Applying SAMR to classroom observations

- How can we leverage technology to create better (more reliable, and more descriptive) classroom observation tools?
- Developed over numerous studies:
  - USEiT Study
  - Newton Public Schools Cloud Computing Pilot
  - Mendon Upton (MA)

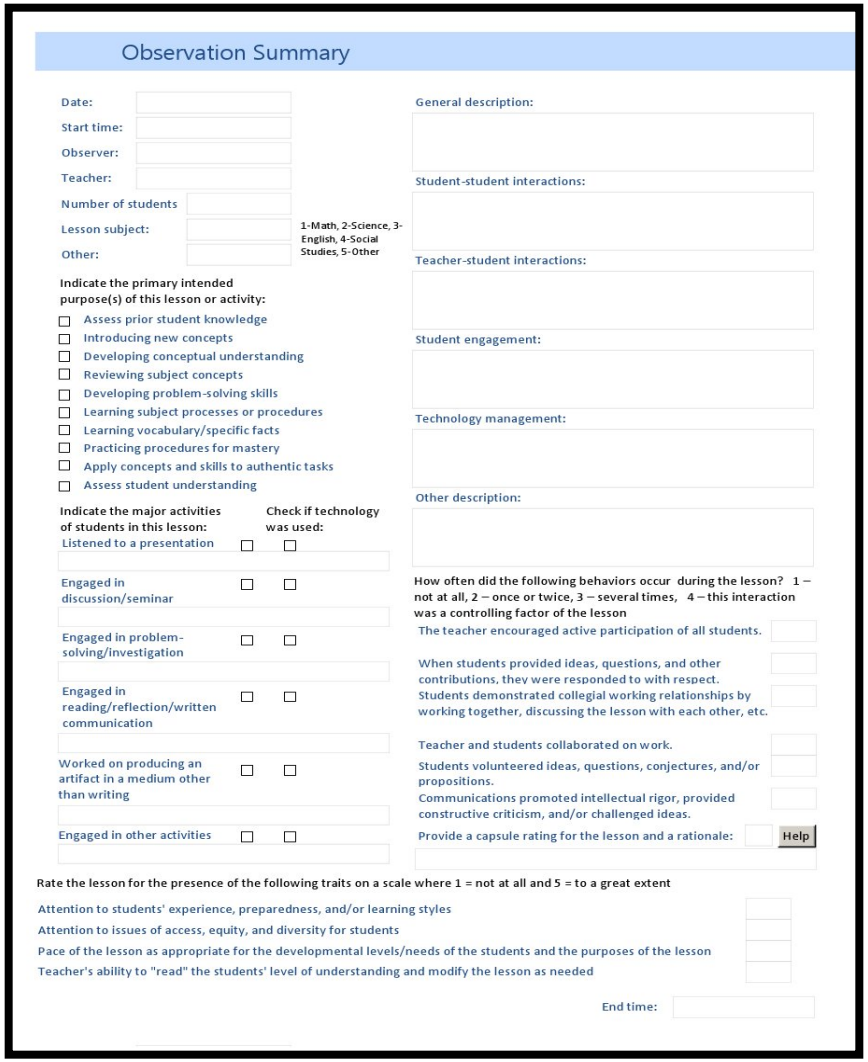
Components for observation tool kit

1) Running Narrative
2) Summary Checklist
3) Interval Checklist

Observation Summary Document

- **Completed at the end of each observational period**

- **Measures:**
- Teacher-student interactions
- Lesson purposes,
- Classroom learning activities
- Technologies used for those activities
- General effectiveness rating



Observation Summary

Date:
Start time:
Observer:
Teacher:
Number of students
Lesson subject:
Other:
1-Math, 2-Science, 3-English, 4-Social Studies, 5-Other

Indicate the primary intended purpose(s) of this lesson or activity:

- ☐ Assess prior student knowledge
- ☐ Introducing new concepts
- ☐ Developing conceptual understanding
- ☐ Reviewing subject concepts
- ☐ Developing problem-solving skills
- ☐ Learning subject processes or procedures
- ☐ Learning vocabulary/specific facts
- ☐ Practicing procedures for mastery
- ☐ Apply concepts and skills to authentic tasks
- ☐ Assess student understanding

Indicate the major activities of students in this lesson:		Check if technology was used:
Listened to a presentation	☐	☐
Engaged in discussion/seminar	☐	☐
Engaged in problem-solving/investigation	☐	☐
Engaged in reading/reflection/written communication	☐	☐
Worked on producing an artifact in a medium other than writing	☐	☐
Engaged in other activities	☐	☐

General description:
Student-student interactions:
Teacher-student interactions:
Student engagement:
Technology management:
Other description:

How often did the following behaviors occur during the lesson? 1 – not at all, 2 – once or twice, 3 – several times, 4 – this interaction was a controlling factor of the lesson

- The teacher encouraged active participation of all students.
- When students provided ideas, questions, and other contributions, they were responded to with respect.
- Students demonstrated collegial working relationships by working together, discussing the lesson with each other, etc.
- Teacher and students collaborated on work.
- Students volunteered ideas, questions, conjectures, and/or propositions.
- Communications promoted intellectual rigor, provided constructive criticism, and/or challenged ideas.
- Provide a capsule rating for the lesson and a rationale: Help

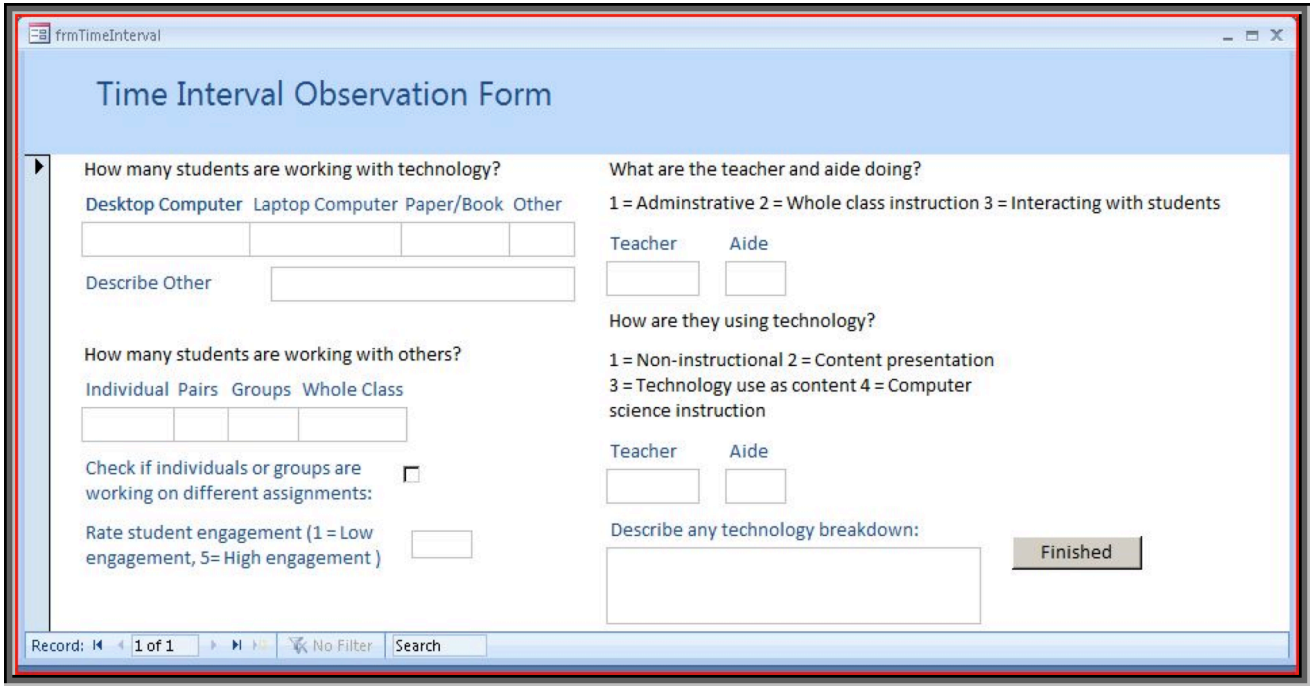
Rate the lesson for the presence of the following traits on a scale where 1 = not at all and 5 = to a great extent

- Attention to students' experience, preparedness, and/or learning styles
- Attention to issues of access, equity, and diversity for students
- Pace of the lesson as appropriate for the developmental levels/needs of the students and the purposes of the lesson
- Teacher's ability to "read" the students' level of understanding and modify the lesson as needed

End time:

Time Interval Observation Form

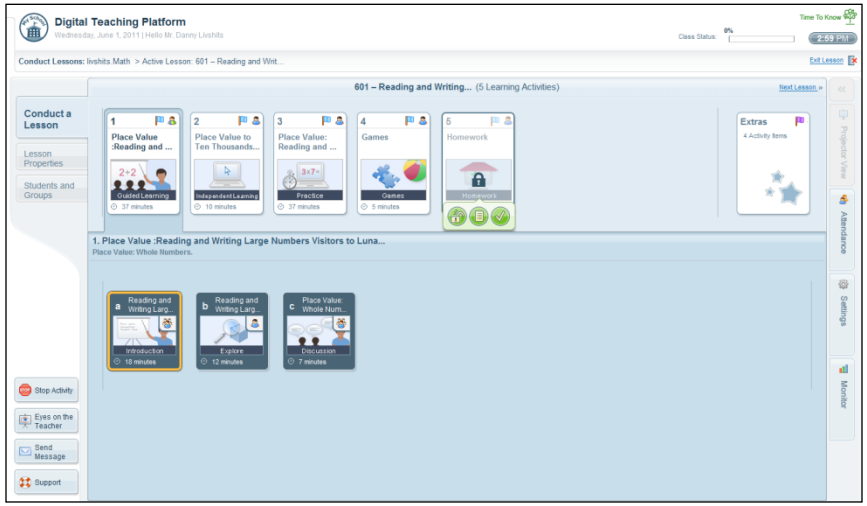
Initially completed at the beginning of each observation, and then at fixed time intervals throughout remainder of the lesson.



Measures: students' use of various technologies, student engagement, student organization (i.e. working groups of various sizes), and teacher role and activity

Using classroom observations to measure teaching and learning modalities

- **Teaching to whole class with computers** was noted when the teacher held a discussion with the entire class group and encouraged student participation with computers.
- **Lecture** was noted when the teacher presented information to the class without student participation.
- **Independent work** was noted when students were directed to complete work on their own facilitated by the teacher.



Example of data collected and analyzed from classroom observations

Percentage of pilot and comparison student activities observed with technology in use

Major student activities using technology	Pilot		Comparison	
	Pre	Post	Pre	Post
Listened to a presentation	90%	86%	67%	71%
Engaged in discussion/seminar	25%	40%	13%	25%
Engaged in problem-solving/investigation	8%	50%	55%	17%
Engaged in reading/reflection/written communication	18%	89%	15%	14%
Worked on producing an artifact in a medium other than writing	0%	55%	0%	0%
Engaged in other activities	40%	83%	0%	0%

Example of data collected and analyzed from classroom observations

Summary of teachers' classroom activities with and without technology

	Pilot		Comparison	
Activities	**Pre**	**Post**	**Pre**	**Post**
Administrative	34%	27%	20%	22%
Whole-class instruction	31%	32%	46%	54%
Interacting w/ students	35%	41%	34%	24%
Technology use				
Administrative	16%	12%	6%	7%
Presentation	75%	43%	66%	84%
Content-oriented use instruction	7%	45%	28%	7%

Example of data collected and analyzed from classroom observations

Average student engagement levels reported across pilot and comparison settings

	Pre/Pilot	Post/Pilot	Pre/Comparison	Post/Comparison
Average Rating	3.9	3.8	3.6	3.6
Number of Intervals	116	132	118	140

Leveraging SAMR for Classroom Observations

Over 1-year study: 146 observations resulted in 3,510 minutes (58.5 hours) of classroom observations across all major subject areas in grades 5-12:

3 components of observation toolkit:

1. Running Narrative
2. Observation Summary Checklist
3. Time Interval Observation Checklist

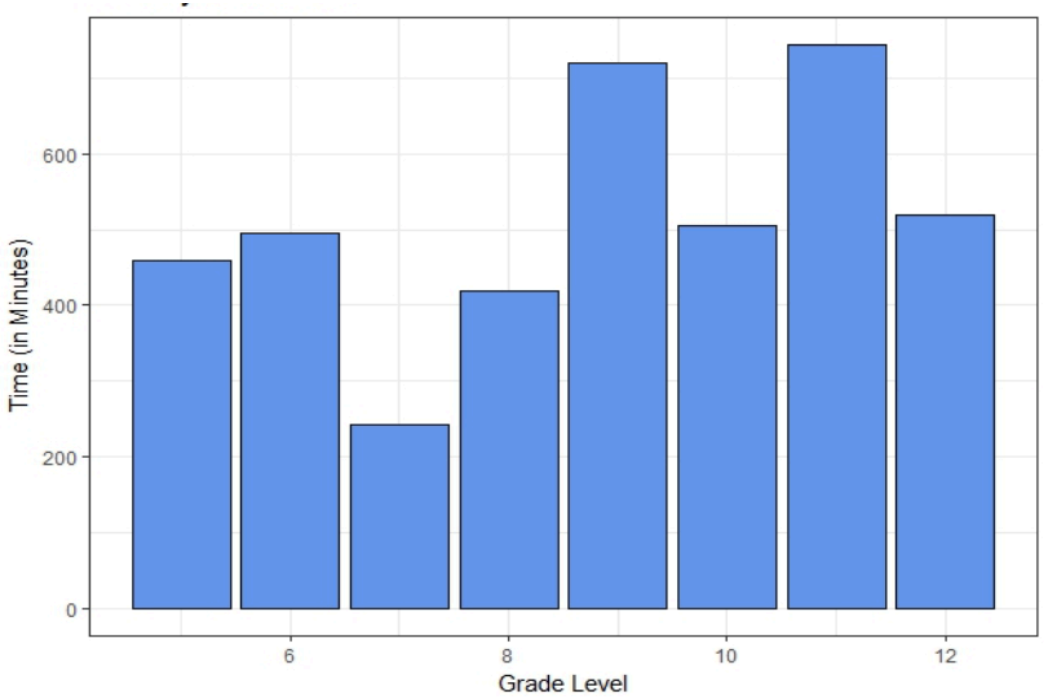
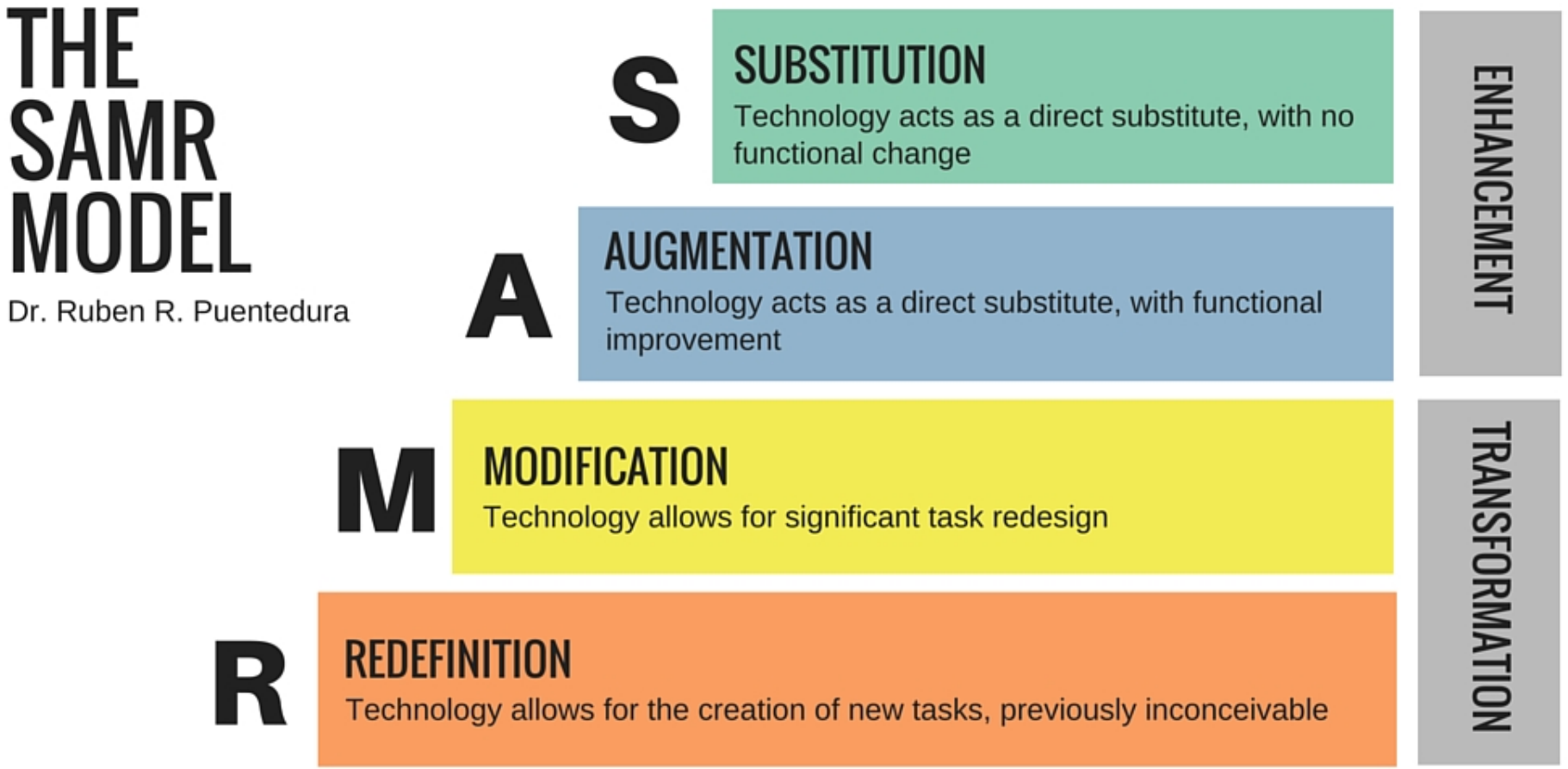
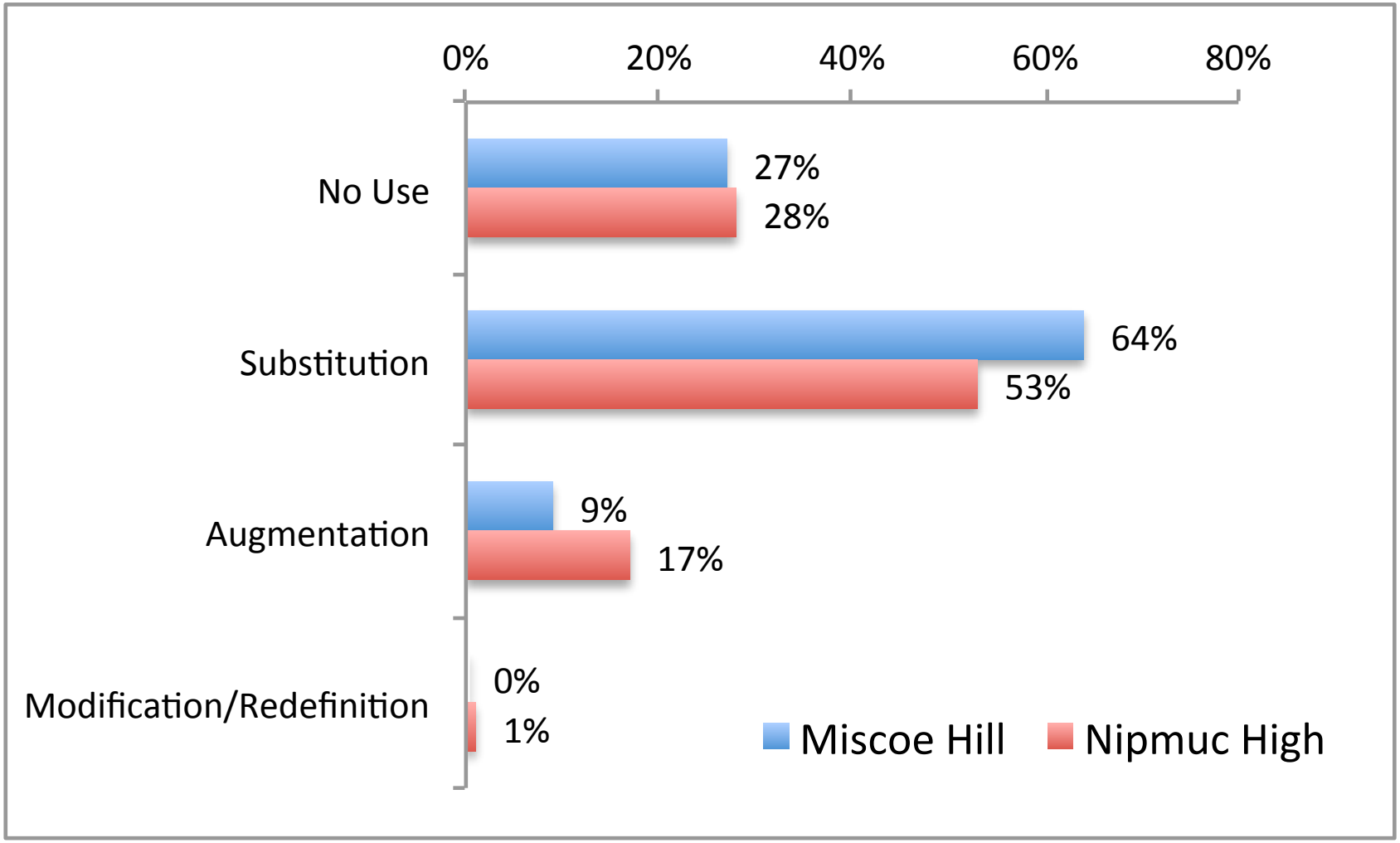


Figure 2: Total classroom observations (# of minutes) conducted across grade level

Classroom observation: SAMR Analyses

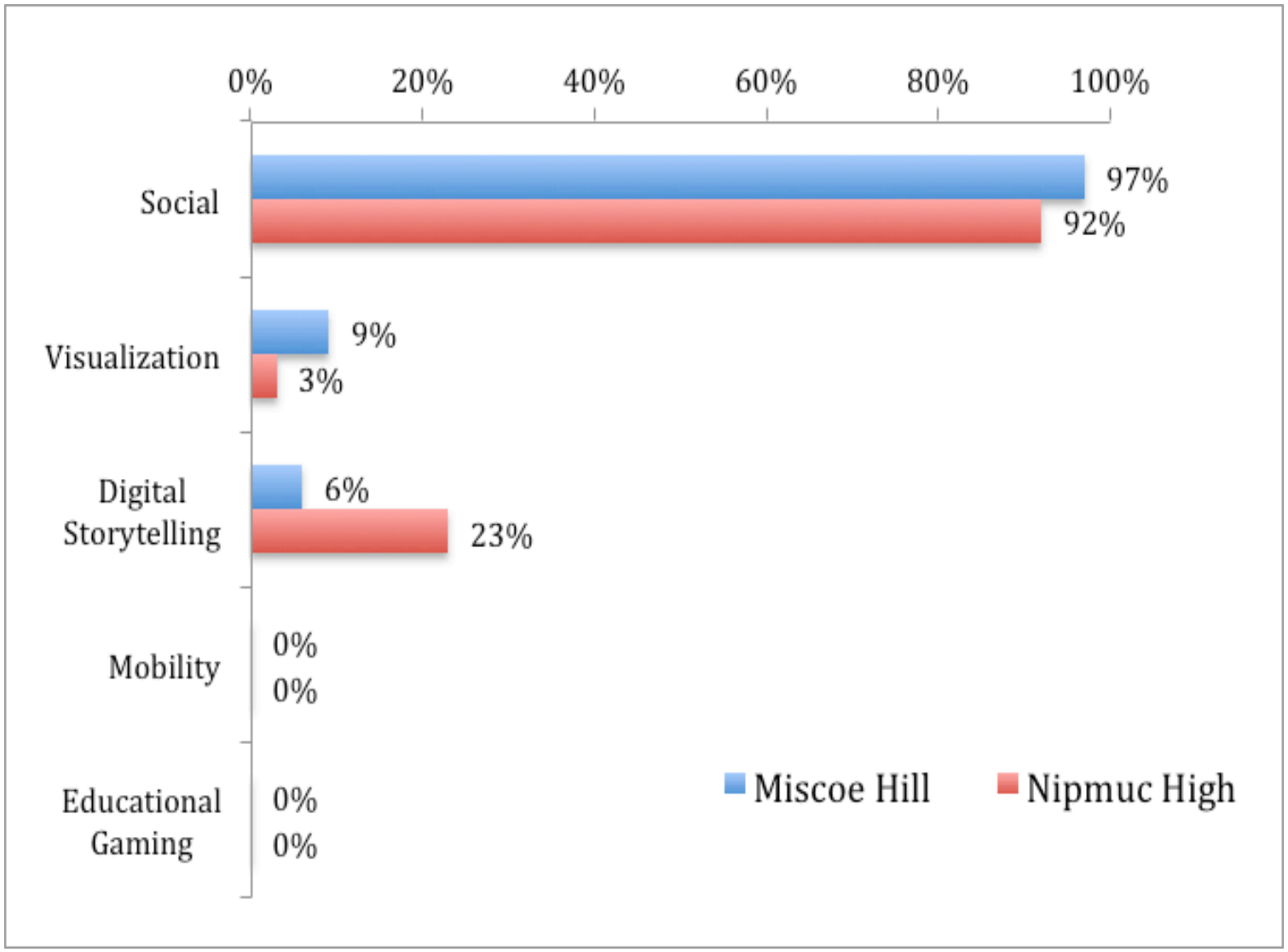


Classroom observation: SAMR Analyses



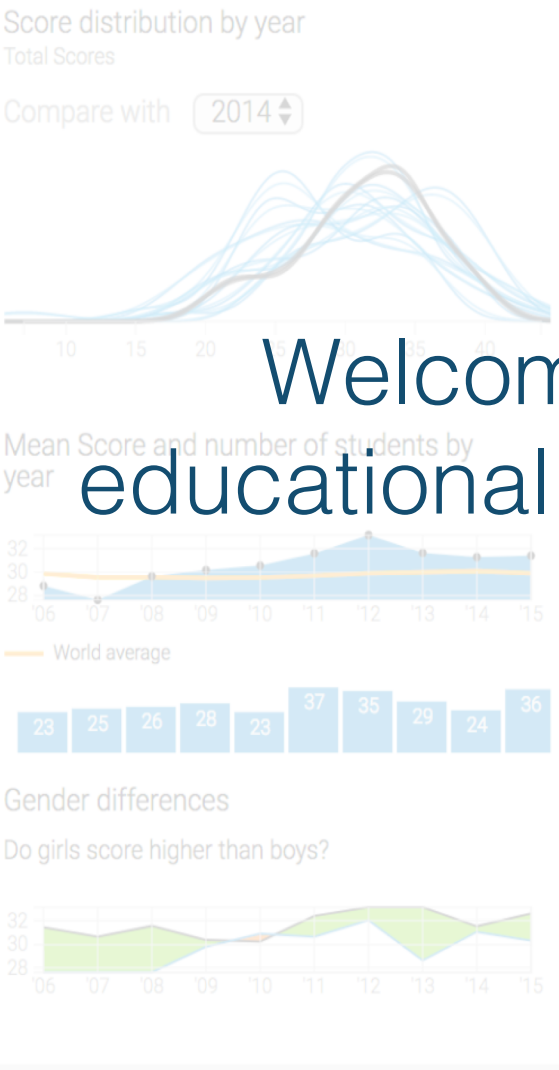
SAMR Analyses of Miscoe classroom observations (N=44) & Nipmuc High classroom observations (N=86)

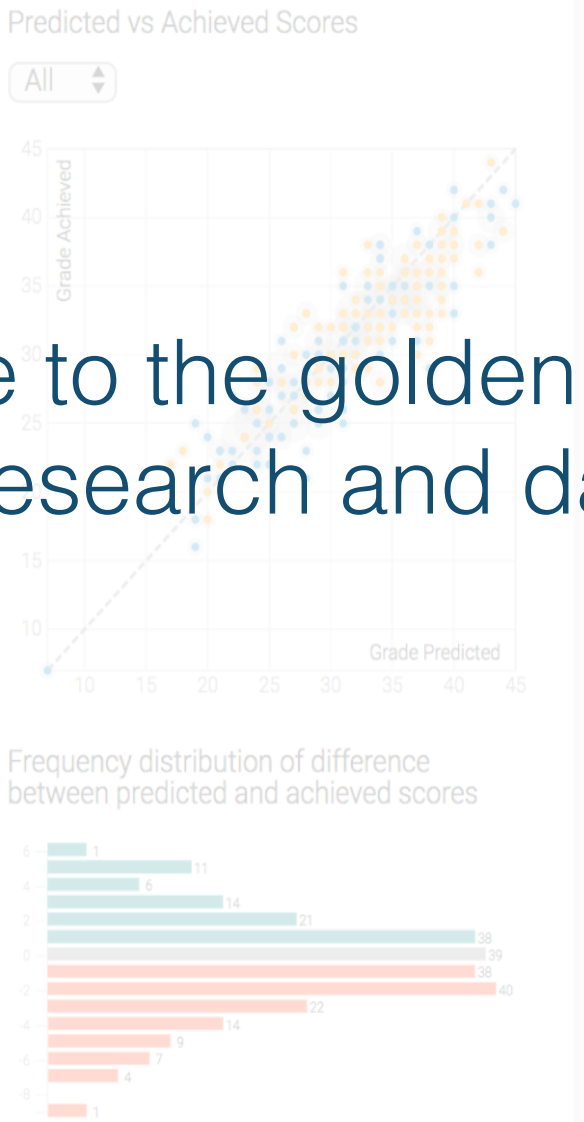
Classroom observation: EdTech Quintet Analyses

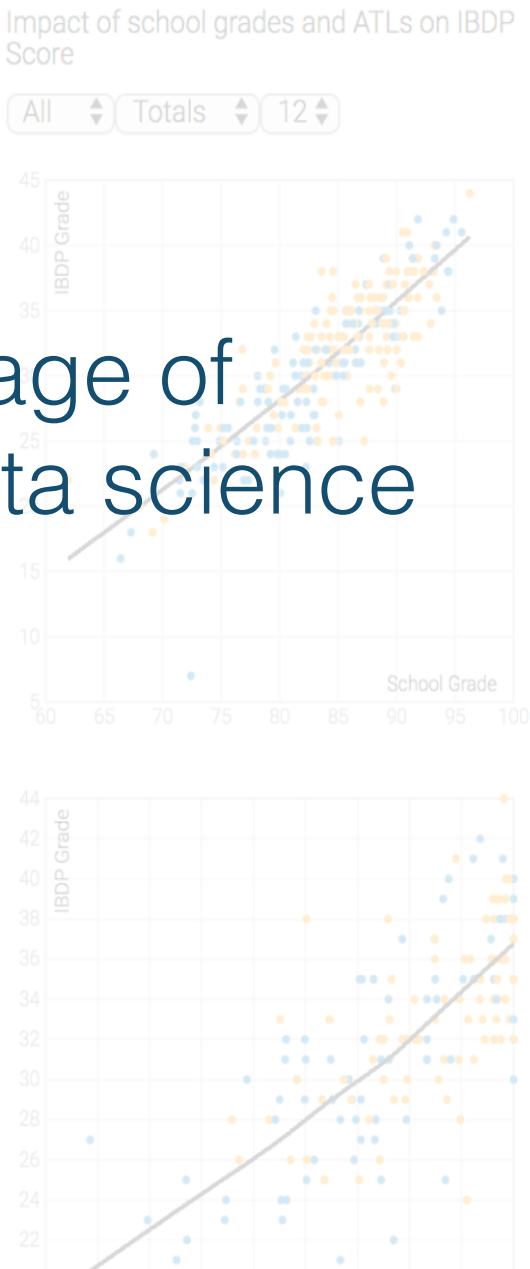


EdTech Quintet analyses of Miscoe (n=44) and Nipmuc (n=86) classroom observations

Welcome to the golden age of educational research and data science







Ideas for creating more informed reflections:

Student and Teacher drawings

Efficient student (and teacher) surveys

Classroom observations

Perhaps try and measure:

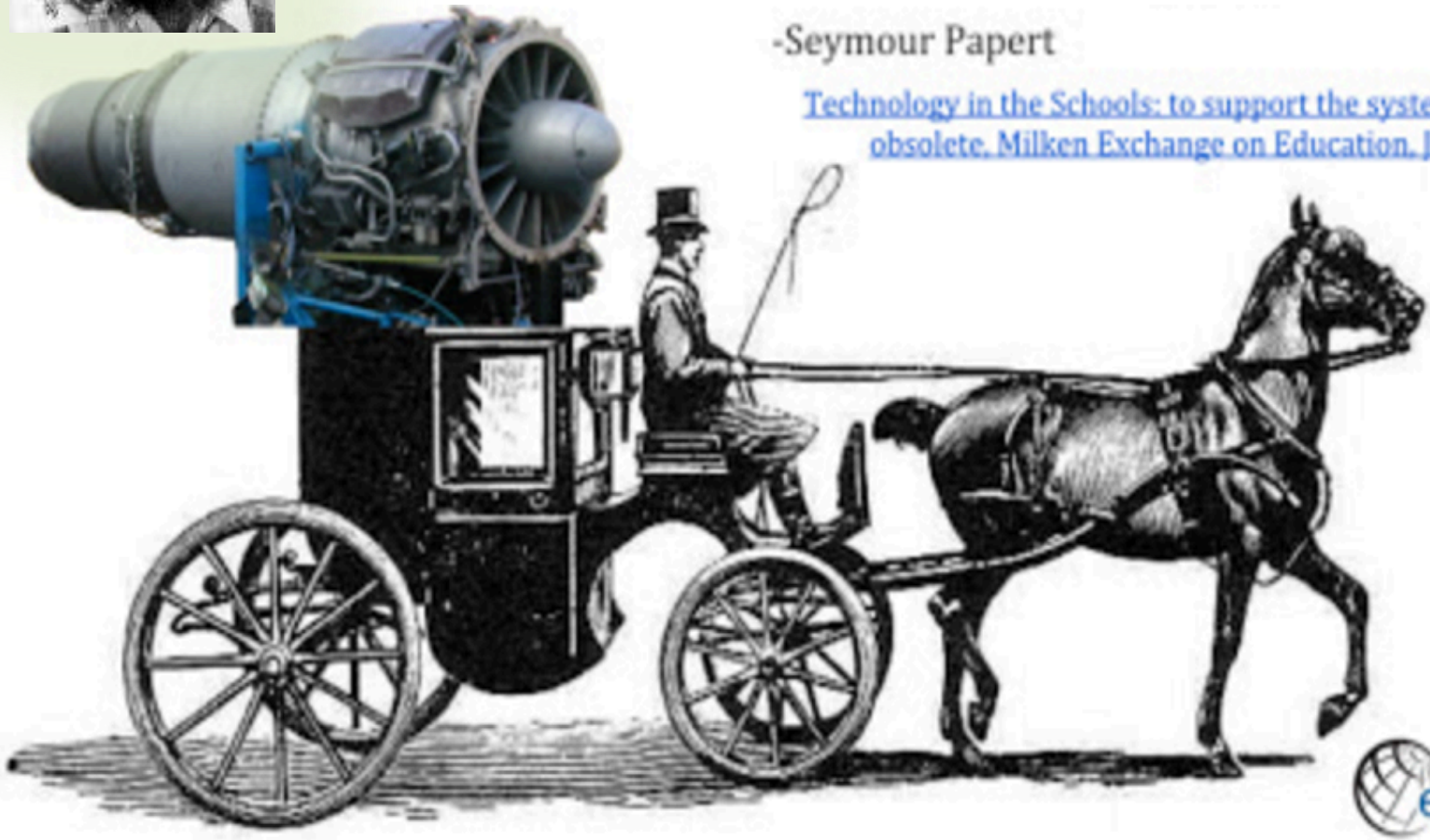
- Attitudes and perceptions
- Classroom practices (and preferences)
- Aspirations
- Engagement
- Time on Task
- Creativity

Connected Learning…
Learning Analytics...
Dynamic Data Visualization Tools...
Big Data...

…but for what purpose?

-Seymour Papert

Technology in the Schools: to support the system or render it obsolete. Milken Exchange on Education. July 1998.

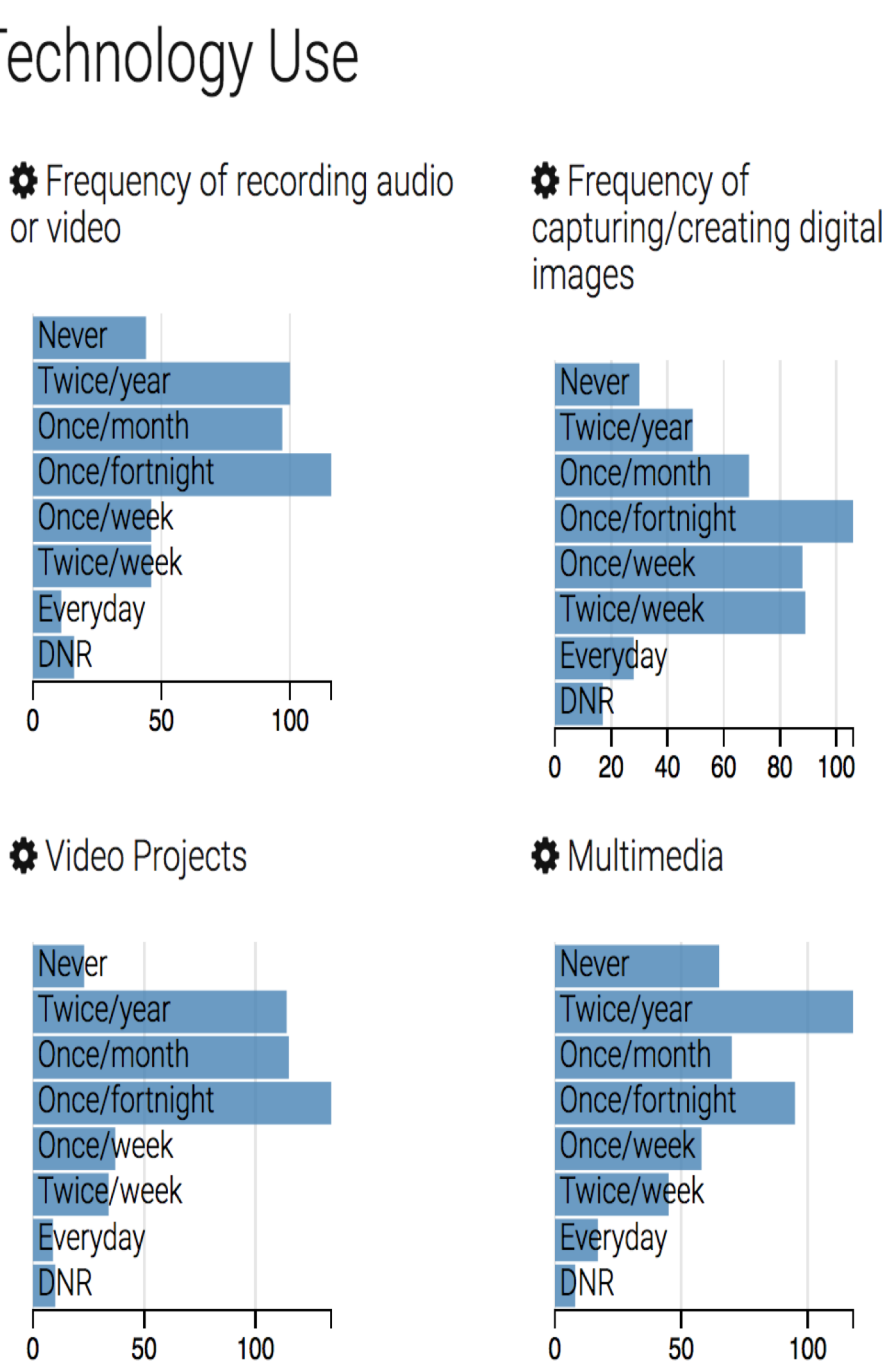


edtechteacher
Leading Change in Changing Times

Web-based, dynamic, data visualization pages:

Teacher and student data visualizations:

Demographics
Classroom practices
Attitudes and beliefs
Access to resources
Home access and use



New Generation of Visualization Tools: LAC Student Profile example

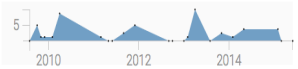
De Smidt, Resi

15 years, 6 months and 18 days

Grade 8

Attendance

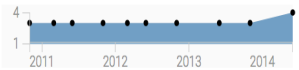
Days missed



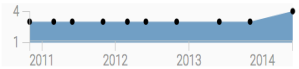
ES Reports

Unit of Inquiry

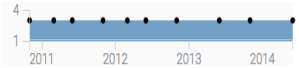
Thinking Skills



Research Skills



Understanding of the Central Idea



Standards Based Grades

EX: Exceeds, ME: Meets, AP: Approaches, DM: Does not Meet

English

Reading Literature Texts

ME ME ME EX ME EX NA

Writing

EX ME ME EX EX EX EX

Reading Informational Texts

ME NA NA NA NA EX NA

Listening and Speaking

NA EX EX NA EX NA NA

Language Usage

NA ME ME EX EX EX EX

Reading

NA NA NA NA NA NA EX

Communication

NA NA NA NA NA NA ME

Modern Language

Listening

ME ME EX ME ME EX ME

Reading

ME ME ME EX EX EX ME

Writing

AP EX EX ME ME ME EX

Speaking

EX ME ME ME ME ME ME

Language Usage

ME AP ME ME ME EX ME

Language Register

ME NA NA NA NA NA NA

Mathematics

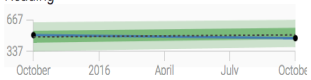
Data Analysis and Probability

ME NA NA NA ME EX EX

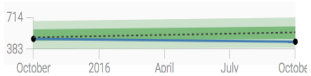
ACER ISA

International Schools Assessment

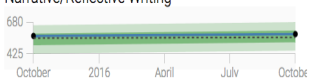
Reading



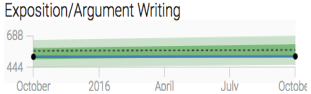
Mathematics



Narrative/Reflective Writing



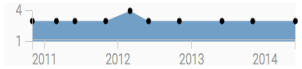
Exposition/Argument Writing



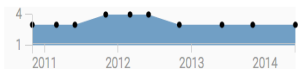
ES Reports

Art

Art



Effort



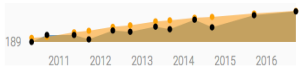
ES Reports

Music

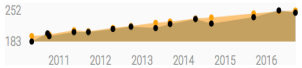
NWEA MAP

Measures of Academic Progress

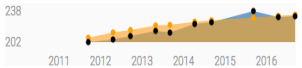
Reading



Mathematics



Language Usage

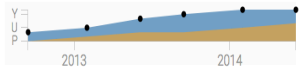


Student's score School Norm

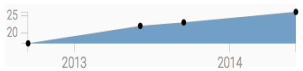
Literacy Assessments

Observational Assessments (ES)

Fountas & Pinnel



Words Spelled Correctly



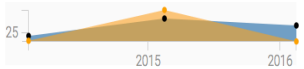
Feature Points

ES Reports

French

ERB WrAP

Writing Assessments

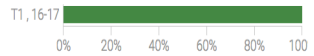


Student's score Expectation: based on School Norms

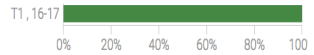
ATLS

Approaches to Learning

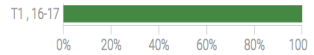
Managing Complexity



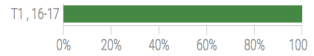
Collaboration and Social Skills



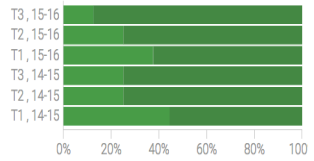
Critical Thinking



Creativity and Innovation



Manages time, resources, and commitments responsibly.

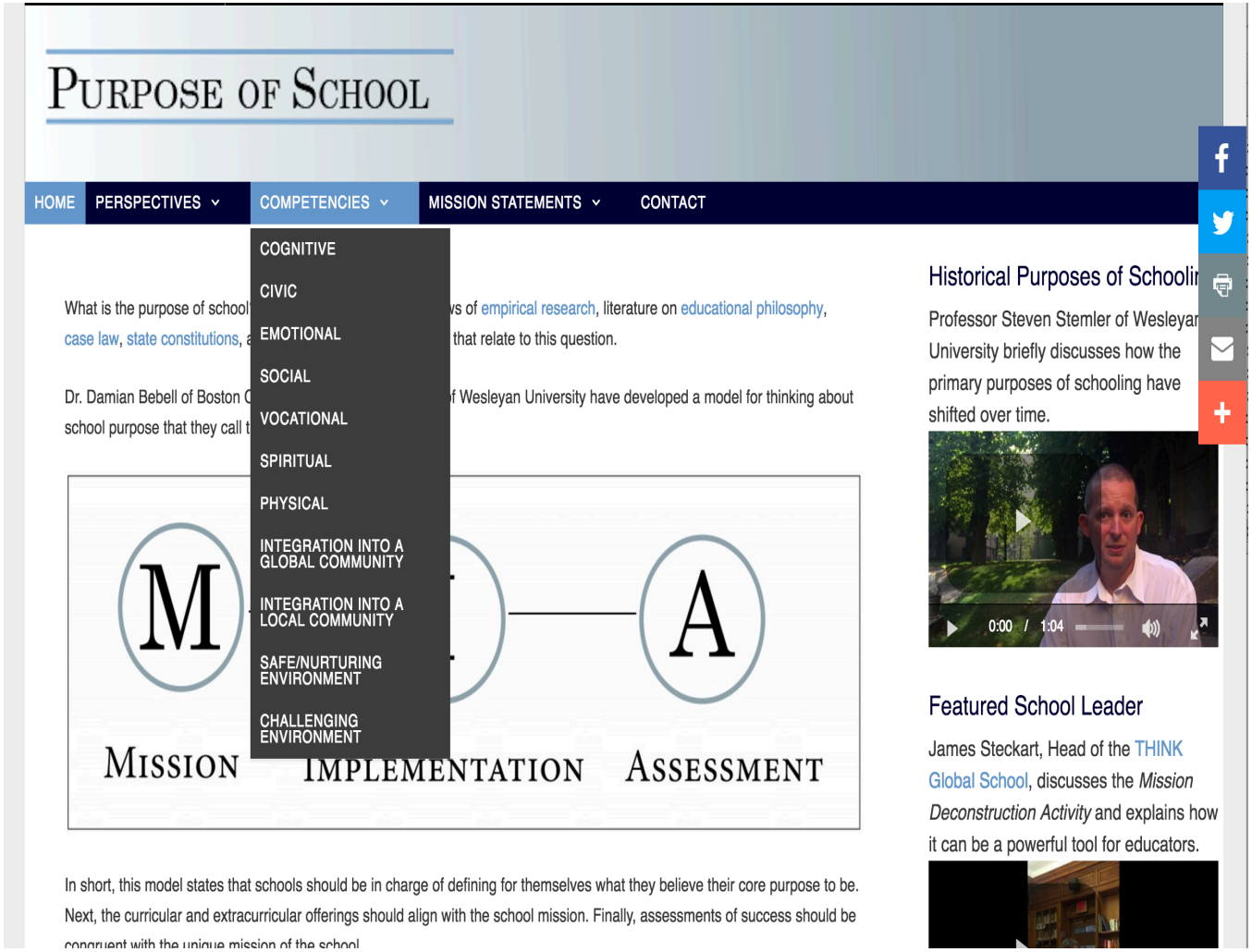


Demonstrates intellectual curiosity, initiative and perseverance.

New Visualization Tools: Predicting IB Diploma Pass Rates

http://www.analyticscollaborative.org/

Eventually, can we define (and empirically measure) exactly what you value and think is important?



www.purposeofschool.org

Is your community ready to make use of it?

jtpl Dashboard Students

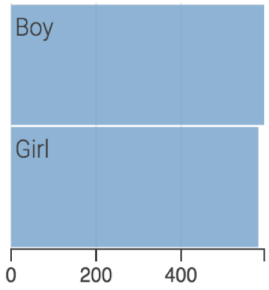
1,178 of 1,178 respondents
RESET ALL

Logout

Demographics

Are you a boy or girl?

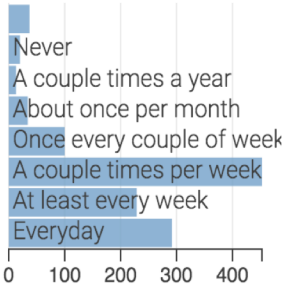
Are you a boy or girl?



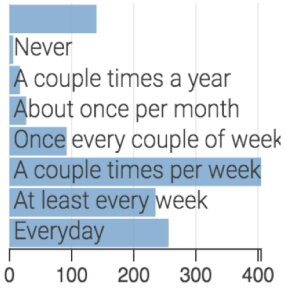
Use

Frequency of Tech Use

ELA Use



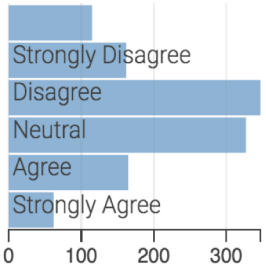
Math Use



Beliefs

Beliefs

It is hard to concentrate on schoolwork when using technology.



Comparing Subject-level Use

English Language Arts/ Reading

Social Studies/History/Humanities/Geography

Mathematics

Science

Comparing Technology Use

Your teacher delivers instruction to the class.

The teacher uses a technology device/tool to present information to your class

I work collaboratively with pairs or groups of other students in class.

Comparing Technology Function

Worked collaboratively with other students on a project

Taken notes in class using a computer or iPad

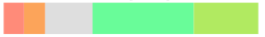
Used the Internet to research information

Downloaded or watched online video in

Mapping Beliefs

I learn a lot in school everyday.

I work hard in school everyday.



I like connecting my learning to real life problems.

I like collaborating with other students.

I like to use technology in school.

Reform Faculty

Harmony Education Center

www.nsrfharmony.org

ATLAS
Looking at Data

Learning from Data is a tool to guide groups of teachers discovering what students, educators, and the public understands and how they are thinking. The tool, developed by Eric Buchovecky, is based in part on the work of the Leadership for Urban Mathematics Project and of the Assessment Communities of Teachers Project. The tool also draws on the work of Steve Seidel and Evangeline Harris-Stefanakis of Project Zero at Harvard University. Revised November 2000 by Gene Thompson-Grove for NSRF. Revised August 2004 for Looking at Data by Dianne Leahy.

Selecting Data to Share

Data is the centerpiece of the group discussion. The following guidelines can help in selecting data or artifacts that will promote the most interesting and productive group discussions. Data or artifacts that do not lead to a single conclusion generally lead to rich conversations.

Sharing and Discussion of Data

Discussions of some forms of data sometimes make people feel "on the spot" or exposed, either for themselves, for their students or for their profession. The use of a structured dialogue format provides an effective technique for managing the discussion and maintaining its focus.

A structured dialogue format is a way of organizing a group conversation by clearly defining who should

http://www.nsrfharmony.org/system/files/protocols/atlas_looking_data_0.pdf

Analytics Collaborative Follow
A partnership between educational researchers, data scientists, and visionary leaders from schools f...
Dec 12, 2016 · 9 min read

Building and leading a school culture that values data informed dialogue to improve student learning

Megan Brazil, Elementary Principal, United Nations International School, Hanoi

In a ‘silo schools’ approach, teachers have generally been left to work independently on collecting, understanding and using their own classroom data to make decisions about instruction, planning and assessment. Many schools have not yet made the successful transition from individual to collaborative: to enable teams of teachers to collectively analyse learning data in order to improve learning outcomes for all students.

https://medium.com/learning-analytics-collaborative/building-and-leading-a-school-culture-that-values-data-informed-dialogue-to-improve-student-1ec982ebc35#.fhregw9o4

40TH ANNIVERSARY

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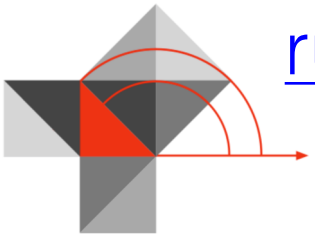

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