

# Technology Equity: Now What?

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# Get acquainted

## Who is in our audience?

- Elementary teachers
- Secondary teachers
- Administrators
- Educational assistants
- Faculty

Turn to your neighbor and share your experience with iPads

What question(s) would you like answered during the presentation? (Socratic or 3X5 card)

# Session Goals:

- What does the literature say about the impact of technology on EL student learning?
- What are we learning about EL students' access, experiences, and use of iPads at Roosevelt HS?
- How does technology help EL learners develop reading, writing, oral language skills?
- What are the implications for policies and practices to maximize the use of technology by ELs?

# 21<sup>st</sup> Century Goals and Limitations

“**Teachers must leverage technology** to provide engaging and powerful learning experiences and content, as well as resources and assessments that measure student achievement in more complete, authentic, and meaningful ways.”

National Education Technology Plan (US Department of Education, 2010)

The digital divide between technology-mediated instruction for students in low and high socio-economic schools is a **serious equity issue with repercussions for student learning.** (DeWitt, 2007)

# Roosevelt High School Portland OR

## 1:1 iPad Initiative 2011-2014

Portland Public Schools received a grant to

- improve the quality of and access to technology tools and resources and result in improved student attendance, behavior, and academic achievement
- reduce the disparities in technology access and instruction among low-income students by providing an iPad to each ninth and tenth grade student at Roosevelt High School.

# What do we know?

## Digital Divide and Impact on Student Learning

- Research on 1:1 laptop initiatives:
  - When used as essential curriculum tools, student achievement increased
  - When technology is supplemental, no impact on student learning(Norris, Hossain, Solloway, 2012)
- Research on 1:1 iPad initiatives
  - Reports focus on instructional applications of iPads and student engagement and satisfaction(Reid & Ostashewski, 2011; NAACE, 2012)

# What do we know?

## Potential Impact of Technology on EL Student Learning

- ❖ Engage EL students' motivation
- ❖ Develop writing and editing skills
- ❖ Support collaboration through class websites & blogs  
(National Council Teacher of English, 2008)
- ❖ Support oral communication through audio & video recording features of iPads
- ❖ Extend time for learning with on-line teacher-created tutorials

# Roosevelt High School

Two-year, mixed method study of impact of providing 1:1 iPad to each student (N=752)

80% poverty rate

68% identified minority group

30% homeless

37% meeting graduation criteria





# Research Questions

## At Roosevelt High School.....



- How equitable is EL student access to iPads?
- How do EL students use iPads?
- How does access to an iPad influence EL students' technology experiences and attitudes?
- How does access to an iPad influence EL students' attendance and GPA?

# Data Sources

- Initial survey of all grade 9-11 students about their experience and attitudes toward technology  
Fall, spring 2012-2014  
<http://www.pps.k12.or.us/schools/roosevelt/690.htm>
- Weekly student technology use surveys
- <http://www.pps.k12.or.us/schools/roosevelt/764.htm>
- District data on student demographics, special education and EL status, attendance, GPA, test scores

## Classroom Observations



## Teacher Focus Groups

# Audience Interaction

# ELs Demographics **N=110**

Gender	Race	Ethnicity	Languages	Grade Level
Female: 44 Male: 66	Asian: 9 Black: 29 Hispanic: 29 White: 31 Other: 12	Hispanic: 68 Not Hisp: 42	Spanish: 65 Other: 45	9 <sup>th</sup> : 37 10 <sup>th</sup> : 41 11 <sup>th</sup> : 32

ELP Proficiency	Services	Take Home iPad
ELP 1: 5 ELP 2: 12 ELP 3: 21 ELP 4: 14 ELP 5: 8 Exited: 43	ESL Services: 51 Refused Services: 8 Monitored: 51	Yes: 57 No: 53

# How equitable is EL student access to iPads at Roosevelt High School?

Two requirements for individual Take Home iPad:

- Parents and student sign iPad Acceptable Use Policy
- Payment of \$40/year iPad insurance

59% of all students at RHS have Take Home iPad

**52% of EL students have Take Home iPad (THP)**

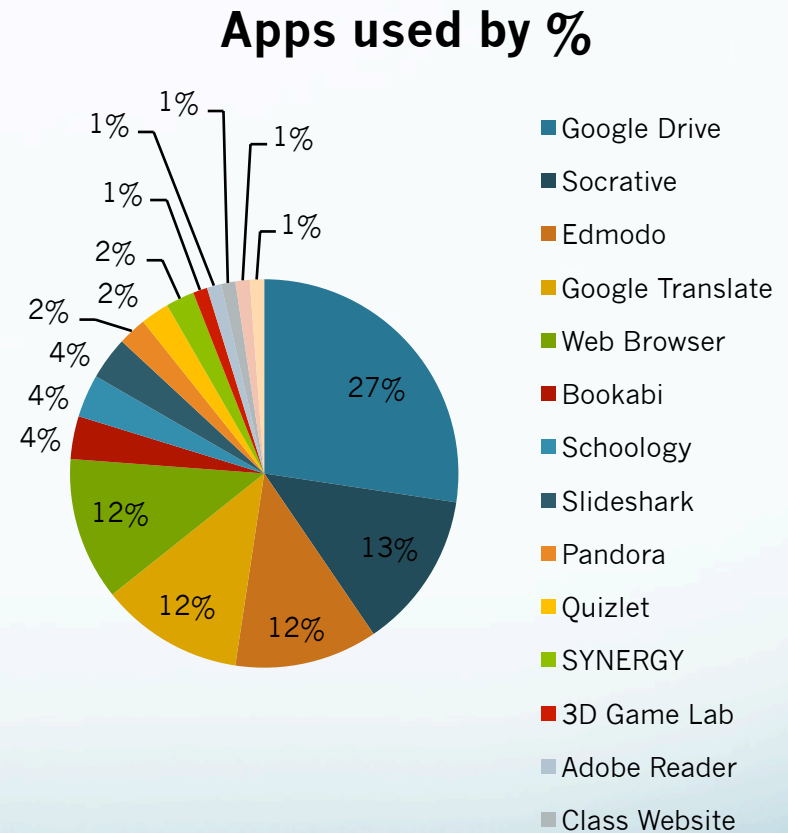
No significant demographic difference between EL students who have THP versus those who use iPad in class cart

- **EXCEPT GPA:** EL students who have less than 1.0 GPA OR 3.0 and higher GPA are more likely to have a THP
- **EXCEPT Special Education** EL students who also have IEP are 1.5 times more likely to have THP than other EL

# What applications did EL students use?

N=29 weekly survey

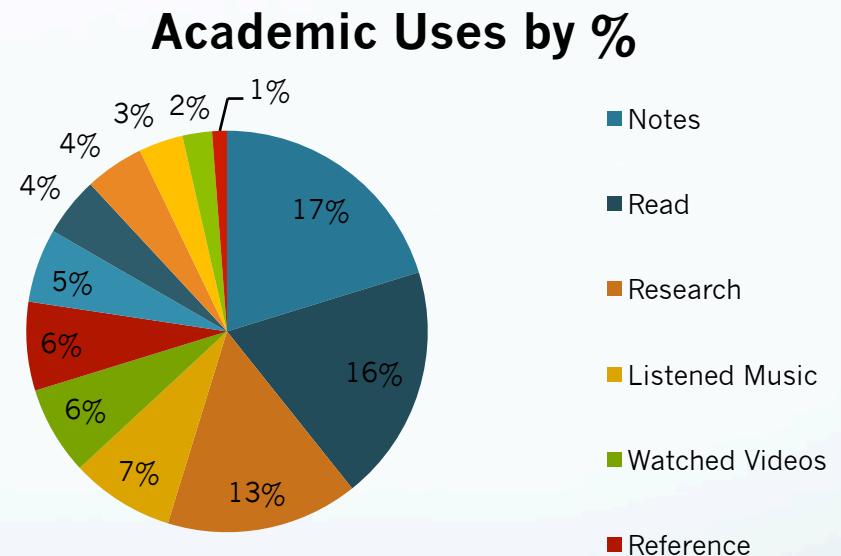
<b>Apps Used</b>	<b>Percentage</b>
Google Drive	27%
Socrative	13%
Edmodo	12%
Google Translate	12%
Web Browser	12%
Bookabi	4%
Schoology	4%
Slideshark	4%
Pandora	2%
Quizlet	2%
SYNERGY	2%
3D Game Lab	1%
Adobe Reader	1%
Class Website	1%
Google Maps	1%
iTunes U	1%



# What did EL students do with the iPad applications?

N=29 weekly survey

Academic Uses of iPad	Percentage
Writing	18%
Notes	17%
Read	16%
Research	13%
Listened Music	7%
Watched Videos	6%
Reference	6%
Created Present	5%
Learned Use (App or iPad)	4%
Photos	4%
Collaborated	3%
Solve MathSci	2%
Played Games	1%



# How does having an iPad affect EL students' experiences and attitudes about technology?

N=61(October) 1-Low to 4-High

**ATTITUDE** Mean: 3.40

Overall proficiency and satisfaction

**HELPFULNESS** Mean: 3.19

- Doing homework
- Writing assignments
- Communicating, collaborating
- Organizing school work
- Doing research
- Accessing information
- Staying motivated/engaged

**EASE OF USE** Mean:3.28

- Turn in homework
- Complete writing
- Create content
- Install apps
- Add music
- Take care of iPad
- Communicate (email, chat, blog)
- Connect wirelessly



# How does having an iPad affect EL students' frequency of use?

N= 61 (October)

## Frequency of Use in School

1: no classes

2: 1-2 classes/week

3: 3-5 classes/week

4: in every class/week

Significant difference:  
Students with THP:

Mean 2.61

Students without THP:

Mean 1.86

- **Frequency of Use outside of School**

- 1: never

2: once a week

3: 2-3 times/week

4. every day

Mean: 3.06

**Homework, communicate, create videos, find information, watch videos, play games, listen to music, use social media**

# How does having an iPad impact EL students' attendance and GPA?

**N=110**

EL students who had a THP had slightly higher attendance rate than EL without THP

R (.304) moderate positive relationship between students with THP and attendance

R<sup>2</sup> (.093) 9.3% of variation in attendance explained by access to THP

# Audience Interaction

# ELD 1 and iPads at Roosevelt High School

- Limited or no formal schooling in native country.
- Limited or no native language literacy.
- Three or more years behind peers in mathematics.
- Many have negative associations with school.
- Lived through traumatic experiences.
- Many come from regions of conflict or war or lived in refugee camps.
- Central/Eastern Africa, Central America. Pacific Is.

# Purpose for Using iPads with ELs

- Engender a familiarity with technology and the specific applications they will use in other classes
- Develop the basic skills students need to be creators as well as consumers of information



# Challenges of iPads for EL students

- Many math and literacy apps and software are created for young children and assume English language ability
- Newcomer students have limited
  - familiarity with technology
  - experience with visual symbols
  - manual dexterity and visual/spatial recognition
- Experience of direct instruction and rote learning vs. ambiguity of student-directed learning

# How does the iPad provide access to learning for ELs?

Provides a way for students to access everything and opens up the world for them

- Newcomers have one language for communication
- Begin with images, do their own research from there
- iPad lets kids continue learning at any time if they have Internet at home and a THP
- Access through Internet to things they are familiar with-- find their home on Google Earth and access videos and music from home country
- Access to new topics

# How does Edmodo empower EL students' use of technology?

Easy to use for teacher and the students

- simple design that is accessible to the students
- closed site with no public access or advertising
- connects to Google Drive
- organizes all resources for a unit into a folder

Students can

- post links to pictures or documents to a group of students or individual student
- reply
- participate in polls and quizzes



# How does iPad enhance access to teacher website?

The image shows a screenshot of the Edmodo website interface, which is designed to look like a social media platform. The interface includes a top navigation bar with the Edmodo logo, a search bar, and links for Calendar, Grades, and Library. On the right side of the top bar, there are links for Home, Profile, and Account. The main content area is titled "Period 1" and features a post creation box with a "Post" label and a "Send" button. Below this, there are several posts from users, including one from "Abdifatah M." and another from "Ms. Radler". A poll titled "What is your favorite season?" is also visible, with options for Winter, Spring, and Summer. On the right side, there is a "Show Notifications" button and a "Folders" section with links to Chemistry, Listening, Math, Reading, Songs, and United States. The interface is annotated with red handwritten text and arrows:

- "Student and parent access to calendar and grades" with an arrow pointing to the top navigation bar.
- "Students can post to each other and the teacher" with an arrow pointing to the post creation box.
- "Quizzes and Polls" with an arrow pointing to the poll.
- "looks like Facebook" with an arrow pointing to the overall layout.
- "Ability to directly link to relevant sites and information" with an arrow pointing to the "Folders" section.

# How does iPad support oral language and reading?

- iPad lowers affective filters
  - Practice oral language by recording into the iPad and listening
  - Raz Kids application
    - Read online books or listen to a digital recording and follow along with the highlighted text
    - Read at, below, or above their reading level and choose books of their interests
    - <http://www.raz-kids.com/>
    - <http://www.raz-kids.com/main/ViewBooks>



# How does iPad use support student research?

## Students research for personal reasons

- take initiative to find information on topic of interest
- watch and learn from videos they find
- recommend that teacher post on Edmodo for class

## Students research for classwork

- first access images with less text because reading level is still low
- don't know how to select reputable sites so teacher/ students collaborate
- teacher puts pre-selected links on Edmodo

# Audience Interaction

# Suggestions for implementing iPads in the classroom

- Develop clear protocols for iPad use in class
- Allocate enough time to introduce the device and allow students to explore and be comfortable with the applications
- Be clear about the end goal of the lesson
- Decide which technology is best to use and when it should be used in the lesson

# Policy Implications

Reform implementation requires sustained focus over time

- Communicate importance of iPads to faculty, students and families
- Promote sustained and systematic use of iPads across the curriculum
- Ensure equitable access for all students
- Develop an evaluation system to analyze implementation success
- Prioritize professional development
  - Provide time to explore and practice specific apps
  - Learn how to maximize student learning with iPads
  - Focus on fewer apps used schoolwide
- Provide tech support
  - Efficient distribution of iPads and orientation for students
  - Maintenance and update of equipment

# Audience Q & A

- Respond to questions from Socrative
- Respond to questions from 3X5 card