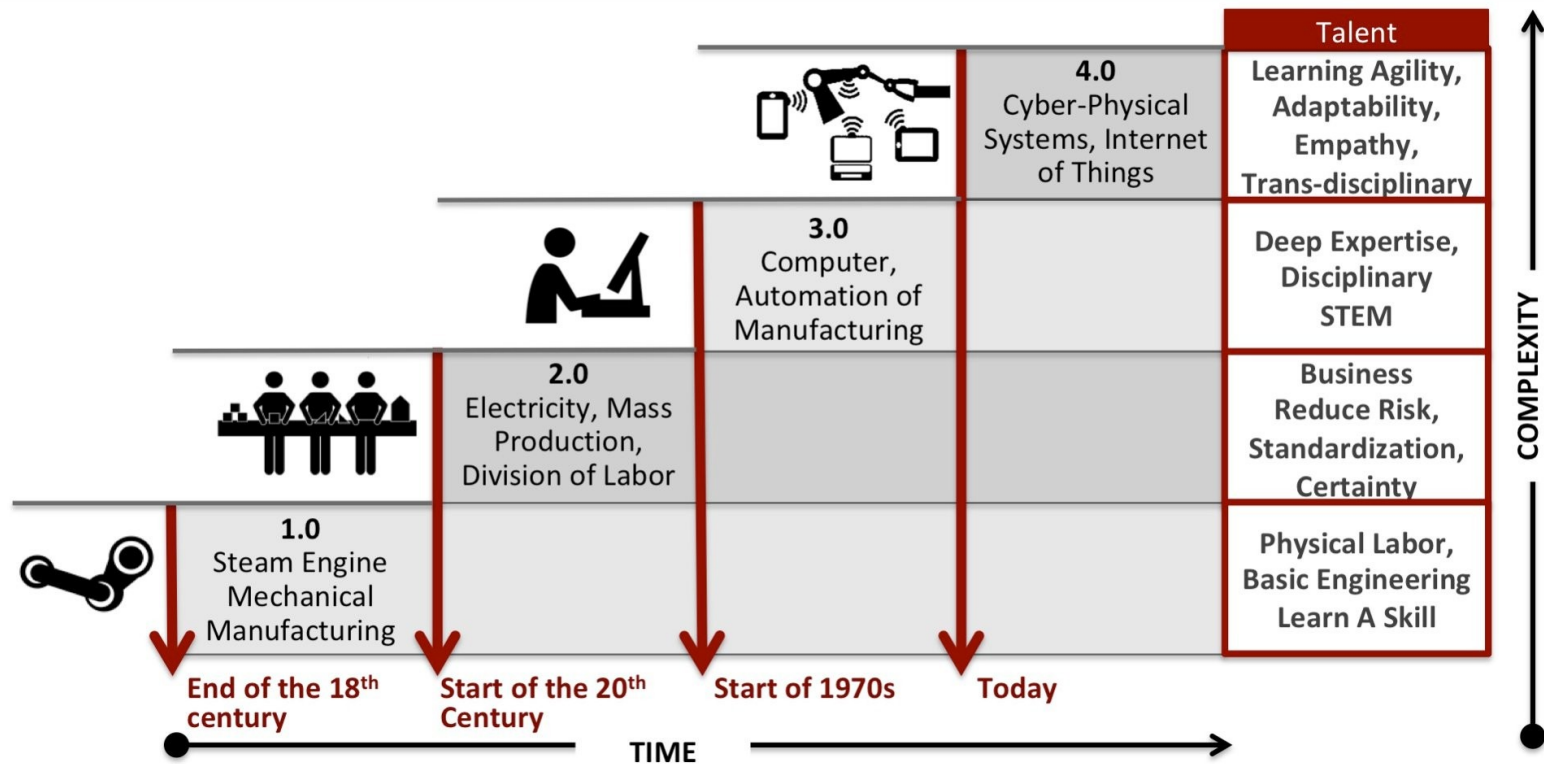
First Peoples..





Industrial Revolutions

Context: Next Industrial Revolution (World Economic Forum 4th)



World Bank Group: HR Connected

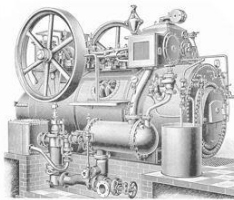
@heathermcgowan

Industrial Revolutions

Industrial revolutions - innovation across industries

First

Mechanical production
steam, water



1784: First power loom

Second

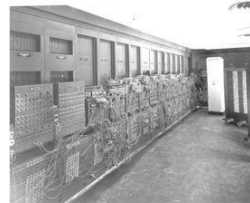
Mass production
electricity



1870: First assembly line,
Cincinnati slaughterhouses

Third

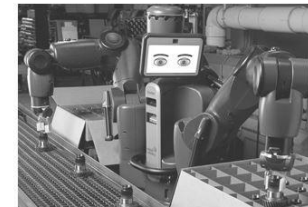
Digital
IT, Electronics



1969: First programmable
logic controller (PLC)

Fourth

Cyber-physical systems
physical + digital + biological



Today: Cyber-physical
systems and robots learning
from humans

Source: Schwab, K. (2017) The Fourth Industrial Revolution



Industrial Revolutions

Industrial revolutions

Fifth

Sixth

Carbon Based Computers

Automation of
Carbon Based Computers



>2000

?

?

?



Digital Disruption

The term digital disruption has become something of a cliché in recent years and is often misused to describe any product involving digital technology or the use of digitization to better compete against marketplace peers.

It is often confused with the term disruptive technology, a term coined by Harvard Business School professor Clayton M. Christensen to describe a new technology that displaces an established technology.



Digital Disruption (Definitions)

Digital disruption is an effect that **changes** the fundamental expectations and behaviors in a culture, market, industry or process that is caused by, or expressed through, digital capabilities, channels or assets. (Gartner IT Glossary)

Digital disruption is the **change** that occurs when new digital technologies and business models affect the value proposition of existing goods and services.

Generally, digital disruption happens after a digital innovation, such as big data, machine learning (ML), internet of things (IoT) or the bring your own device (BYOD) movement. Digital innovation then affects how customer expectations and behaviors evolve, causing organizations to shift how they create products and services, produce marketing material and evaluate feedback.



Digital Disruption

Digital Disruption



Disruptive Technology (definition)

What does Disruptive Technology mean?

Disruptive technology refers to any enhanced or completely new technology that replaces and disrupts an existing technology, rendering it obsolete. It is designed to succeed similar technology that is already in use.

Disruptive technology applies to hardware, software, networks and combined technologies.



Examples of Digital Disruption

The digital camera business disrupted the industry of film photography and photo processing.

The subscription economy business model, as used by companies like Amazon, Hulu and Netflix, caused a disruption within the media and entertainment industries by changing how content is accessed by customers and monetized by advertisers.













Freemium products, such as Spotify, LinkedIn or Dropbox, that allow users to sample a basic product with the option to pay for the full offer, put more emphasis on developing a well-known brand behind a product or service.

On-demand services, like Uber, have disrupted more traditional services like taxis.

The rise of electronic reading has redefined the print and publication industry.

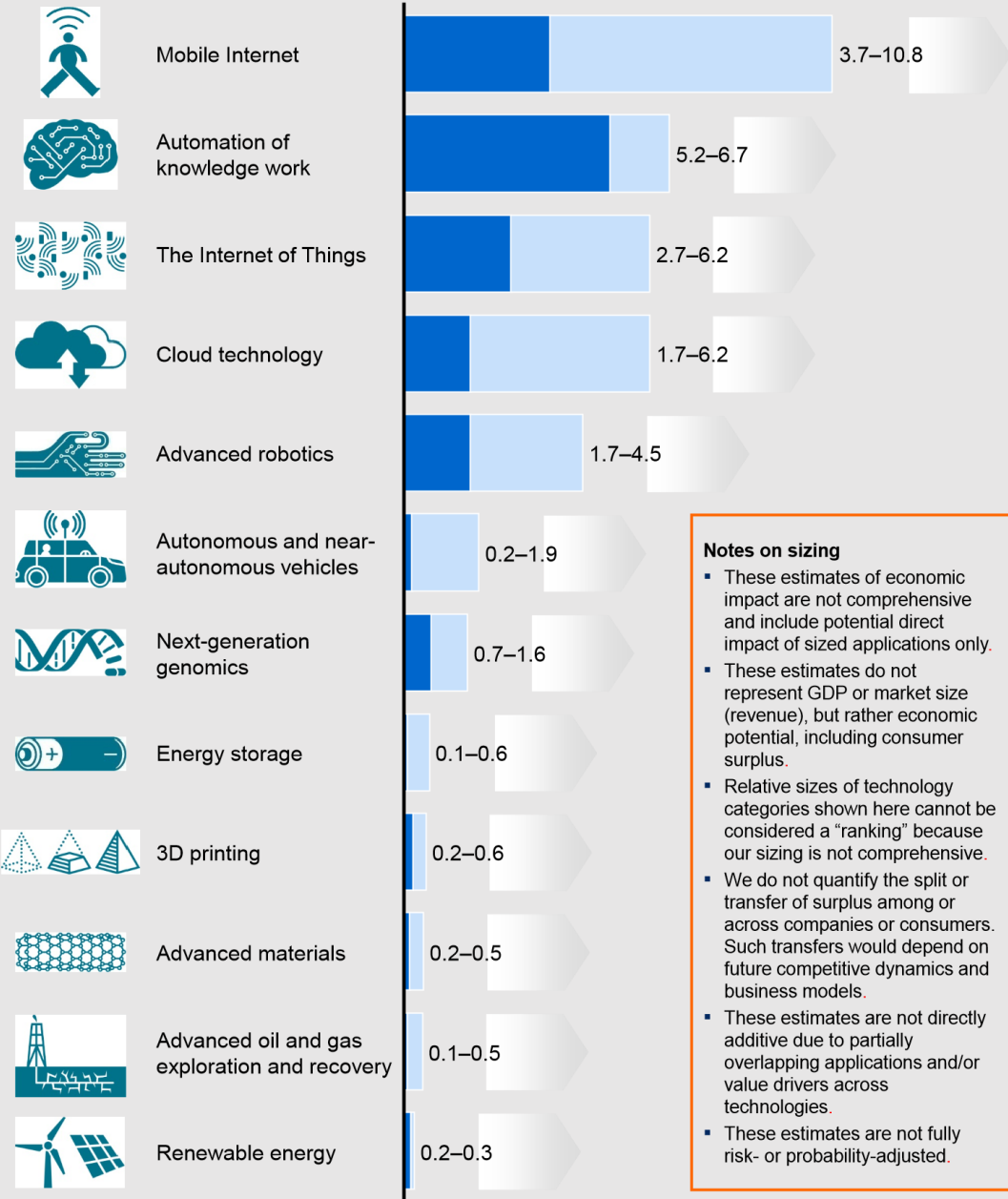
Disruptive Technologies:
Advances that will transform life, business, and the global economy

Speed, scope, and economic value at stake of 12 potentially economically disruptive technologies

 Mobile Internet	 Nextgeneration genomics
 Automation of knowledge work	 Energy storage
 The Internet of Things	 3D printing
 Cloud technology	 Advanced materials
 Advanced robotics	 Advanced oil and gas exploration and recovery
 Autonomous and nearautonomous vehicles	 Renewable energy

SOURCE: McKinsey Global Institute analysis

Estimated potential economic impact



Notes on sizing

- These estimates of economic impact are not comprehensive and include potential direct impact of sized applications only.
- These estimates do not represent GDP or market size (revenue), but rather economic potential, including consumer surplus.
- Relative sizes of technology categories shown here cannot be considered a “ranking” because our sizing is not comprehensive.
- We do not quantify the split or transfer of surplus among or across companies or consumers. Such transfers would depend on future competitive dynamics and business models.
- These estimates are not directly additive due to partially overlapping applications and/or value drivers across technologies.
- These estimates are not fully risk- or probability-adjusted.

SOURCE: McKinsey Global Institute analysis



Other
technologies
on the radar

Artificial Intelligence

Blockchain

Augmented Reality and Virtual Reality

DevOps

Intelligent Apps (I – Apps)

RPA (Robotic Process Automation)

Big Data



Other technologies on the radar (Big Data)

- Big data refers to problems that are associated with processing and storing different types of data. Most of the companies today, rely on big data analytics to gain huge insight about their:
 - customer,
 - product research,
 - marketing initiatives and many more.
- For your surprise, big data led Germany to win the world cup.
- What about Brexit, America's Elections?

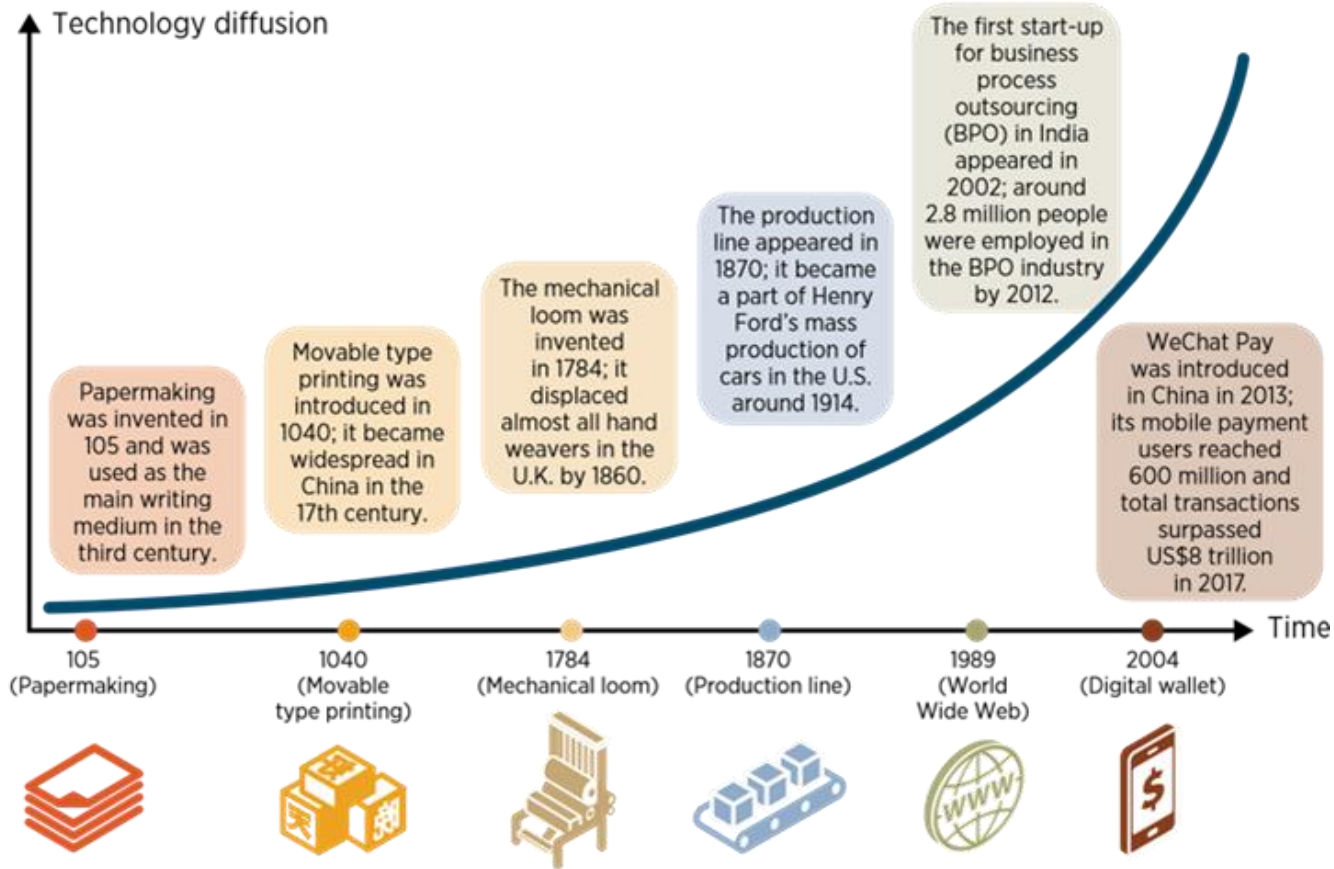
edureka!





The Great Hack





Source: WDR 2019 team.

Technological Change

Technological change makes it harder to anticipate which job-specific skills will thrive and which will become obsolete in the near future. In the past, shifts in skill requirements prompted by technological progress took centuries to manifest themselves. In the digital era, advances in technology call for new skills seemingly overnight.



The Changing Nature of Work?

- “Machines are coming to take our jobs “ has been a concern for hundreds of year at least since the industrialization of weaving in the early 18th century, which raised productivity and also fears that thousands of workers would be thrown out on the streets.
- The resulting displacement of workers generates anxiety, just as in the past. In 1589, Queen Elizabeth I of England was alarmed when clergyman William Lee applied for a royal patent for a knitting machine: “Consider thou what the invention would do to my poor subjects,” she pointed out. “It would assuredly bring them to ruin by depriving them of employment.”
- In the 1880s, the Qing dynasty fiercely opposed constructing railways in China, arguing that the loss of luggage-carrying jobs might lead to social turmoil.
- Earlier in the 19th century, the Luddites sabotaged machines to defend their jobs in England, despite the overall economic growth fueled by steam power. Fears of robot-induced unemployment have dominated discussions about the future of work.



The Changing Nature of Work?

- Yet today, we are riding a new wave of uncertainty as the pace of innovation continues to accelerate and technology affects every part of our lives.
- First, technology is blurring the boundaries of the firm, as evident in the rise of platform marketplaces.
- Second, technology is reshaping the skills needed for work. The demand for less advanced skills that can be replaced by technology is declining
- Third, the idea of robots replacing workers is striking a nerve.
- Fourth, in many developing countries a large number of workers remain in low-productivity jobs, often in informal sector firms whose access to technology is poor.
- Fifth, technology, in particular social media, affects the perception of rising inequality in many countries.



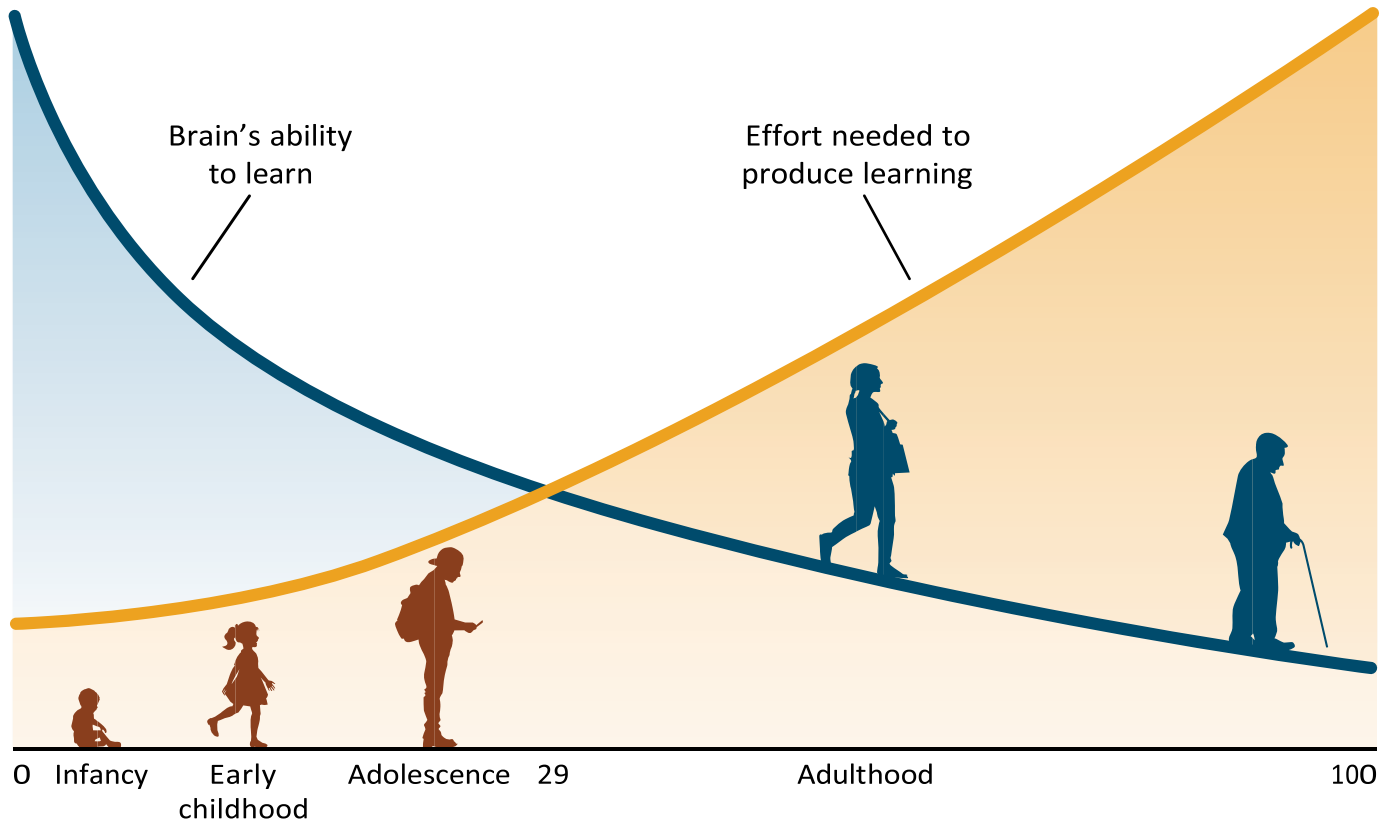
Solutions are available

- Innovation and technological progress have caused disruption, but they have created more prosperity than they have destroyed
- Investing in human capital is the priority to make the most of this evolving economic opportunity.
- Three types of skills are increasingly important in labor markets: advanced cognitive skills such as complex problem-solving, sociobehavioral skills such as teamwork, and skill combinations that are predictive of adaptability such as reasoning and self-efficacy. (Since 2001, the share of employment in occupations heavy in nonroutine cognitive and sociobehavioral skills has increased from 19 to 23 percent in emerging economies and from 33 to 41 percent in advanced economies)
- Building these skills requires strong human capital foundations and lifelong learning
- Individuals with more advanced skills are taking better advantage of new technologies to adapt to the changing nature of work



Solutions are available

- At the economywide level, human capital is positively correlated with the overall level of adoption of advanced technologies. Firms with a higher share of educated workers do better at innovating. Individuals with stronger human capital reap higher economic returns from new Technologies.
- Investments in early childhood, including in nutrition, health, protection, and education, lay strong foundations for the future acquisition of higher- order cognitive and sociobehavioral skills. (In France, the mandatory school starting age will soon be lowered from 6 to 3 years. According to President Emmanuel Macron, this reform is intended to boost equality, thereby improving the ability of children from disadvantaged backgrounds to remain competitive in the education system)



Solutions are available

The architecture of the brain forms from the prenatal period to age 5, and so this is an important stage for developing cognitive and sociobehavioral skills. During this period, the brain's ability to learn from experience is at its highest level.



Solutions are available

- A significant part of the readjustment in the supply of skills is happening outside of compulsory education and formal jobs.
- How well countries cope with the demand for changing job skills depends on how quickly the supply of skills shifts. Education systems, however, tend to resist change.
- Early childhood learning, tertiary education, and adult learning sought outside the workplace are increasingly important in meeting the skills that will be sought by future labor markets.



Technology in education – transforming the world



Technology has changed the way we live, work and learn, but it is only now starting to transform our schools and universities.



Our students have changed radically. Today's students are no longer the people our educational system was designed to teach.



Today's students have not just changed incrementally from those of the past, nor simply changed their slang, clothes, body adornments, or styles, as has happened between generations previously. A really big discontinuity has taken place.



Technology in education – transforming the world



"It is now clear that as a result of this ubiquitous environment and the sheer volume of their interaction with it, today's students think and process information fundamentally differently from their predecessors. "



"Different kinds of experiences lead to different brain structures, " says Dr. Bruce D. Berry of Baylor College of Medicine. it is very likely that our students' brains have physically changed – and are different from ours – as a result of how they grew up. But whether or not this is literally true, we can say with certainty that their thinking patterns have changed. "



"They like to parallel process and multi-task. They prefer their graphics before their text rather than the opposite. They prefer random access (like hypertext). They function best when networked. They thrive on instant gratification and frequent rewards"



Teaching Models?



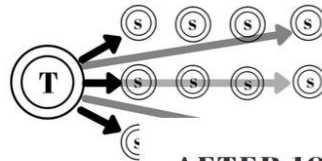
EDUCATION RICKSHAW

INTERNATIONAL TEACHING IN MOTION



HOME • ABOUT • BLOG • CONTACT

Why teach like this?



When learning is this?

AFTER 100 YEARS OF THE SAME TEACHING MODEL IT'S TIME TO THROW OUT THE PLAYBOOK

December 2, 2017

In looking back at my parents' education in the 1950s and 60s, and my own education in the 1990s and 2000s, I worry sometimes that despite the huge advances that we've seen in technology, not much has changed when it comes to

- WELCOME -



Hi, and welcome to our site! We are Stephanie and Zach Groshell and we are international educators in Sudan. We hope to use this platform to share and learn with you. Click on our picture to learn more about us.

- SEARCH -



Technology in education – transforming the world



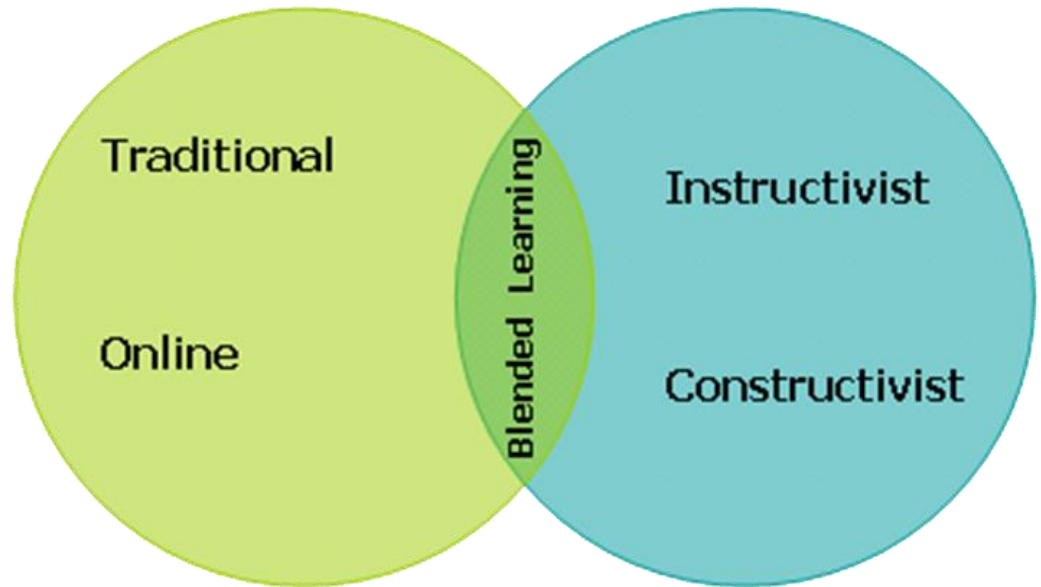
"Teachers assume that learners are the same as they have always been, and that the same methods that worked for the teachers when they were students will work for their students now. "



"As educators, we need to be thinking about how to teach Legacy and Future content in the language of the Digital Natives. The first involves a major translation and change of methodology; the second involves all that PLUS new content and Thinking. "



New Trends in Education





Traditional vs. New Learning

Traditional Learning	New Learning
Teacher Centered	Student Centered
Single Media	Multimedia
Isolated Work	Collaborative Work
Information Delivery	Information Exchange
Factual, Knowledge-Based Learning	Critical Thinking and Informed Decision Making
Push	Pull



Framework for 21st Century Learning

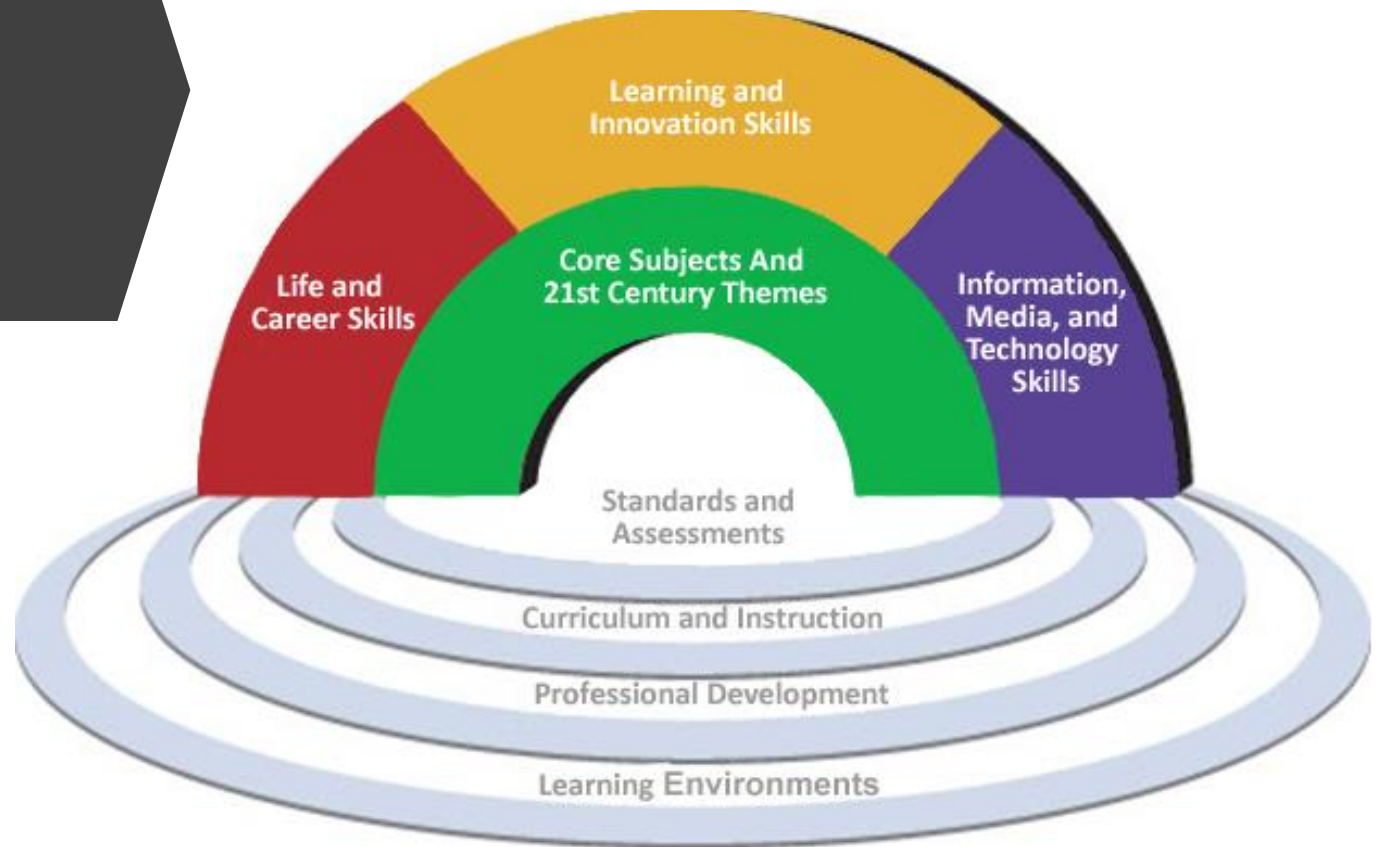


Figure 1 - P21 Framework for 21st Century Learning



21st century skills

Learning and Innovation "The 4 C's"	Digital Literacy	Career and Life
Critical thinking & problem solving	Information literacy	Flexibility & adaptability
Creativity and innovation	Media Literacy	Initiative & self-direction
Communication	ICT Literacy	Social & cross-cultural interaction
Collaboration		Productivity & Accountability
		Leadership & responsibility

Table 1 - P21 Skills



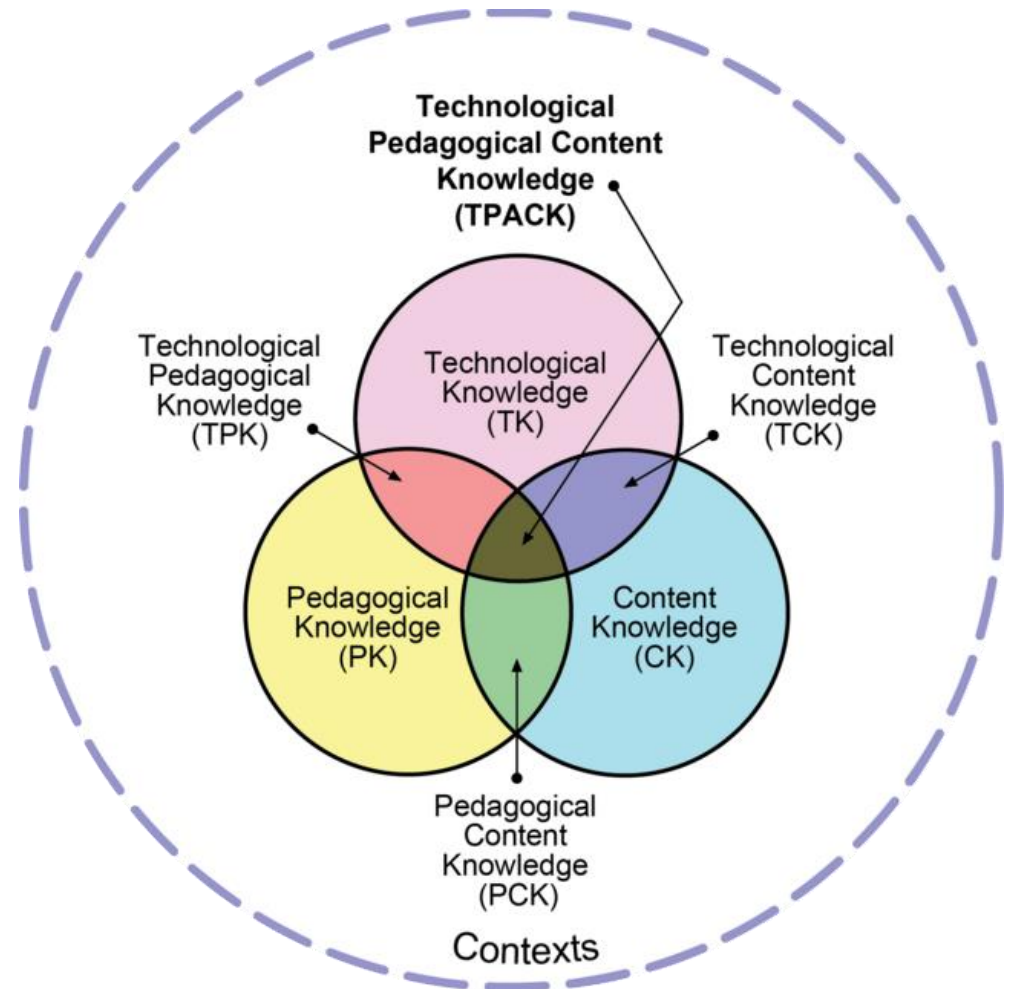
Learning Universe!





Solution - TPACK

- Key issue is how to prepare our teachers/Instructors/professors?
- In addition to Pedagogical preparation
- Technological preparation is important
- They know how to teach but they have nothing to teach?
- Do not forget our future is directly proportional to highly Qualified teachers.





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Apps ★ Bookmarks Account Login - Blu... Middle East Technic... DATABASES A-Z LIS... Compare Office 365... Form Nesneleri - HT... Web Dilleri - JavaScr... Microsoft Outlook ... Other bookmarks

Özden, M. Y. (2004). Law of the Minimum in Learning. *Educational Technology & Society*, 7 (3), 5-8.

Law of the Minimum in Learning

Moderator & Summarizer:
M. Yasar Özden
Chair, Computer Education & Instructional Technologies
Middle East Technical University
Turkey
myozden@metu.edu.tr

Discussion Schedule:
Discussion: April 19-28, 2004
Summing-up: April 29-30, 2004

Pre-Discussion Paper

For a long time i am thinking about "Learning", what it is, how it occurs, what are the limitations, how can we improve its quality etc. eventually, i had a meaning for "learning" and named it "**Law of the Minimum in Learning**".

I have influenced greatly from Justus von Liebig's (For more information on Liebig, see:1,2,3) Law of the Minimum which states that **yield** is proportional to **the amount of the most limiting nutrient**, whichever nutrient it may be. From this, it may be inferred that if the deficient nutrient is supplied, yields may be improved to the point that some other nutrient is needed in greater quantity than the soil can provide, and the Law of the Minimum would apply in turn to that nutrient.

If we redefine "yield" as **learning** and "the most limiting nutrient" as **human readiness (either learner or helper)** then we can easily say that meaningful or active learning is directly proportional to any of the human's readiness. Unlike the plant system, just increasing any of the human readiness or increasing the quality nonliving constituents (instructional materials, methods) of the learning system may not improve the quality of learning process. At this point, we have to define learning system which is composed of living and nonliving constituents. Living constituents cover learner and the living helper of the learning process. Nonliving constituents cover all materials, methods and the environment where the learning process occurs.



An advance organizer ?

- An advance organizer is information presented by an instructor that helps the student organize new incoming information. This is achieved by directing attention to what is important in the coming material, highlighting relationships, and providing a reminder about relevant prior knowledge.
- Advance organizers are helpful in the way that they help the process of learning when difficult and complex materials are introduced. This is satisfied through two conditions:
 1. The student must process and understand the information presented in the organizer—this increases the effectiveness of the organizer itself.
 2. The organizer must indicate the relations among the basic concepts and terms that will be used.



An advance organizer ?

ADVANCE ORGANIZERS

Advance Organizer

- *They direct students' attention to what is important in the upcoming lesson.*
- *They highlight relationships among ideas that will be presented.*
- *They remind students of relevant information that they already have.*



Study.com



1:40





The Flipped Classroom

THE FLIPPED CLASSROOM Turning Traditional Education on Its Head

Many educators are experimenting with the use of a flipped classroom model. So what is it and why is everyone talking about it?

WHAT IS THE FLIPPED CLASSROOM?

The flipped classroom inverts traditional teaching methods, delivering instruction online outside of class and moving "homework" into the classroom.

THE INVERSION

The Traditional Classroom
Teacher's Role: Sage on the Stage

LECTURE TODAY Homework
Reading and questions
during class

The Flipped Classroom
Teacher's Role: Guide on the Side

ACTIVITY TODAY WATCH lecture
online tonight!

The infographic illustrates the transition from a traditional classroom where the teacher lectures and students do homework, to a flipped classroom where students watch lectures at home and engage in activities during class time.



How do I flip my class?

Step 1

Identify where the flipped classroom model makes the most sense for your course



Step 2

Spend class time engaging students in application activities with feedback



Step 3

Clarify connections between inside and outside of class learning



Step 4

Adapt your materials for students to acquire course content in preparation of class



Step 5

Extend learning beyond class through individual and collaborative practice

Thank you very much!





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