Digital Learning Evolves to Meet The Future Of Work
Schools and the Future of Work
A Powerful Connection Full of Uncertainties
Nearly Half of Current Jobs in the U.S. Are Likely to be Done by Machines When Today’s Kindergartners Are Adult Workers

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### THE FUTURE OF EMPLOYMENT?

*Automation could wipe out millions of jobs*

In 2013, Oxford University researchers Carl Benedikt Frey and Michael A. Osborne published an influential study estimating that 47 percent of U.S. jobs were at high risk of automation in the coming two decades. For this analysis, independent information designer Henrik Lindberg applied Frey and Osborne’s projections to 2016 data from the U.S. Bureau of Labor Statistics. The chart shows how many Americans currently work in a wide range of occupations, and how likely Frey and Osborne believed each occupation is to be automated.

#### Number of workers (in millions) in each occupation, 2016

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Percent likelihood each occupation will be automated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail salespersons</td>
<td>4</td>
</tr>
<tr>
<td>Fast food and counter workers</td>
<td>3</td>
</tr>
<tr>
<td>Laborers and material movers</td>
<td>3</td>
</tr>
<tr>
<td>Secretaries and administrative assistants</td>
<td>3</td>
</tr>
<tr>
<td>Cashiers</td>
<td>3</td>
</tr>
<tr>
<td>Building cleaning workers</td>
<td>3</td>
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<tr>
<td>Driver/sales workers and truck drivers</td>
<td>3</td>
</tr>
<tr>
<td>Office clerks, general</td>
<td>3</td>
</tr>
<tr>
<td>Registered nurses</td>
<td>3</td>
</tr>
<tr>
<td>Customer service representatives</td>
<td>3</td>
</tr>
<tr>
<td>Waiters and waitresses</td>
<td>3</td>
</tr>
<tr>
<td>Nursing, psychiatric, and home health aides</td>
<td>3</td>
</tr>
<tr>
<td>Cooks</td>
<td>3</td>
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<tr>
<td>General and operations managers</td>
<td>3</td>
</tr>
<tr>
<td>Elementary and middle school teachers</td>
<td>3</td>
</tr>
<tr>
<td>Stock clerks and order fillers</td>
<td>3</td>
</tr>
<tr>
<td>Sales representatives, wholesale, and manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>Software developers and programmers</td>
<td>3</td>
</tr>
<tr>
<td>Bookkeeping, accounting, and auditing clerks</td>
<td>3</td>
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<tr>
<td>Personal care aides</td>
<td>3</td>
</tr>
<tr>
<td>First-line supervisors of sales workers</td>
<td>3</td>
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<tr>
<td>First-line supervisors of office and administrative support workers</td>
<td>3</td>
</tr>
<tr>
<td>Miscellaneous health-care support</td>
<td>3</td>
</tr>
<tr>
<td>Miscellaneous assemblers and fabricators</td>
<td>3</td>
</tr>
<tr>
<td>Maintenance and repair workers, general</td>
<td>3</td>
</tr>
<tr>
<td>Teacher assistants</td>
<td>3</td>
</tr>
<tr>
<td>Accountants and auditors</td>
<td>3</td>
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<tr>
<td>Security guards and gaming surveillance officers</td>
<td>3</td>
</tr>
<tr>
<td>Secondary school teachers</td>
<td>3</td>
</tr>
<tr>
<td>Supervisors of food preparation and serving workers</td>
<td>3</td>
</tr>
<tr>
<td>Receptionists and information clerks</td>
<td>3</td>
</tr>
<tr>
<td>Ground maintenance workers</td>
<td>3</td>
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<tr>
<td>Miscellaneous business operations specialists</td>
<td>3</td>
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<tr>
<td>Miscellaneous sales representatives, services</td>
<td>3</td>
</tr>
<tr>
<td>Construction laborers</td>
<td>3</td>
</tr>
<tr>
<td>Miscellaneous teachers and instructors</td>
<td>3</td>
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<tr>
<td>Miscellaneous production workers</td>
<td>3</td>
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<tr>
<td>Food preparation workers</td>
<td>3</td>
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<tr>
<td>Automotive technicians and repairers</td>
<td>3</td>
</tr>
<tr>
<td>Computer support specialists</td>
<td>3</td>
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<tr>
<td>Health practitioner support technologists and technicians</td>
<td>3</td>
</tr>
<tr>
<td>Licensed practical and licensed vocational nurses</td>
<td>3</td>
</tr>
<tr>
<td>Counter and rental clerks and parts salespersons</td>
<td>3</td>
</tr>
<tr>
<td>Bus drivers</td>
<td>3</td>
</tr>
<tr>
<td>Shipping, receiving, and traffic clerks</td>
<td>3</td>
</tr>
<tr>
<td>Carpenters</td>
<td>3</td>
</tr>
<tr>
<td>Computer and information analysts</td>
<td>3</td>
</tr>
<tr>
<td>Police officers</td>
<td>3</td>
</tr>
<tr>
<td>Counselors</td>
<td>3</td>
</tr>
<tr>
<td>Therapists</td>
<td>3</td>
</tr>
</tbody>
</table>

Inside Schools, Tremendous Uncertainty

- What skills will today’s students need in 5, 10, 20 years?
- What jobs available now will still be around in 2030?
- Should every kid learn to code?
- Is a liberal arts education that emphasizes problem solving the way forward?
- What about apprenticeships, career and technical education, and so-called “lifelong learning.”
Digital Learning Evolves to Meet the Future of Work

Expert Presenters:

Michael Drezek
Technology Integrator and Teacher Leader
Lake Shore Central School District
Angola, N.Y.

Jaime Donally
Former Math Teacher and Instructional Technologist, and Author, "Learning Transported: Augmented, Virtual and Mixed Reality for All Classrooms"
An on-demand archive of this webinar will be available at www.edweek.org/go/webinar in less than 24 hrs.
Digital Learning Evolves to Meet the Future of Work

MICHAEL DREZEK
INSTRUCTIONAL TECHNOLOGY COORDINATOR, LAKE SHORE CSD
Struggle: Putting in place a personalized learning program that:

- Helps students become better problem solvers.
- Helps students become more creative thinkers.
- Helps students become highly skilled users of technology.
The Future of Work?

- Problem Solvers
- Creative Thinkers
- Skilled Users of Technology
- Skilled Creators of Technology

Driverless Cars, Smart Homes, Artificial Intelligence, Materials that are lighter/tougher, Sustainability, Manufacturing Built Around 3D Printing
Reality
Future Ready Framework

**Curriculum, Instruction, and Assessment**

**Personalized Professional Learning**

**Robust Infrastructure**

**Budget and Resources**

**Community Partnerships**

**Data and Privacy**

**Use of Space and Time**

**Collaborative Leadership**

Source: https://futureready.org/about-the-effort/framework/
ISTE Standards for Students, Teachers & Coaches

Student Shifts:
1998  Learning to use tech
2007  Using tech to learn
2017  Transform learning with tech

Source: https://www.iste.org/standards
Lake Shore CSD - Overview

Angola, New York
~ 2500 Students
~ 250 Teachers
5 Schools (3 Elementary Grades K-5, 1 Middle Grades 6-8, 1 High Grades 9-12)

Instructional Technology Specialists (District Wide TOSA)
*Originated from NYS Strengthening Teacher Leader Effectiveness Grant
*One FTE from 2014-2017, Two FTE from 2017-today

District Technology Committee
Professional Development Planning Committee
Mentor-Intern Teacher Program
Lake Shore CSD - Technology

NOT 1:1 → Shared Carts

Mix of iPads, Chromebooks, Windows 10 Dell Mobile Carts & Desktop Labs brought into flexible learning spaces

VR Viewers, 360 Camera, Micro:bits, Makey Makey, Mini-Drones, Minecraft Education, Bloxels, Hummingbird Kits, Cubelets, Dash & Dot, LEGO WeDo & EV3, Green Screen, Breakout Edu, & more…
Lake Shore CSD - Mission

**District Mission Statement:**
Lake Shore Central School District in *partnership with our students, families* and school community will cultivate engaging, diverse, and challenging educational opportunities and learning environments to promote *life-long learning* and achievement in *preparation* for high school graduation, college and *careers*.

The Lake Shore Central School District Board of Education supports professional learning communities that focus on results and *cultivate* a culture of collaboration to improve student learning and *opportunity*. The District goals are the measure of our *high expectations* in all aspects of educating our students.
Lake Shore CSD - Goals

The District will focus on student achievement utilizing the New York State Learning Standards in order to help instill 21st century skills and attitudes necessary for college, career and beyond.

The District will cultivate opportunities and mindsets that encourage our students to challenge themselves and achieve excellence inside and outside the classroom.

The District will foster a culture where families, school staff and community members work together to share in the responsibility for student academic achievement, social-emotional growth and overall well-being.

The District will continue to maintain our facilities at the highest level.

The District will utilize technology to enrich students’ lives by connecting them globally to resources and experiences that can open minds and broaden their understanding of the world beyond our school walls.

The District will demonstrate fiscal responsibility and accountability in all areas of operation.
Lake Shore CSD – Struggles & Successes

Struggle – Access
Success – Grants + New York State Smart Schools Bond Act, Outdoor Wi-Fi Upgrades

Struggle – Personalized PD
Success – Creation of District Wide Edcamp #edcampLSC, Micro-Credentialing Program

Struggle – Transformational Learning
Success – Global Collaboration, Curiosity Based Learning, Creation & Student Voice, Digital Citizenship/Leadership, Student Edcamps
Lake Shore CSD – Struggles & Successes

Struggle – Reaching all staff & all students
Success – Reaching some staff & some students

Struggle – Buy In
Success – Celebrate Risk Takers & Jump Takers, Sharing Our Story

Struggle – Students & Parents Accepting School Today MUST Look Different Than A Year Ago
Success – Community Outreach, Perseverance, High Fives & Smiles
It Looks Different For Everyone

Non-negotiables:
- Accessibility and Support
- Relationships
- Thought Partners
- Effective Training & Leadership
- Celebrating Successes
- Creating a Culture of Connected Learners - #BetterTogether
- Community Approach
- Using Failures as Launching Points → Turning Pits into Peaks
What It Looks Like For Us
What It Looks Like For Us
What It Looks Like For Us
What It Looks Like For Us

Michael Drezek @m_drez · Mar 26
"I met Smartie Bear today! We shared some adventures on @flipgrid. These Grade 1 students @A.SchmidtLS also asked a few questions and would LOVE it if you answered back!" - Ellie @ElliePrimary1
#bethatKINDofbear 🧸 flipgrid.com/ellienv

P1L Mrs. Juland & Ellie Elephant @ElliePrimary1 · Mar 21
"The children are very interested in what is going on with our famous Ellie."
Connect with Michael Drezek

Twitter: @m_drez

Blog: http://michaeldrezek.com

Podcast: Quest for Enlightenment (iTunes, Google Play, Anchor)

Email: michael.drezek@lscsd.org
The Future of Work

Jaime Donally | @jaimeeldonally
Predictions

Forecast augmented (AR) and virtual reality (VR) market size worldwide from 2016 to 2021 (in billion U.S. dollars)

Market size in billion U.S. dollars

250

200

150

100

50

0

2016 2017* 2018** 2020** 2021**

6.1 9.4 17.8 143.3 215

Source
IDC
© Statista 2018

Additional Information:
Worldwide, IDC, November 2017
1,000,000,000
Users by 2020

64% of US Consumers
Believe AR enhancements would benefit the workplace

90%
Of headsets purchased are mobile phone based
Problem Solving

Metaverse
- Create experiences
- Share them anywhere
- Interact with AR/VR
Merge Cubes - Hold a Hologram in your Hand

- Build AR worlds using **Dig**
- Create and upload 3D objects using **Object Viewer**
- Excavate the land and discover dinosaur bones using **DinoDigger**
- Explore global weather patterns in real time using **HoloGlobe**
ARKit Apps

ORB
Google Street View

Welcome
Explore the world in 360° with imagery from Google and other contributors

Capture in 360°
Capture in one tap with linked, spherical cameras, or just use your phone

Publish to Google Maps
Add photo spheres to Google Maps to help people discover new places
CREATION PROCESS

Capture in 360°
Capture in one tap with linked, spherical cameras, or just use your phone.
CoSpaces

Build customized virtual reality
Skill levels range from beginner to advanced
Coding options include Blockly and Javascript
Share your VR creation to others inside of multiple platforms
"The best way to predict the future is to create it"
“Immersive technology provides incredible opportunities for personalized learning and enables us to address the needs of all students.”

–Jaime Donally, Learning Transported

Learn more at: iste.org/TransportLearning
The state of Math

● Math is cumbersome to type.
● Math is important.
● We’ve been teaching math the same way for a long time.
What are the benefits of technology in the math classroom?

- **Engages** students and encourages group collaboration & discussion
- Supports **multiple representations** of math concepts
- Provides students with rapid sharing & teacher feedback

Source: [SRI International](https://www.sri.com)
transforming STEM classrooms

EquatIO is built on Universal Design for Learning (UDL) principles - increasing engagement through a personalized learning experience; enabling students to demonstrate mastery in multiple ways.

- Prediction
- LaTeX
- Handwriting Recognition
- Speech Input
- Mobile image recognition
- Desmos graphing
- Easy shapes creation
- Spanish localization (French soon!)
EquatIO - a quick refresher

An easy-to-use math and STEM editor - no math code or programming languages required.

Built on Universal Design for Learning (UDL) principles - increases accessibility and engagement through a personalized experience.

Integrates seamlessly with Read&Write - delivering math-to-speech capabilities.
Install it for FREE by visiting:
https://text.help/EdWeekEquatIO
An on-demand archive of this webinar will be available at www.edweek.org/go/webinar in less than 24 hrs.
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Suggested Reading from *Education Week*:

*Special Report*
**Schools and the Future of Work**
This special report examines what skills students need in order to succeed in the uncertain, intensely competitive workplace of the future.

*Spotlight on Blended Learning*
In this Spotlight, discover how a district’s blended learning program is building positive school culture, why personalized learning is coming under scrutiny, and tips educators can use to make blended learning more student-centered.