

# Quick examples of successful research



# Auburn Schools (ME) iPad K-3 Program

- District-wide 1:1 iPad program
- Identified need to increase student literacy and language acquisition by grade 4
- Spring 2011 pilot
- Fall 2011 Randomized pre/post study on 1<sup>st</sup> year kindergarten implementation (12 weeks)
- Multi-year longitudinal on ELA/Math outcomes



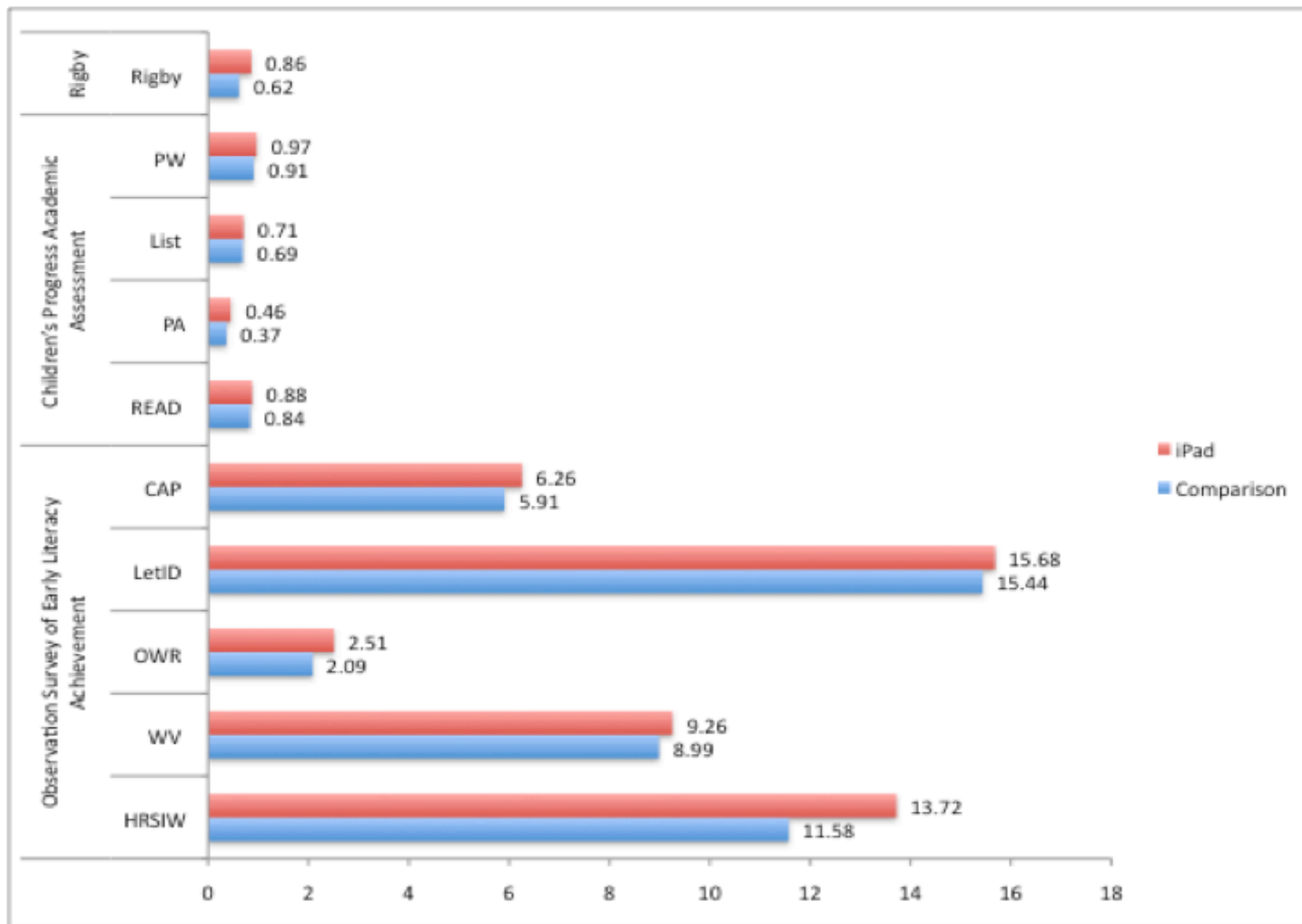
# Auburn Schools Early Literacy Measures

- Rigby Benchmark Assessment
- Children's Progress Academic Assessment
  - Phonics/Writing Test (PW)
  - Listening Test (List)
  - Phonetic Awareness Test (PA)
  - Reading Test (Read)
- Observation Survey of Early Literacy Achievement
  - Letter Identification (LetID)
  - Concepts about Print (CAP)
  - Word Reading/Ohio Word Test (OWR)
  - Writing Vocabulary (WV)
  - Hearing and Recording Sounds in Words (HRSIW)
  - Text Reading

	Listening		Phonemic Awareness				Phonics/Writing Mechanics				Reading				Writing				
	Listening comprehension: vocab, characters, main idea and details		Syllable counting Final Sounds Initial sounds Rhyming Blending				Letter-sound - blends and digraphs Letter-sound - single letter Letter identification				Name fluency Sight words Decodable words Sentence reading Fluency				Writes one complex sentence or multiple simple sentences on a topic Writes all upper and lower case letters Uses spaces between words				
Kindergarten APPS:		Listening skills: sequence																	Comments:
ABC Alphabet Touch*								X											Children are prompted to choose a letter from a group of letters on the screen.
ABC Magic 3 Preschool University					X				X										Offers letter-picture matching and picture-picture matching based on initial sounds.
ABC Magnetic Land								X					X						Provides an interactive magnetic letter board. Letters are identified by name when touched.
ABC's and Me								X	X		X								Provides letter, corresponding picture, and word.
Alphabet Car								X						X	X				Pronounces letter, sound, and word.
Fish HD								X											Children drive a bus to bump letters on the screen into word boxes. Highly interactive and engaging.
I Like Books *	X	X											X	X		X	X		Fish make the shape of letters and the letter is read aloud.
Little Matchups ABC Alphabet*								X											Also includes the ABC song.
Little Reader *					X								X		X				37 "I Like..." books that are read aloud. Highlighted words.
Little Sky Writers					X			X	X								X		Options for reading to self and/or recording text.
Little Speller*									X		X	X			X				Consists of letter sorts and letter matching (Upper/lower case). Letter names are read aloud.
Magic Reading 1 Preschool U.			X		X	X			X	X	X				X				Pictures are matched to words. This is fully customizable.
Montessori Crosswords			X		X	X		X	X	X	X	X			X	X			You can add/delete word lists.
Sight Words*													X		X	X		X	Students trace letters. The program reads aloud letter names, sounds, and words beginning with the letter.
Spelling Magic ABC 1 Preschool U.			X		X	X			X	X	X	X							Students drag letters into boxes to spell 3 letter words.
Story Buddy	X	X																X	Letters are identified by name and read aloud. Customizable.
Story Chimes	X	X														X	X		There are three word activities: blending, segmenting, and reading.
Teach Me Kindergarten					X	X					X				X	X			Students spell words using a phonetic alphabet board. App provides a phonetic letter board for open-ended activities.
White board/drawing app (Paint Sparkles)													X					X	Students pick the correct word from 4-5 choices. This is fully customizable. You can add/delete word lists.
Word Wall HD			X		X	X		X				X			X				Students spell words by dragging letters into boxes. A phonetic alphabet is used.
Word Wizard			X	X	X	X		X	X	X	X	X	X		X	X	X	X	Children can create stories using typed or written text and can illustrate with iPad or add photos.
Zaner Bloser																		X	A variety of genres are available including fairytales and folktales.



# Auburn Schools (ME) iPad K-3 Program





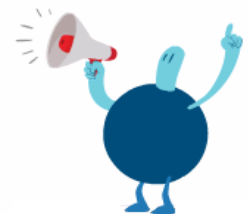
# Time to Know (T2K) Study PS-- Brownsville, Brooklyn

- Highest concentration of public housing in US
- 724 students

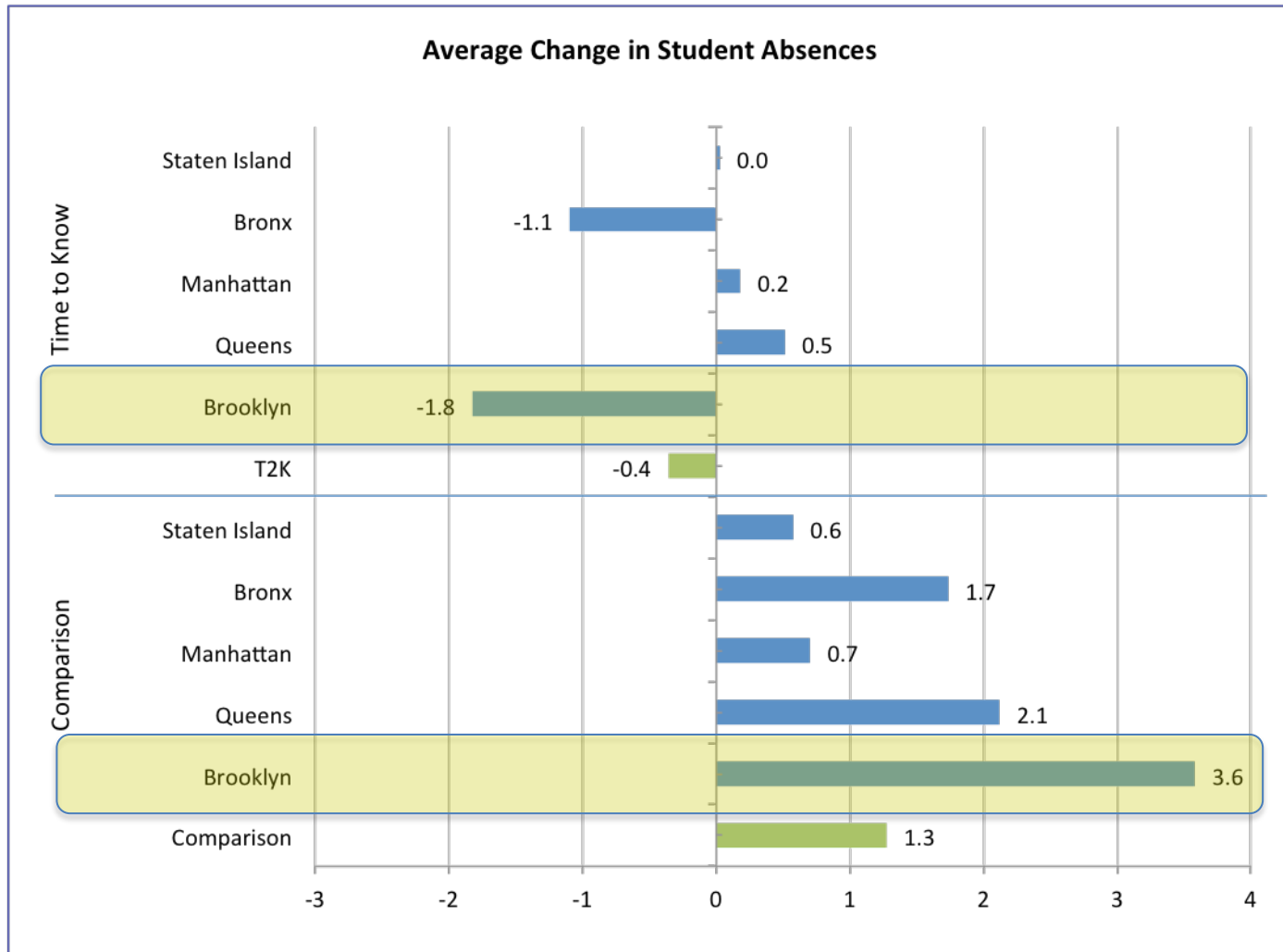
## Pre/Post Comparison Design Study Outcomes:

- Student engagement
- Student retention
- Student achievement
- Digital Citizenship

1:1 laptop and Digital teaching platform across  
4<sup>th</sup> and 5<sup>th</sup> grade



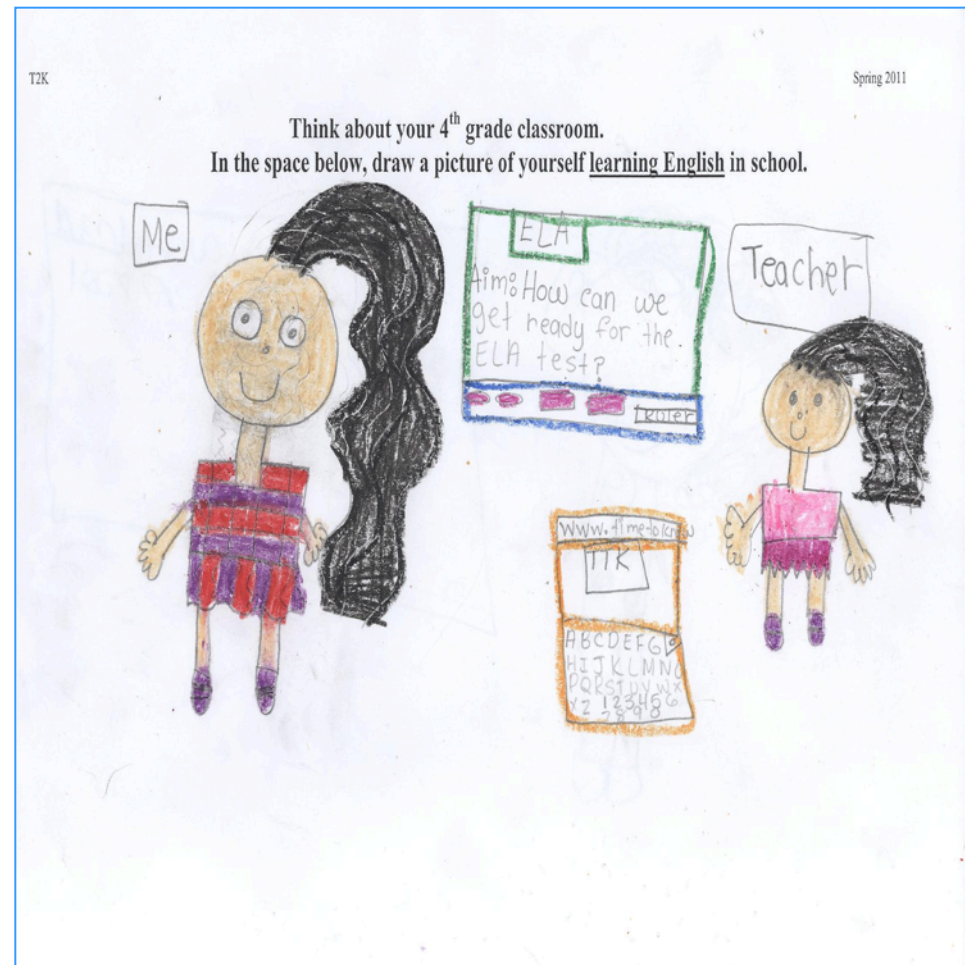
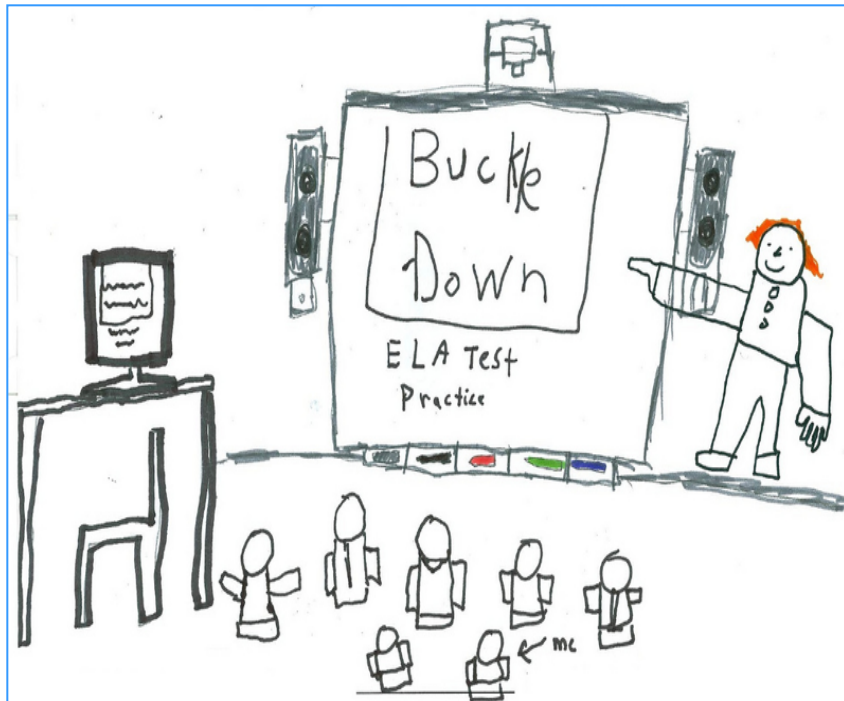
# T2K Study: Increased Student Attendance



Compared to past averages and those students in the non-1:1 Brooklyn setting, 1:1 students exhibited a statistically significant difference of nearly six school days in the number of missed school days during the 2010/2011 school year.

# T2K Study Outcomes

- 79% of students reported more engagement in class.
- Increase in variety of instructional strategies/resources employed by teachers
- Skype partnership with middle-eastern schools



# T2K Study Outcomes



# T2K Study Outcomes

T2K

Spring 2011

Think about your 4<sup>th</sup> grade classroom.  
In the space below, draw a picture of yourself learning English in school.





# 5 minute individual activity

“Think about your ideal school or classroom setting.

Draw a picture of students learning in this setting.”

# Drawing on Education

- Used for centuries as a means for children to express themselves
- The drawing prompt can be customized to address a wide variety of student and teacher experiences/perceptions
- Many empirical approaches:
  - Can used for descriptive, comparative, or longitudinal purposes
  - Holistic analyses /reflection exercise/PD
  - Emergent analytic coding
    - Dichotomously code features of samples of drawings

# Examples of student drawing prompts

- Draw a picture of yourself learning Math.
- Think about the teachers and the kinds of things you do in your classrooms. Draw a picture of one of your teachers working in his or her classroom.
- Think about the teachers and the kinds of things you have done in your class today. Draw a picture of your teacher teaching and yourself learning.
- Draw a picture of yourself taking the “big test”
- Think about the math work and activities you do outside of school. Draw a picture of yourself learning math outside of school.
- Draw a picture of yourself doing your homework.

# Coding drawings

## Holistic Coding

Assemble packet of drawings/text

Provide teams time to answer these questions:

1. *What patterns do you see in the drawings?*
2. *Why do you think these patterns occur?*
3. *What do you think might be done differently in your school as a result of what you see in the drawings?*

## Trait Coding

Identify 1 trait

Establish a scale for the degree that trait is present (1-5)

Rate the degree each drawing/text exhibits that trait

## Emergent Analytic Coding



# Developing Emergent Codes for student drawing rubric

Objective

Reliable/consistent

Dichotomous features

Quantitative summary

(allows for potential comparison)

For example, 55 independent codes created for  
“Draw a picture of your math class”

**Towards Transformation: October 2015**  
**Student Drawing Definitions**

Using drawings as a data source:

- 1) identify your prompt
- 2) develop operational definitions
- 3) code each drawing

<b>Student characteristics</b>	<b>Operational Definition</b>
At desk	Student is depicted seated and/or working at a desk.
Working with pencil	Student is depicted working using a pen or pencil.
Working with laptop	Student is depicted working with a laptop computer.
Working with iPad	Student is depicted working with an iPad.
Thinking	Student is depicted thinking (thought bubbles, light bulb, "Oh, I get it", etc.
Reading	Student is depicted reading a book or reading from a screen.
Talking with teacher	Words (or some indication of communication) are depicted between at least one student and a teacher.
Talking with other student	Words (or some indication of communication) are depicted between one or more students.
<b>Technology present</b>	
Laptop computer	Laptop computer is depicted anywhere in the drawing.
Ipad	iPad device is depicted anywhere in the drawing.
Paper	One or more pieces of paper are depicted anywhere in the drawing.
Pencil	A pencil is depicted anywhere in the drawing.
Interactive Whiteboard	An interactive whiteboard (Smartboard, etc) is depicted anywhere in the drawing
<b>Other</b>	
Other students present	More than a single student is depicted.
Teacher at front of room	Teacher is clearly depicted in drawing in the front of classroom (identifiable by size, label, or other characteristic).
Teacher with students	Drawing contains depiction of teacher working alongside one or more students



# Shared Cart Class Drawing

Think about the work you do in your classroom. In the space below, draw a picture of yourself writing in school:

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# Shared Class Drawing (2)

Think about the work you do in your classroom. In the space below, draw a picture of yourself writing in school:

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# Shared Class Drawing (3)

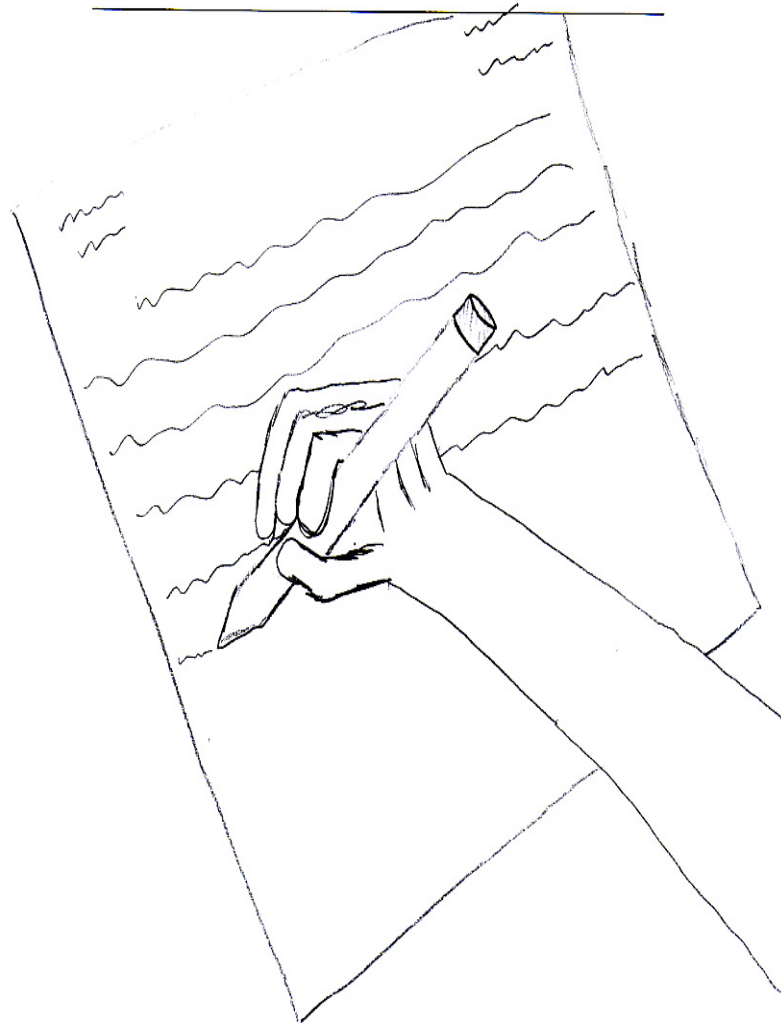
Think about the work you do in your classroom. In the space below, draw a picture of yourself writing in school:

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# Shared Class Drawing (4)

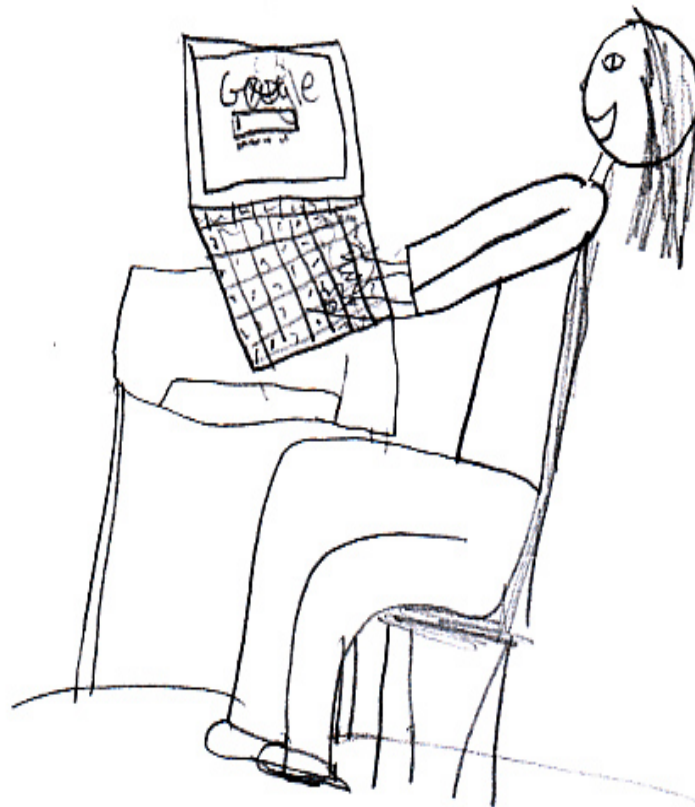
Think about the work you do in your classroom. In the space below, draw a picture of yourself writing in school:



# 1:1 Class Drawing (1)

Think about the work you do in your classroom. In the space below, draw a picture of yourself writing in school:

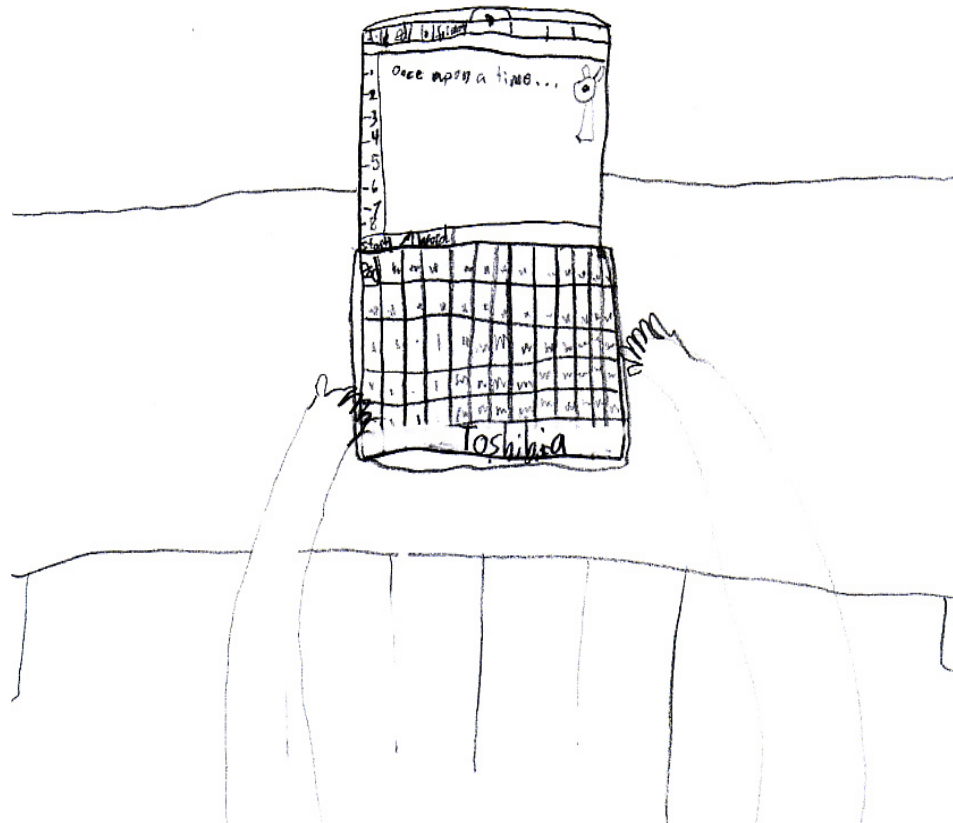
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# 1:1 Class Drawing (2)

Think about the work you do in your classroom. In the space below, draw a picture of yourself writing in school:

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# 1:1 Class Drawing (3)

Think about the work you do in your classroom. In the space below, draw a picture of yourself writing in school:



# 1:1 Class Drawing (4)

Think about the work you do in your classroom. In the space below, draw a picture of yourself writing in school:

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# 1:1 Class Drawing (5)

Think about the work you do in your classroom. In the space below, draw a picture of yourself writing in school:

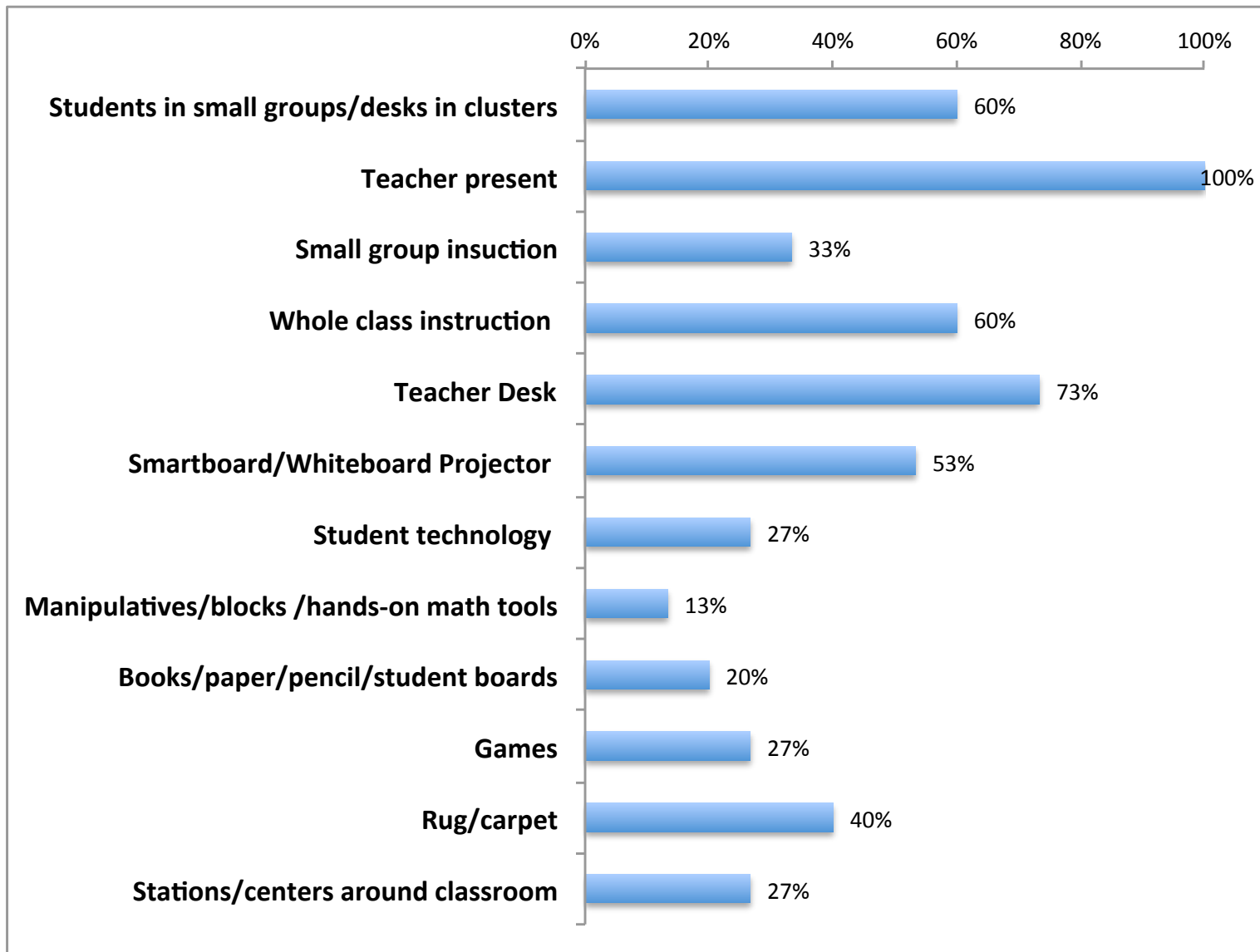
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# Example of coded drawing results

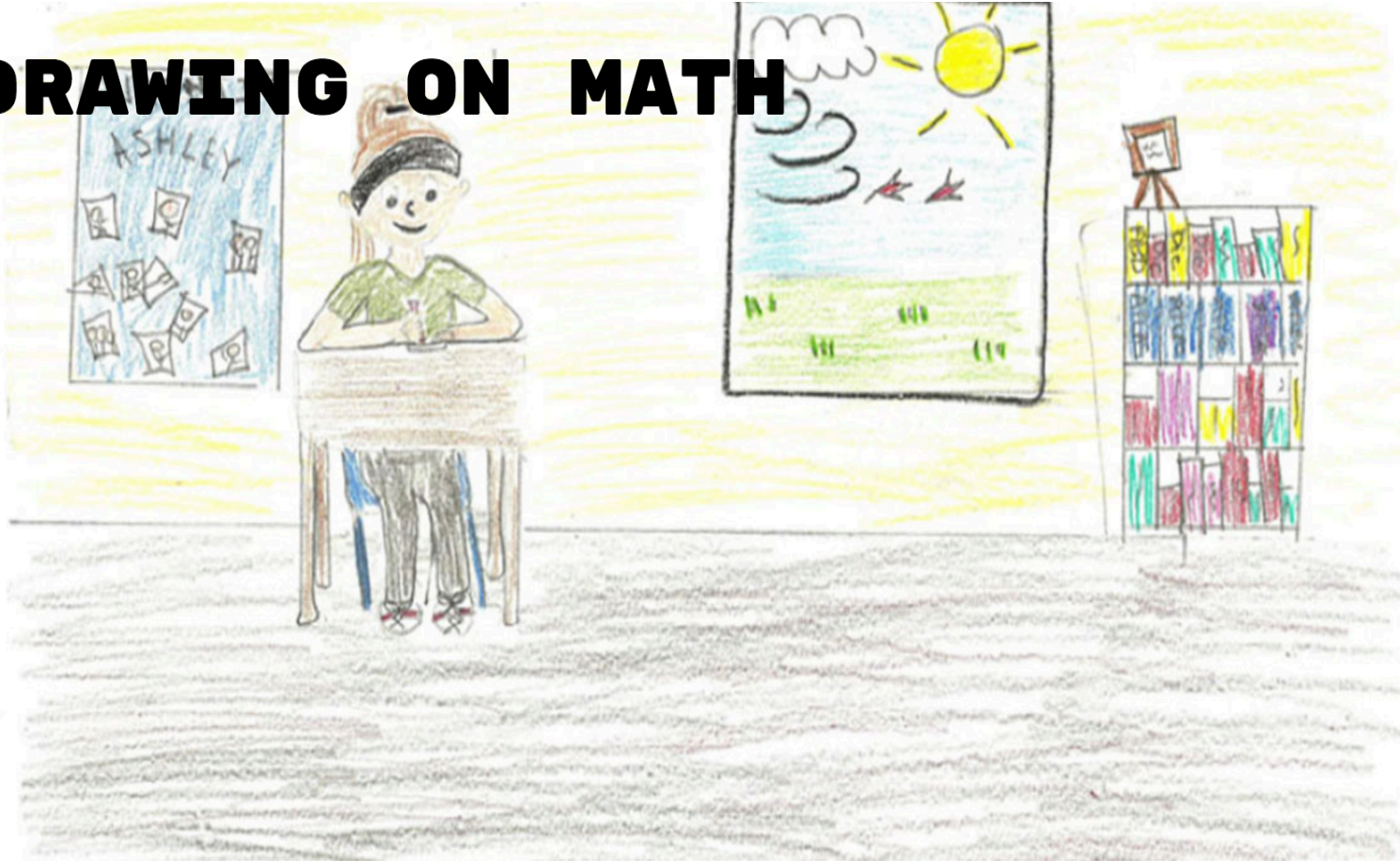
Resources used in writing	Shared laptop classes	1:1 laptop classes
Laptop	9%	92%
Paper	87%	8%
Pencil	76%	7%

# Example Results: Math Coach Drawing





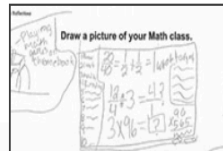
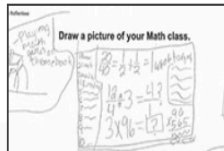
# DRAWING ON MATH



**HOME COLLECTION CODING RESOURCES EXAMPLES**

## Examples of Student's Math Drawings

A picture is worth a 1,000 words. Here are some examples of student classroom drawings collected from elementary and middle school classrooms across the United States. Click on the images to see the full drawing.





Data is everywhere, and can be simpler than you realize!



Think about your 3<sup>rd</sup> grade classroom.

In the space below, draw a picture of yourself learning English in school.

