

# Education Transformation Framework:



Aidan McCarthy  
WORLDWIDE EDUCATION

Sean Tierney  
WORLDWIDE EDUCATION



THE CONTEXT FOR DISCUSSION IS

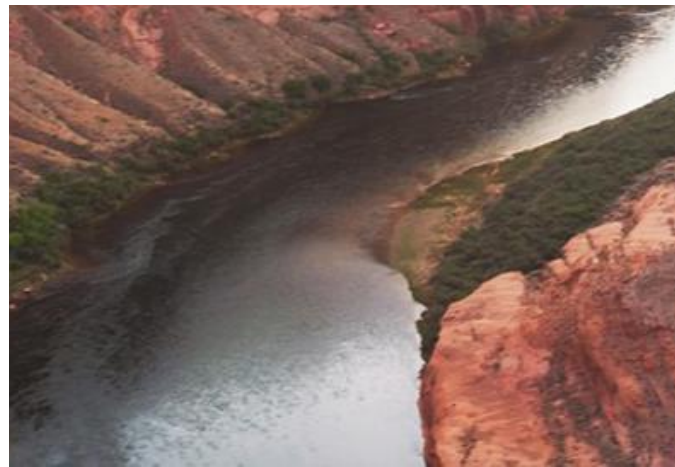
# TRANSFORMATION





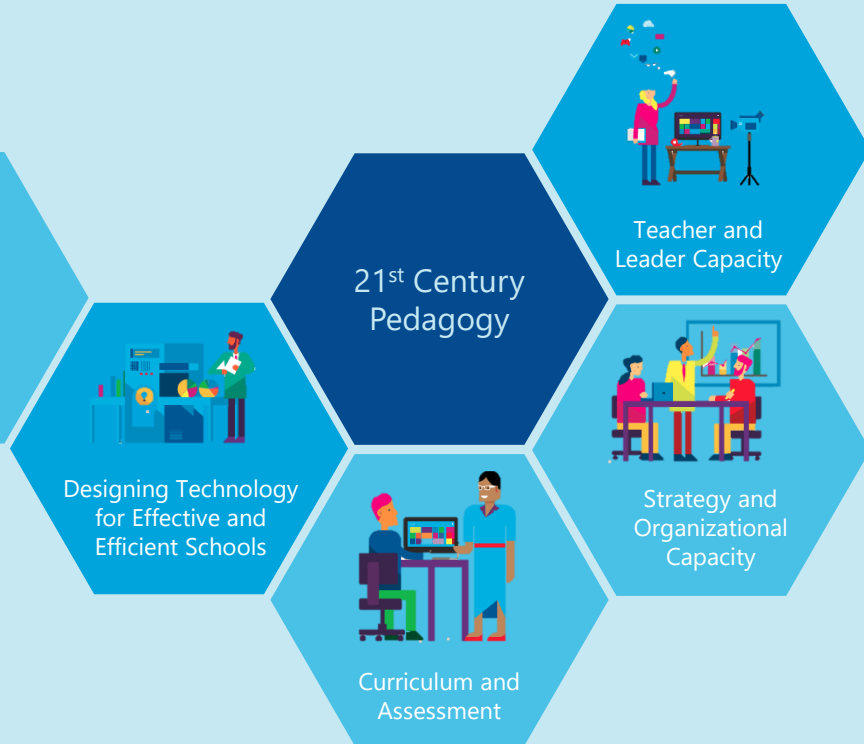


**THINK BIGGER**

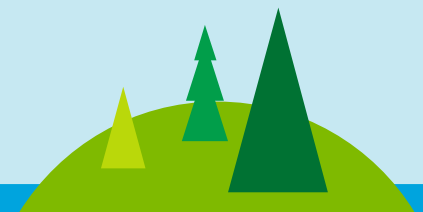
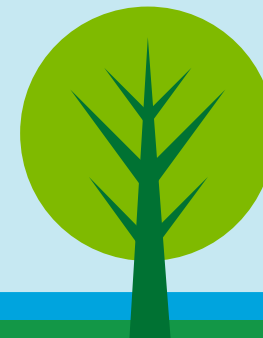


# Finland

## Education Transformation



One of the world's North Stars for education innovation and quality is now transforming its education system in partnership with Microsoft.

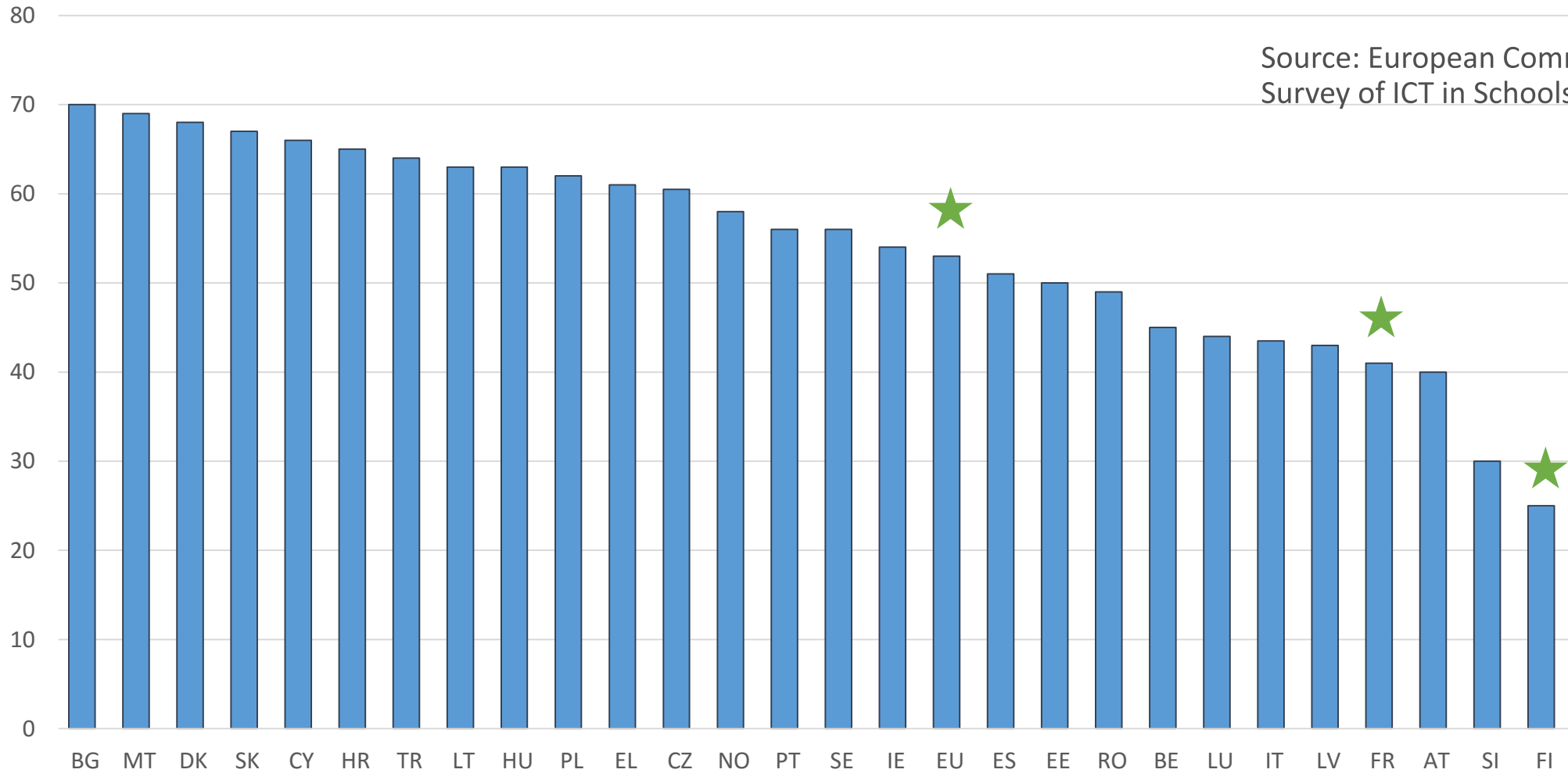


# Finland is a world leader trending down

- Seen as a model around the globe for education with some of world's most qualified teachers
- Technology used less compared to other globally successful education systems (e.g. Singapore, Canada, Hong Kong)

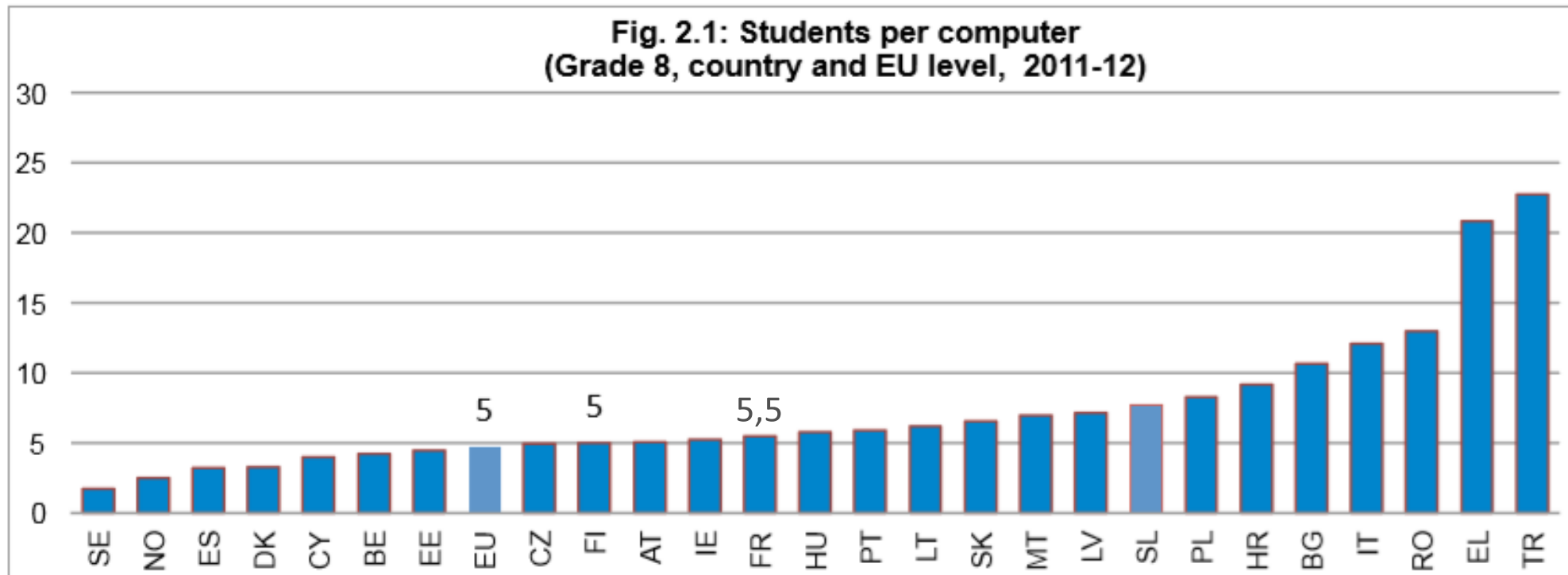
Finland's PISA results 2003:	score points	OECD countries	all participants	Finland's PISA results 2012:	score points	OECD countries	all participants
Mathematical literacy	544	1st	2nd	Mathematical literacy	519	6th	12th
Reading literacy	543	1st	1st	Reading literacy	524	3rd	6th
Science literacy	548	1st	1st	Scientific literacy	545	2nd	5th

# Students usage of ICT at Grade 8 in Europe



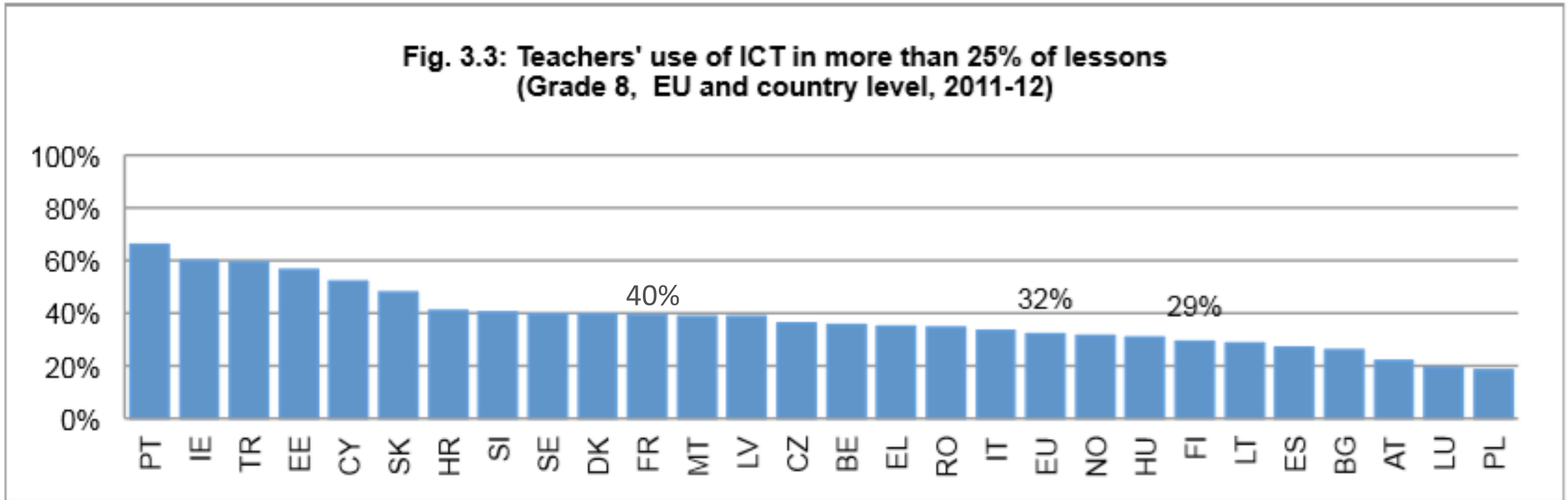
Source: European Commission  
Survey of ICT in Schools

# Students have access to PCs



Source: European Commission  
Survey of ICT in Schools – Finland  
National Report

... but teachers don't use ICT in lessons much



- Note position of Portugal & Estonia: European countries which have advanced in education quality rapidly

Source: European Commission  
Survey of ICT in Schools – Finland  
National Report

# Deep Learning

Schools that support creative, happy and healthy individuals who contribute to the common good.



Problem solving and innovation



Global awareness



Knowledge construction



Skilled communication



Self-regulation and assessment

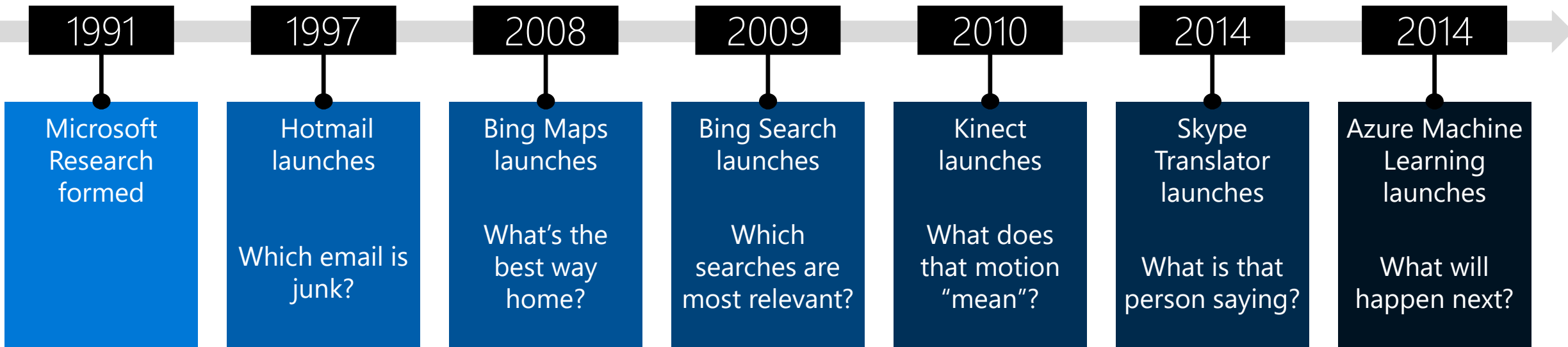


Collaboration

The POWER TO  
**KNOW**



# Microsoft and machine learning: Answering questions with experience



*"Azure Machine Learning offers a data science experience that is directly accessible to business analysts and domain experts, reducing complexity and broadening participation through better tooling."*

—Hans Kristiansen, Capgemini

TECHNOLOGY'S POWER TO  
**TRANSFORM**



Video URL:

<https://www.microsoft.com/en-us/store/apps/skype-translator-preview/9wzdncrdtbw7>

# Enable student achievement

Assess knowledge and ability

Predict future achievement

Track progress



Al Bino

Age: 10 | Grade 5

English Language Learner

## standards

Use equivalent fractions as a strategy to add and subtract fractions.

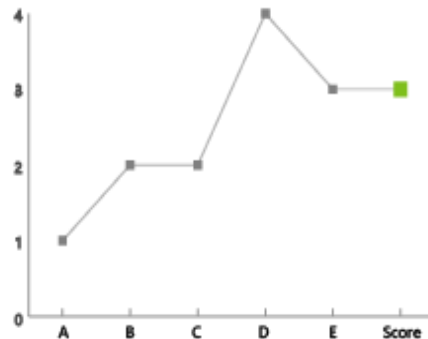
CCSS.MATH.CONTENT.5.NF.A.1

CCSS.MATH.CONTENT.5.NF.A.2

Apply and extend previous understandings of multiplication and division.

## learning progression

Learning Goal: Use equivalent fractions as a strategy to add and subtract fractions.



## commentary

3.2.15 - Ms. Wanda Rinn met with parents to discuss Al's difficulty in reading class. Need to schedule a second meeting to discuss possible accommodations.

2.17.15 - Al successfully completed his English level 1 assessment.

2.12.15 - Al was absent from school today due to a doctor's appointment.

## social engagement



2

documents shared



5

comments



6

posts shared

**Profile** - A marker highlights if the student is on-target (green), on-the-way-to-target (orange), or off-target (red).

**Standards** - A student's standards show as an accordion menu.

**Learning Progression** - When the teacher selects a standard (or sub-standard), it dynamically shows the correct learning progression graph (the line graph) showing the learning progression in detail for that standard for that student. The last mark is the summative score.

**Social Engagement** - These include comments posted to peers/teachers, documents published/created/shared, and number of posts.

**Commentary** - Comments provide any information/feedback that informs the teacher of what is happening with the student.

# Identify at-risk students

Track current performance

Predict dropout probability

Aggregate and act



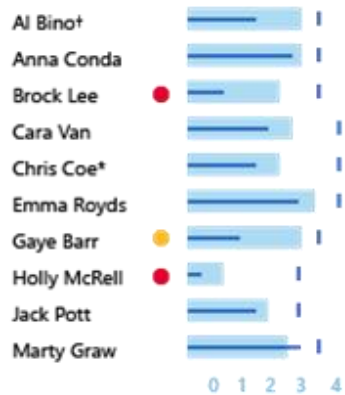
Hello Wanda Rinn!

Experience: 6 years

Certification: Elementary Education

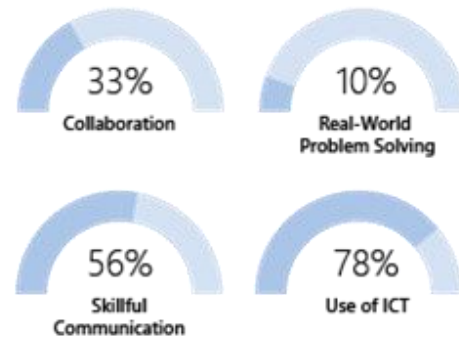
math science reading art

## targets



\* Special Education + English Language Learner

## learning preferences



## social engagement



## pacing timeline



**Targets** – This section has the teacher’s list of students (scrolling menu). The teacher can quickly identify students (using two-color system) that are below target (red dot) or in danger-zone (orange dot). The visual shows multiple data sets: target reached previous year (light-blue bar), current progress level (dark-blue line), and target level (blue hash).

**Learning Preferences** – Deep Learning skills most targeted by students

**Social Engagement** – Including comments posted to peers/teachers, documents published/created/shared, and number of posts.

**Pace Timeline** –Markers show the five main standard areas for Grade 5 -Mathematics tied to the pacing guide. It also contains a red marker to help the teacher visualize where they are in relation to the pacing guide. The timeline changes with different standards and times depending on the specific pacing guide for each subject area.



All Classes

**Algebra**

Language Arts

Science

Social Studies

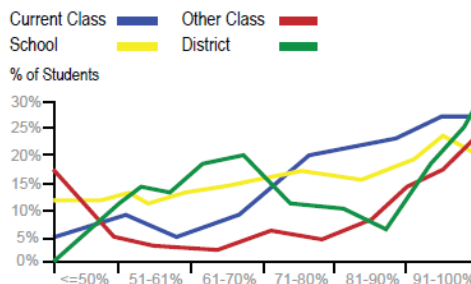
Non-Academic Skills

### Algebra

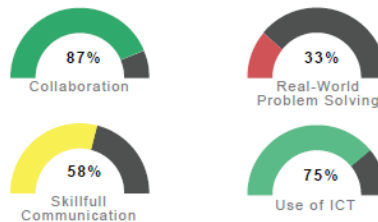
Today Last Week Last Quarter

 Joe K. [!][1] 0 1 2 3 4 5	 John D. 0 1 2 3 4 5	 Minisha V. 0 1 2 3 4 5	 Kumar K. 0 1 2 3 4 5
 Susie R. [!][1] 0 1 2 3 4 5	 Stacy R. [1] 0 1 2 3 4 5	 Daphne Z. 0 1 2 3 4 5	 Zoe G. 0 1 2 3 4 5
 Griffin P. 0 1 2 3 4 5	 Tamara R. 0 1 2 3 4 5	 Reese S. 0 1 2 3 4 5	 Chase M. 0 1 2 3 4 5
 Sylvie P. [1] 0 1 2 3 4 5	 Emma R. [!][1] 0 1 2 3 4 5	 Grady Z. 0 1 2 3 4 5	 Scott A. 0 1 2 3 4 5

### Standardized Math Assessment Score Dist.



### Learning Preferences



### Math Alerts

since your last log on (5/27/15)

- 4 students have questions
- 2 students are behind pace in algebra
- 1 student reported to the principal
- 6 students are missing assignments

### Delve

- E** Performance Test Results  
Modified 4 hours ago by Ryan Gummer
- W** Learning Plan 2015  
Modified 32 hours ago by Diane Tibbet
- P** Academic Year Training  
Modified 1 hour ago by Tom Rossman

# 4.1 Educator View of John: Recommendations



**John Doe**

Grade 5 Age 10  
English Language Learner

12

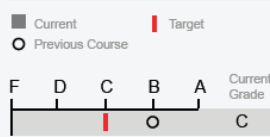
ABSENCES

1

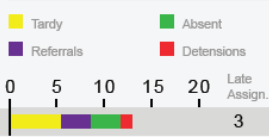
INFRACTION

ASSIGNMENTS COMPLETED LATE  
●●●

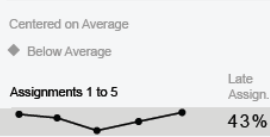
### Course Grades



### Class Discipline



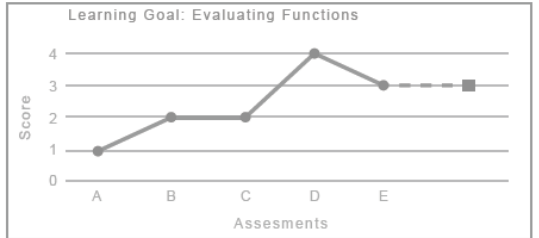
### Assignment Scores



Profile

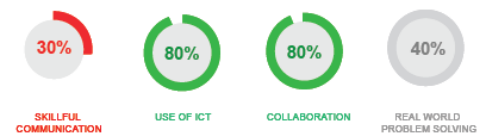
Recommendations

## Recommendations for John's Learning Plan



Algebra for Past 15 days

### Math Learning Preferences



### Your Notes to John

Thanks for your hard work on the last assignment...  
May 25 | [Delete](#)

Today let's review last week's evaluating expressions...  
May 30 | [Delete](#)

### Next Steps

#### ONENOTE ASSIGNMENT SUGGESTIONS

- Order of Operations  
Assignment 3.1
- Expressing Using Parentheses  
Assignment 3.2
- Evaluating Expressions with All Four Operations  
Assignment 3.3

[Load 3 More Suggestions](#)

#### CORTANA SUGGESTS

- Commutative Properties of Addition and Multiplication  
Video Learning 3.1
- Identity Properties and Multiplication by Zero  
Video Learning 3.2
- Distributive Property  
Video Learning 3.3

[Load 3 More Video Options](#)

[Add to John's Learning Plan](#)

### Skype

Mrs. Smith: In a conference call  
Your Teacher

John Doe: I didn't understand the last assignment. 2:04 PM

Mrs. Smith: OK, that is helpful to know, thank you. Let's talk about it some more after class on Wednesday so we can find a way to 2:04 PM

Last message received on 6/5/2015 at 2:07 PM.

### Commentary

May 25  
You met with parents to discuss John's difficulty in algebra. Need to schedule a second meeting to discuss possible accommodations

Big conversations  
drive big impact

Big conversations  
drive transformation



\*Dots on the map indicate major global engagements.

Finland	USA	Mexico
Board of Education	Manteca Unified School District	Ministry of Education
Chile	France	Indonesia
Ministry of Education	Ministry of Education	Ministry of Education

# GLOBAL DIGITAL LEARNING STRATEGY TEAM

We partner with leaders engaged in holistic education transformation through anytime anywhere learning to enable students to achieve more.



## SKILL SETS

- Education Policy
- Academic Research
- Curriculum Design and Instruction
- STEM
- Change Management
- Adult Learning
- Online/Blended Education
- Large 1:1 Implementation
- Education Leadership



## ACTIVITIES

- Top-Large Customer Engagements
- MOE Engagements
- Whitepapers
- Executive Briefings
- Policy Reports
- Professional Development Plans
- Leadership events



## TEAM MEMBERS



★ Aidan McCarthy



Zhao Min Cheng



Pranshu Singh



Mei Ling Tan



Sean Tierney



Cathy Cavanaugh



Alexa Joyce



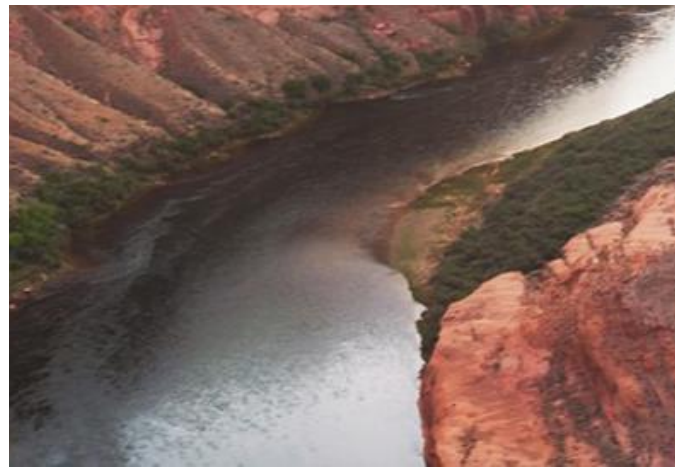
Kati Tainen



Ginno Kelley



**THINK BIGGER**



PRODUCTIVITY  
*FUTURE VISION*

PLAY



Video URL:

<https://youtu.be/w-tFdreZB94>

WHAT REALLY  
**MATTERS?**

WHAT'S WORTH  
**DOING?**





E000783C.pdf



Microsoft

# SHOWCASE SCHOOLS



# IDEAS FROM INNOVATIVE SCHOOLS



They decide what to measure before they start



They understand that more is NOT better.

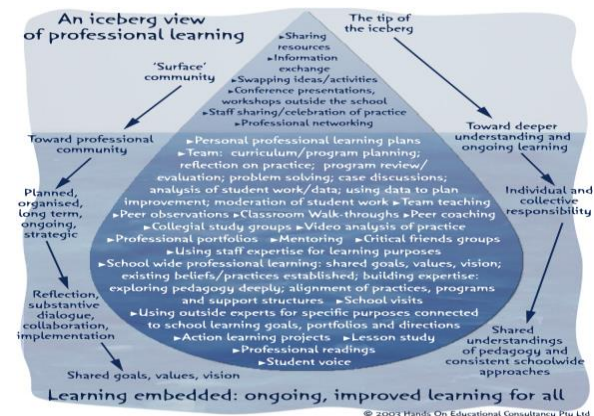
(only BETTER is better)



They never confuse people projects for technology projects



They have a plan for what learning will look like



They realize the economies of partnerships



They understand when technology helps, and when it hinders

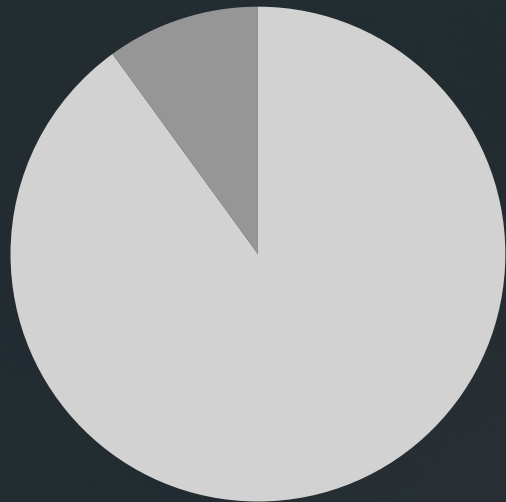


They avoid redundancy of effort, research or capital

They invest in Professional Development they can track, measure and prove

THE REAL CHALLENGE IS

# CHANGE

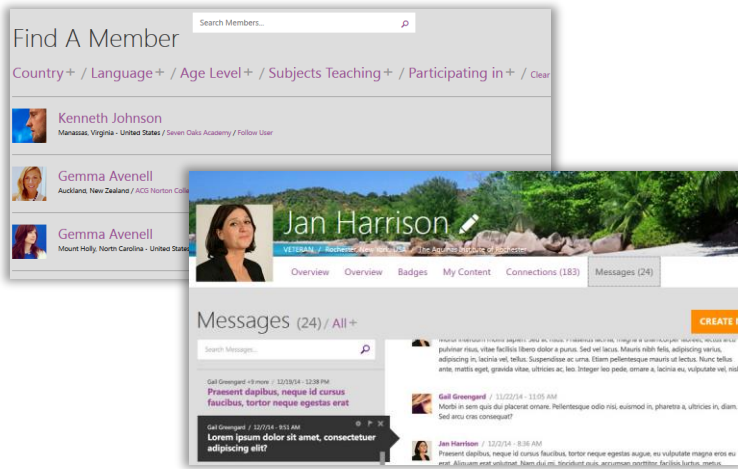


■ People ■ Technology

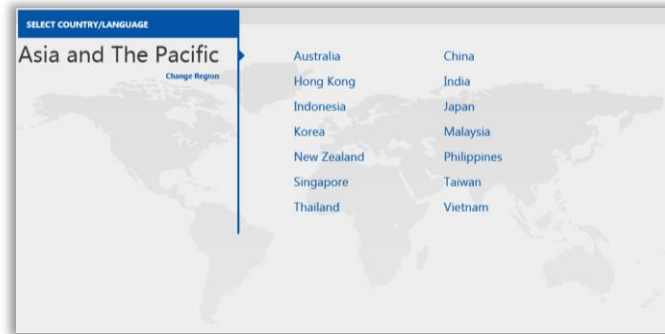


# Why EDU Zone?

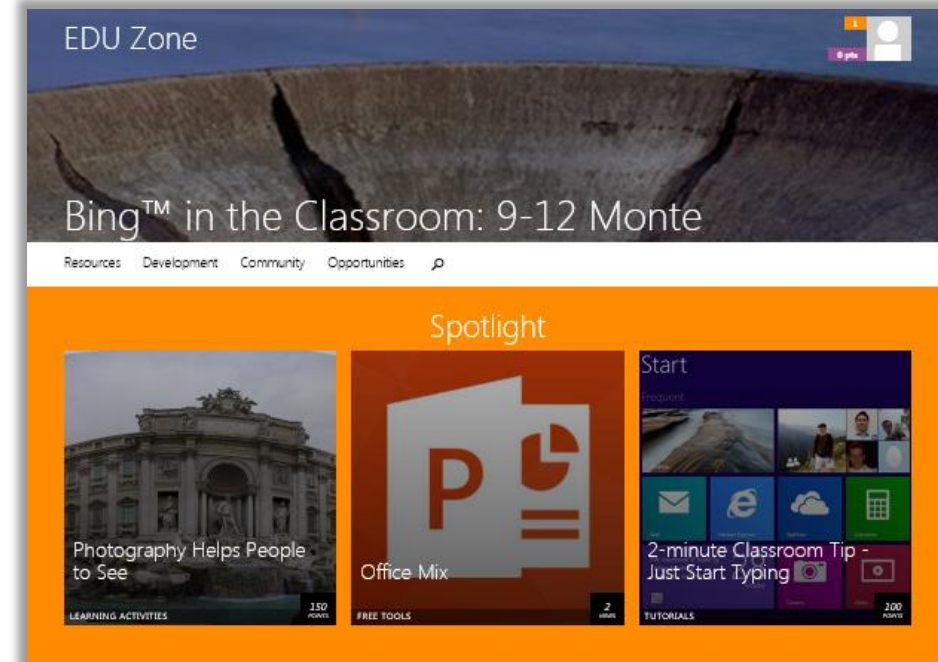
## Connect and Communicate with Like-Minded Colleagues



## Locally Managed Tenants



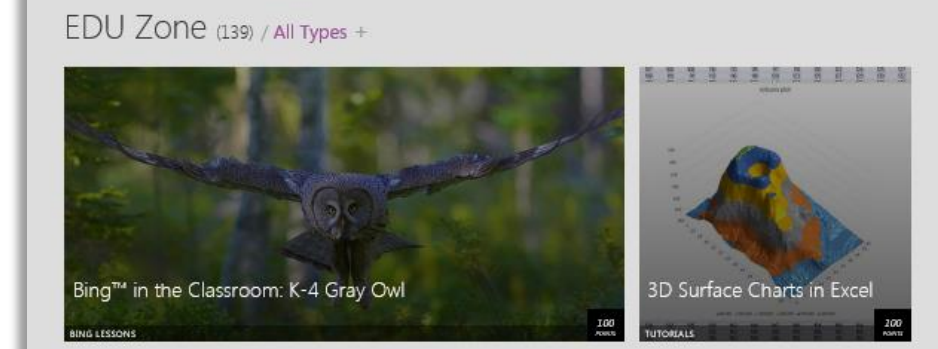
## Content (Microsoft and User Created) Dynamically Loaded Based on User



## Enhanced Creation, Sharing, and Collaboration



## Gamification and Documentation






# Jan Harrison

VETERAN / Rochester, New York, USA / The Aquinas Institute of Rochester

- Overview
- Overview**
- Badges
- My Content
- Connections (183)
- Messages (24)

## Member Overview



Member Level	<b>Veteran</b>
Member Since	4/18/2011
Referrals	12 / +2
Available Points	6,635
Lifetime Points Earned	20,694
Recently Earned	 <a href="#">See All</a>

<b>DEVELOPMENT</b> <b>143</b> <small>/ 262</small>	<b>BADGES</b> <b>3</b> <small>/ 86</small>
<b>LEADERBOARD RANK</b> <b>468</b> <small>↑ 8</small>	<b>UPVOTES</b> <b>5,850</b> <small>+ 87</small>

## Development Progress / [Go to Courses](#)



Customized for Universities

Universities Implementing EZ for Schools will have their own learning environment specifically designed for their school.

Pre-packaged MS content

EZ for Schools will be pre-populated with courses and ideas to help make the most of all MS technology, and to create awareness of new tools.


University Created and Curated Content

Schools can easily create their own content and courses not limited to technology.

Managing training online will assist with staff inductions, compliance readiness, Campus change etc.









Recent Activity

Member Level	Veteran
Member Since	4/18/2011
Referrals	12 / +2
Available Points	6,635
Lifetime Points Earned	20,694
Recently Earned	 <a href="#">See All</a>

Development Progress / 38%











View your development process in each certification. Select view courses for more details and to continue your development.

-  **Teaching with Technology** / [View Courses](#)
-  **Teaching with Technology Basics** / [View Courses](#)
-  **21st Century Learning Design** / [View Courses](#)
-  **Digital Literacy** / [View Courses](#)
-  **Windows 8 in the Classroom** / [View Courses](#)
-  **Windows in teh Classroom** / [View Courses](#)

Bio

**Professional Summary**  
 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc eu tempus neque. Curabitur ac sollicitudin urna. In non massa eget nibh faucibus dictum. Quisque vulputate scelerisque

Badges / All+

-  **Microsoft Innovative Educator (MIE)**  
Earned 4/14/2014
-  **Teaching with Technology**  
Earned 4/14/2014
-  **Partners in Learning Forum Participant**  
Earned 4/14/2014
-  **Microsoft Innovative Educator Expert**  
[Badge Details](#)
-  **Microsoft Innovative Educator Fellow**  
[Badge Details](#)
-  **Microsoft Partners in Learning School**  
[Badge Details](#)
-  **Microsoft Innovative School**  
[Badge Details](#)
-  **Microsoft Pathfinder School**  
[Badge Details](#)
-  **Microsoft Mentor School**  
[Badge Details](#)
-  **Microsoft World Tour School**  
[Badge Details](#)
-  **Partners in Learning School Research**  
[Badge Details](#)
-  **Partners in Learning Regional Forum Participant**  
[Badge Details](#)

-  **Microsoft Global Forum Participant**  
[Badge Details](#)
-  **21st Century Learning Design**  
[Badge Details](#)
-  **Teaching with Technology**  
[Badge Details](#)

-  **Microsoft Innovative Educator Trainer**  
[Badge Details](#)
-  **Microsoft Innovative Educator Master Trainer**
-  **Hot Topics Contributor**  
[Badge Details](#)



### Windows in the Classroom Seminar

**Member Ownership / 4,389 (0.3%)**

**Your Progress / 18%**

**Top Performer / 98%**

**Details**  
Represents completion of the Windows in the Classroom seminar.

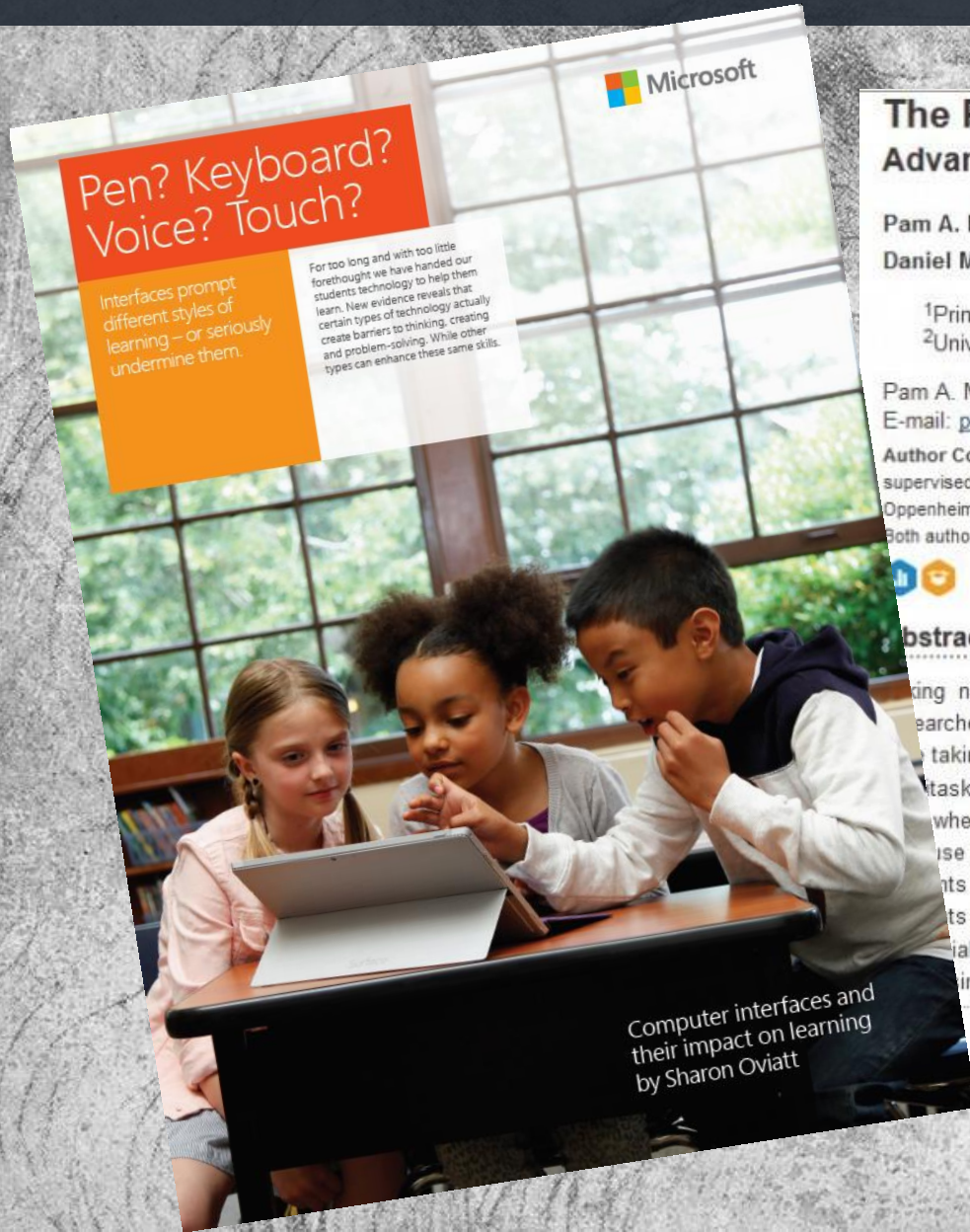
**To Earn**  
You have attended a Windows in the Classroom in-person event and completed the online survey, or

You have watched the Windows in the Classroom seminar.

**Krista Eason**

<https://stage-msen.gage.com/Home.aspx>

# THE IMPORTANCE OF INTERFACES



**Microsoft**

## Pen? Keyboard? Voice? Touch?

Interfaces prompt different styles of learning – or seriously undermine them.

For too long and with too little forethought we have handed our students technology to help them learn. New evidence reveals that certain types of technology actually create barriers to thinking, creating and problem-solving. While other types can enhance these same skills.

Computer interfaces and their impact on learning by Sharon Oviatt

## The Pen Is Mightier Than the Keyboard Advantages of Longhand Over Laptop Note Taking

Pam A. Mueller<sup>1</sup>  
Daniel M. Oppenheimer<sup>2</sup>

<sup>1</sup>Princeton University  
<sup>2</sup>University of California, Los Angeles

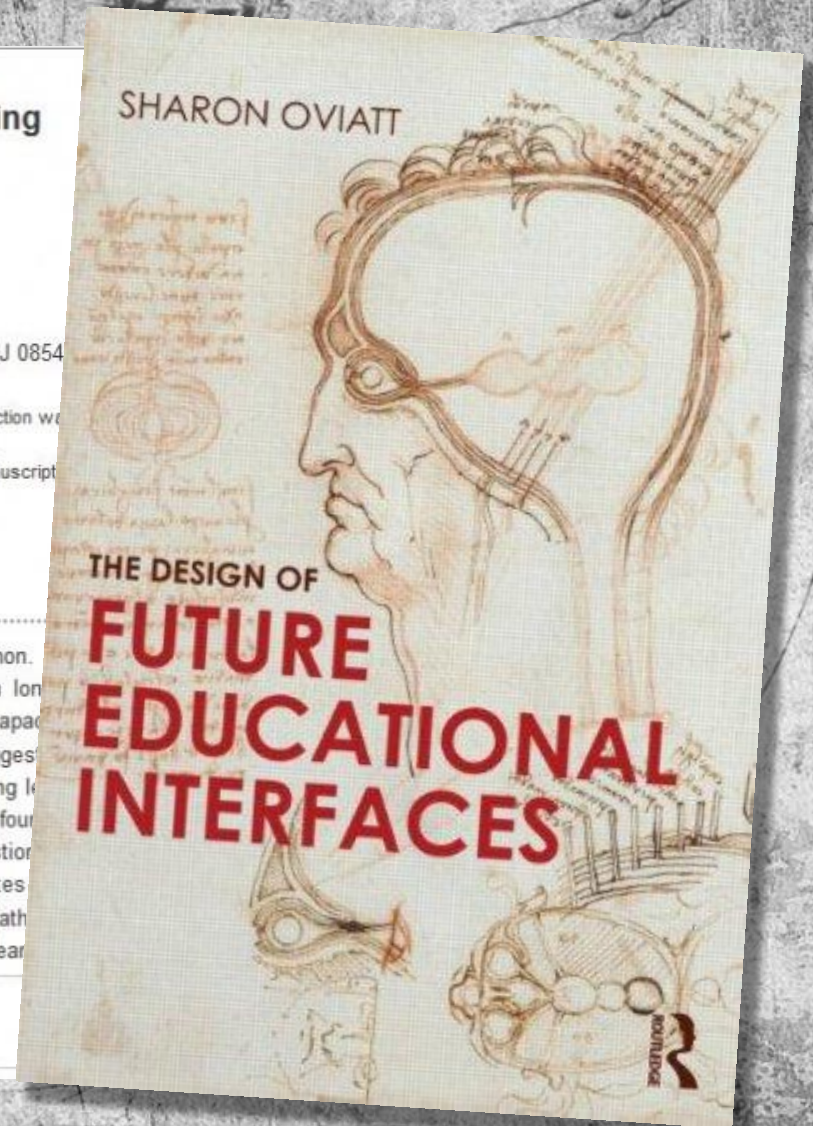
Pam A. Mueller, Princeton University, Psychology Department, Princeton, NJ 08540  
E-mail: [pamueller@princeton.edu](mailto:pamueller@princeton.edu)

**Author Contributions** Both authors developed the study concept and design. Data collection was supervised by both authors. P. A. Mueller analyzed the data under the supervision of D. M. Oppenheimer. P. A. Mueller drafted the manuscript, and D. M. Oppenheimer revised the manuscript. Both authors approved the final version for submission.

### Abstract

...ing notes on laptops rather than in longhand is increasingly common. Researchers have suggested that laptop note taking is less effective than longhand note taking for learning. Prior studies have primarily focused on students' capacity for multitasking and distraction when using laptops. The present research suggests that even when laptops are used solely to take notes, they may still be impairing learning because their use results in shallower processing. In three studies, we found that students who took notes on laptops performed worse on conceptual questions than students who took notes longhand. We show that whereas taking more notes is beneficial, laptop note takers' tendency to transcribe lectures verbatim rather than to paraphrase information and reframing it in their own words is detrimental to learning.

[academic achievement](#) [cognitive processes](#) [memory](#)  
[educational psychology](#) [open data](#) [open materials](#)

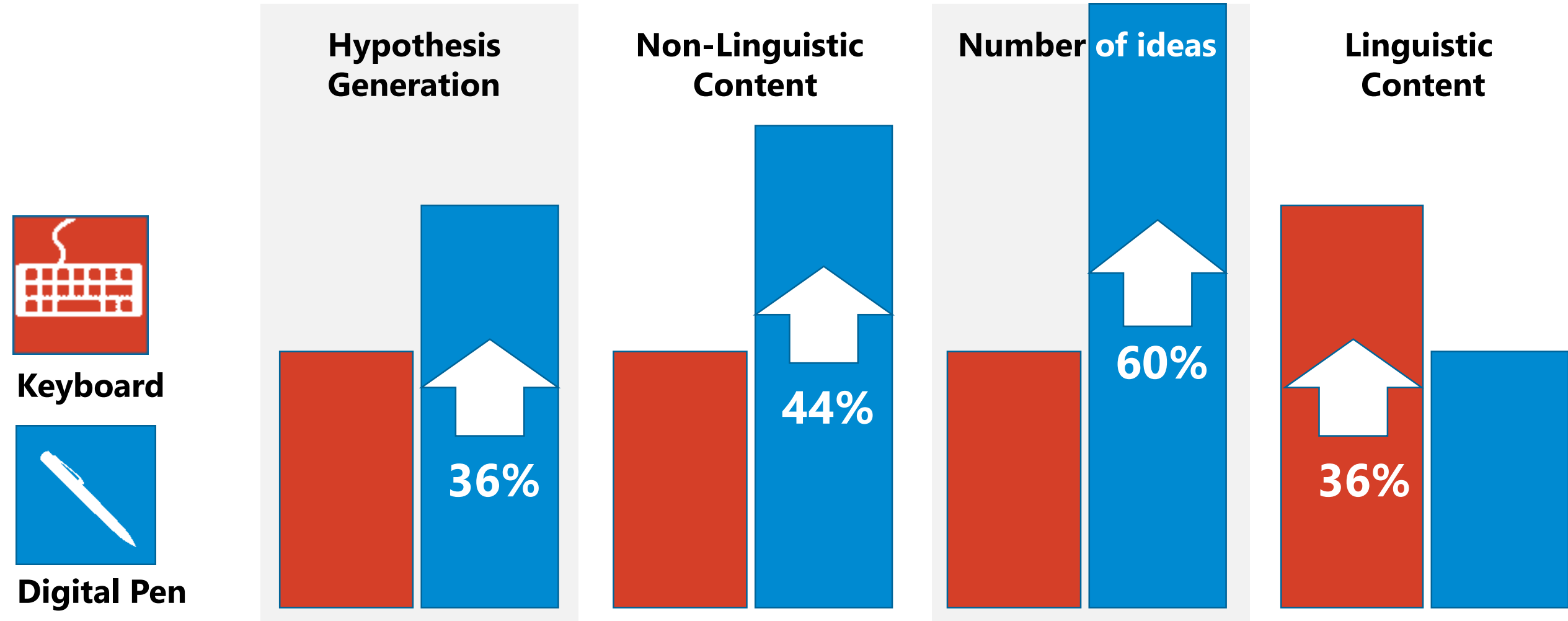


# DO YOU AGREE?

1. If we have great teachers and curriculum, computer input tools won't make that much difference to how well a learner will perform on a task
2. High and low performing students benefit equally from technology
3. Most people (students, teachers, parents) DO know when to choose the right computer tool to support their best performance
4. Learners perform the same when using digital pen and non-digital pen, provided they have technology available in some form. (e.g. BYOD)

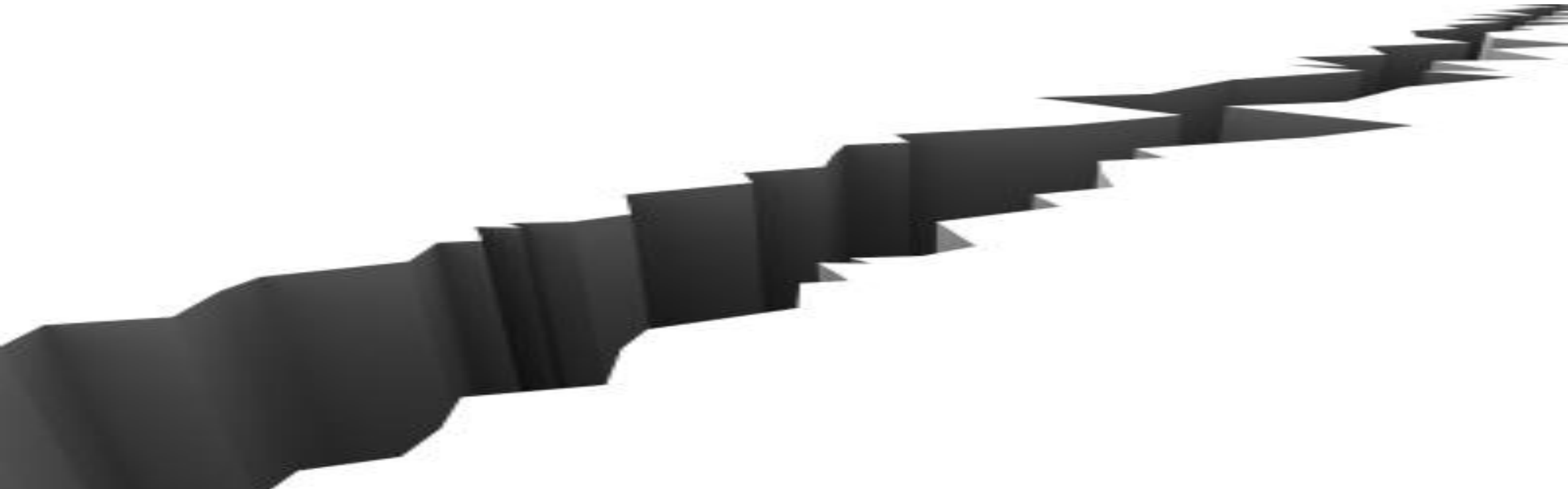
1. If we have great teachers and curriculum, computer input tools won't make that much difference to how well a learner will perform on a task.

**Interfaces matter far more than we ever thought.**



2. High and low performing students benefit equally from technology.

**Computer Input Tools Will Expand or Reduce the Performance Gap!**



3. Most people (students, teachers, parents) DO KNOW know when to choose the right computer tool to support their best performance

Learning experts **MUST** drive device decisions.

## **WHEN STUDENTS WERE ASKED:**

“Which tool would you prefer to use if you had to perform your absolute best for your high stakes science exam?”

**91%**

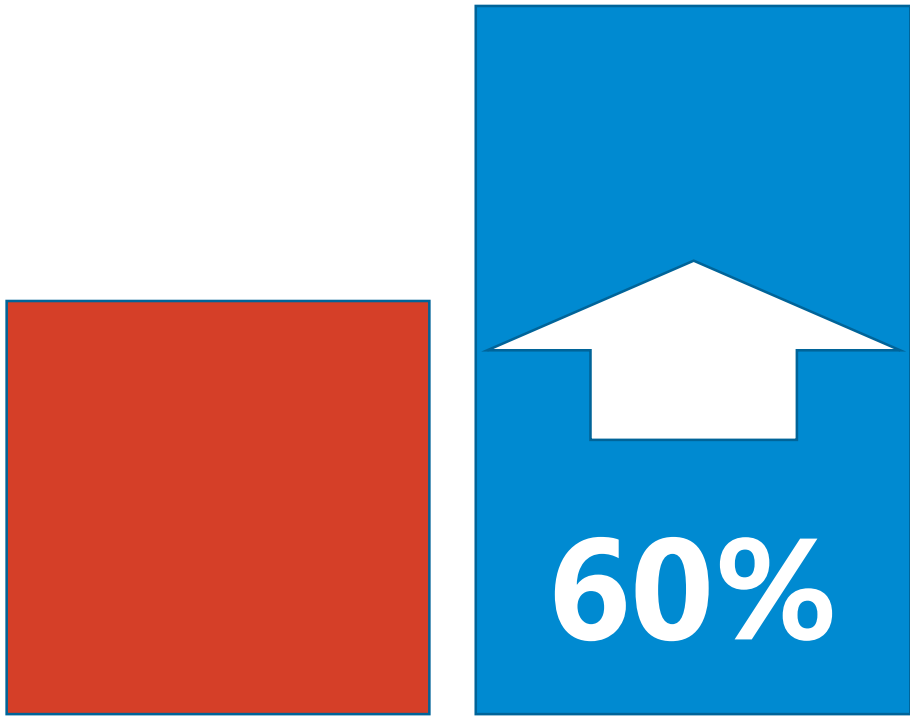
chose interfaces they didn't realize had already been shown to decrease their performance by

at least **one full grade level**

4. Learners perform the same when using digital pen and non-digital pen, provided they have technology available in some form

**Digital pen greatly improves learning compared with traditional pen and paper!**

**COGNITION**

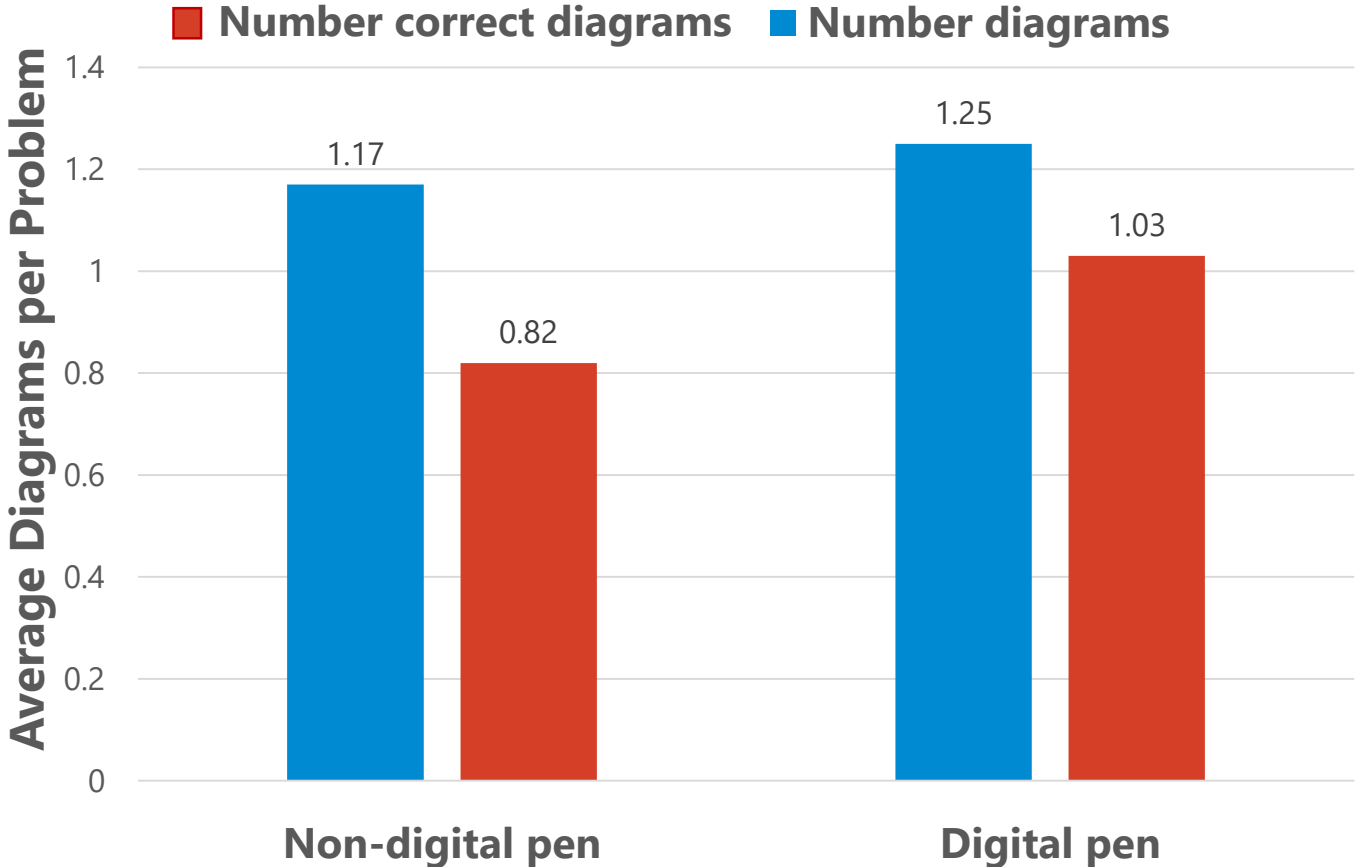


**Non Digital**

**Digital**

# 4. Learners perform the same when using digital pen and non-digital pen, provided they have technology available in some form

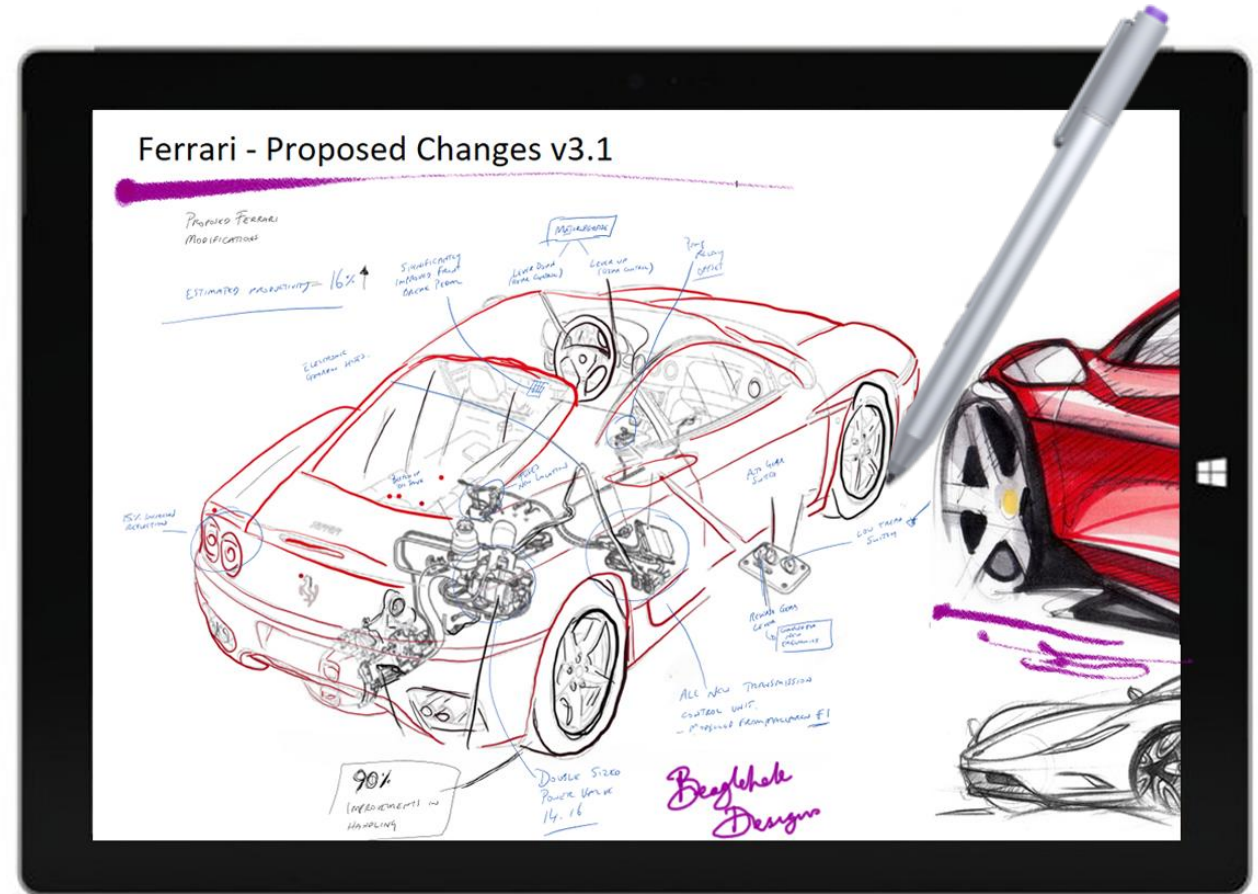
**Digital pen greatly improves learning compared with traditional pen and paper!**



Remember, comparing a digital pen to a stylus is like comparing a skateboard to a Ferrari.



**Stylus - mimics finger painting**



**Digital pen – mimics real pen - precise, pressure sensitive, palm cancelling, smart ink.**

# GOOD EDUCATIONAL INTERFACES

- Increase students' expressive power (ability to create & refine rich content)
- Reduce students' cognitive load (simplicity, lack of distraction)
- Increase students' total activity (physical and/or communicative)
- Include input capabilities (e.g., representations, modalities) well matched with students' learning activity or content domain
- Include input capabilities well matched with students' native language
- Increase input capabilities well matched with students' ability level

# What we can bring to enhance every engagement

Sharing best practice and ideas in your context



Facts and guidance

Summarised, clear research and recommendations

Research to support

Evidence is critical in influencing the customer around "Why Microsoft"

Workshops & Forums

High impact workshops from 1 hour to 2 days designed to ensure customer success

RFP Support and advice

Expert consultation and partnerships to support success in responding to RFPs, Tenders or competitive opportunities

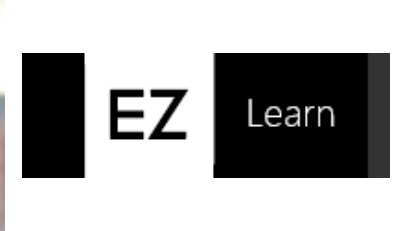
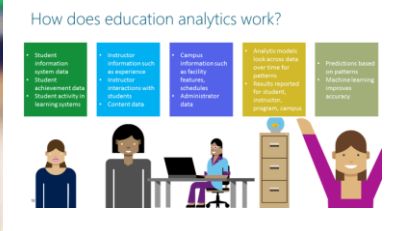
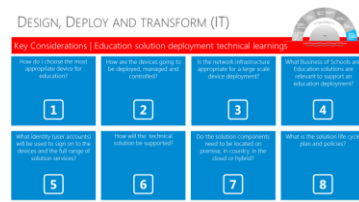
Proven resources

Templates, documentation and scaffolds to help you reach your goals  
Technology blueprints and support to make it easy to get it right

Connections

Access to the best ideas, examples, case studies, or people to help you succeed in your context (Internal and External)

# Critical Conversations to support Transformation



Transformation Framework

Design, Deploy & Transform

Design, Deploy & Transform IT

Machine Learning / BI

School Transformation Process

Change

Full day (or part day) workshop outlining the key components for transformation success (Ministerial Level)

1 or 2 day workshops to share a model for how to succeed in 1-to-1 using global examples, evidence, and resources

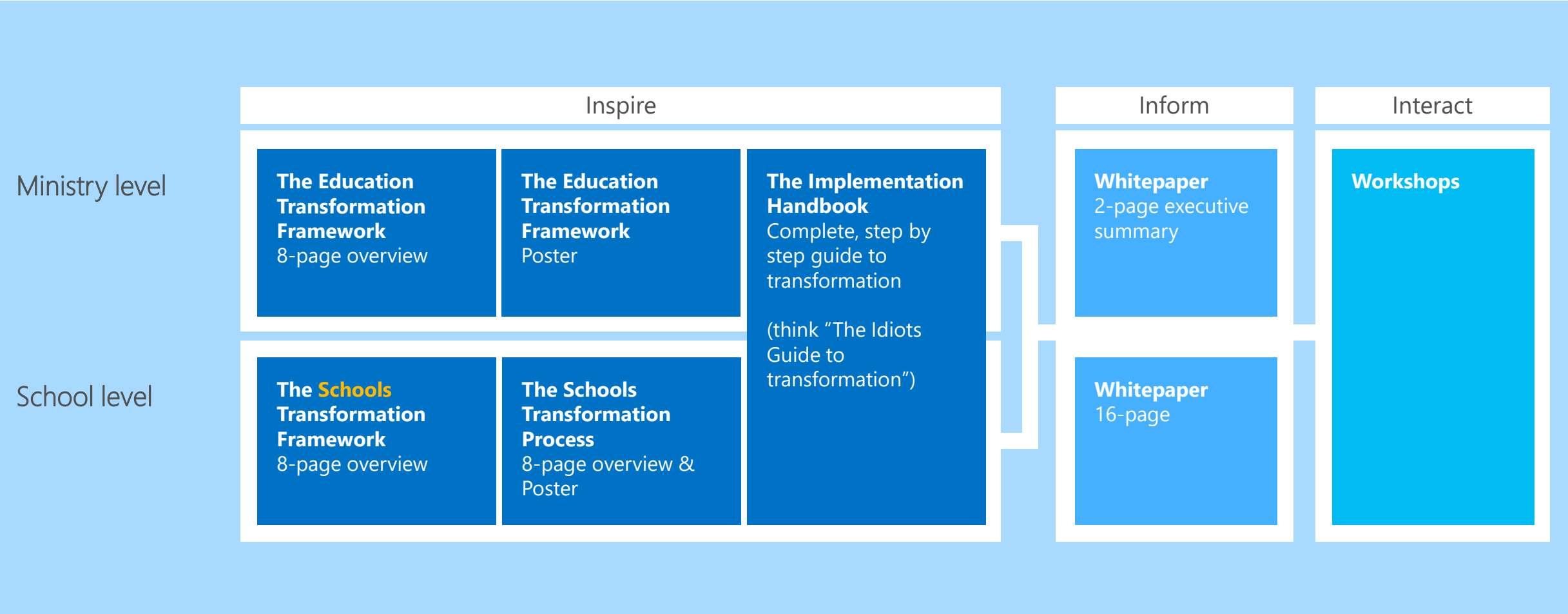
1 or 2 day workshops to deep dive into the technical architecture, design and implementation required for success

Up to 1/2 day session exploring benefits of analytics for system, school, and students to improve learning and organizational decisions

Templates, documentation and scaffolds to help you reach your goals  
Technology blueprints and support to make it easy to get it right

An overview of the process for changing culture, increasing workforce capacity, and ensuring people are on board the transformation

# Our collateral is simple and powerful



# Overview

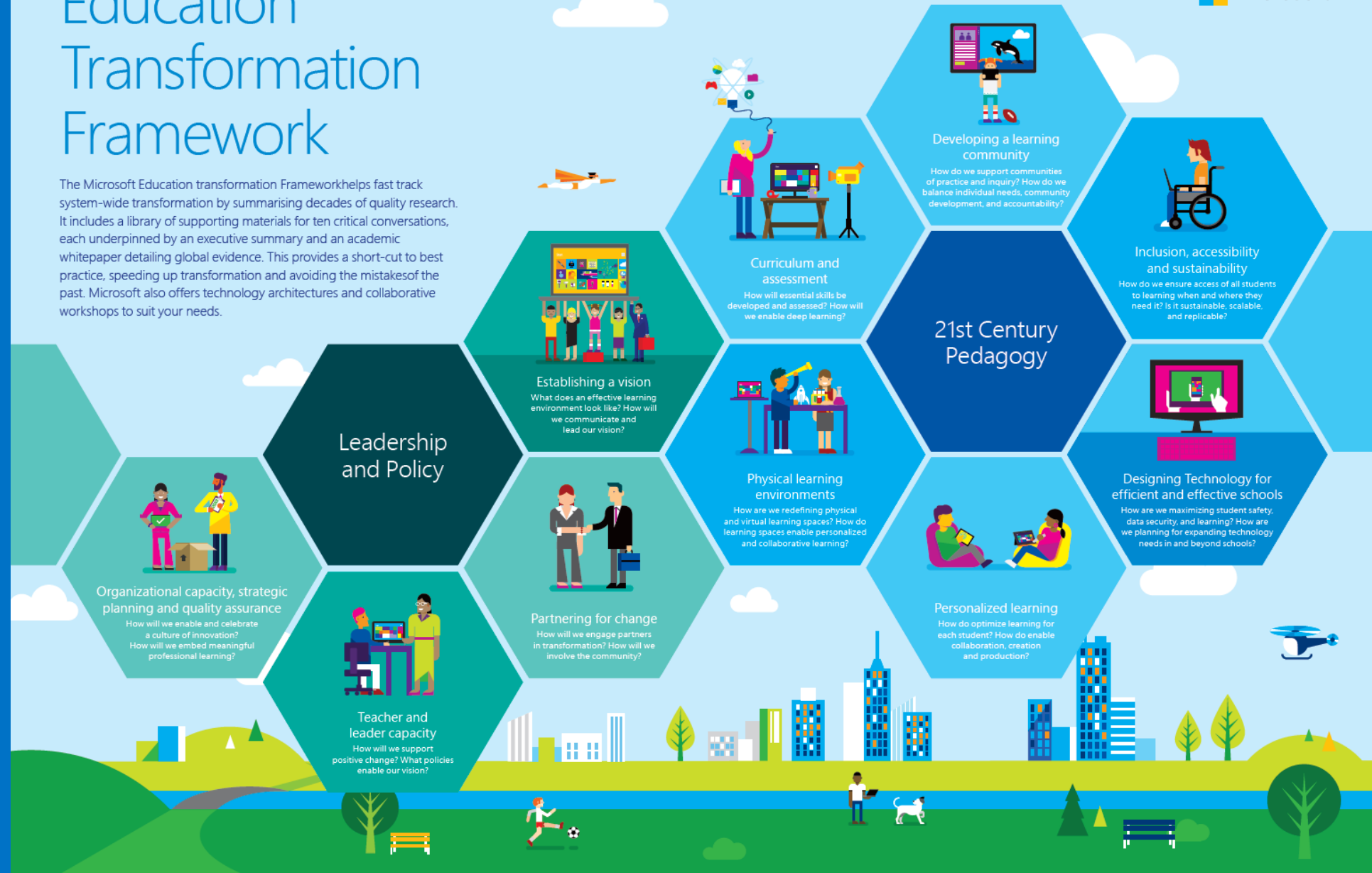
Created in partnership with :

- leading policy makers
- academics
- Researchers
- Schools & school districts

Tested with over 130 policy makers globally

## Education Transformation Framework

The Microsoft Education transformation Framework helps fast track system-wide transformation by summarising decades of quality research. It includes a library of supporting materials for ten critical conversations, each underpinned by an executive summary and an academic whitepaper detailing global evidence. This provides a short-cut to best practice, speeding up transformation and avoiding the mistakes of the past. Microsoft also offers technology architectures and collaborative workshops to suit your needs.



# Overview

## School Transformation Process

The School Transformation Process is a tool that helps school systems or schools systematically reflect on, plan and implement reform.

It does this by providing six lenses through which to examine important issues and steps. The six phases can be undertaken in any order or simultaneously. However, the entire process is cyclical with insights gained from continuous improvement initiating new cycles of the process.

This process was adapted from work on school leadership by Knapp, Copland and Talbert (2003).

