Finding the Missing Link to Effective Technology Use in Schools

Chris Moersch, Ed.D.
Executive Director
LoTi Connection, Inc.
chris@loticonnection.com
What is effective technology use?
"Effective integration of technology is achieved when students are able to select technology tools to help them obtain information in a timely manner, analyze and synthesize the information, and present it professionally. The technology should become an integral part of how the classroom functions -- as accessible as all other classroom tools."

-- NATIONAL EDUCATIONAL TECHNOLOGY STANDARDS FOR STUDENTS, INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION
Digital Learning Today

*Effective digital learning is achieved when learning facilitated by technology gives students”… some element of control over time, place, path and/or pace.”*

-- Digital Learning Now!
Effective digital learning is achieved when *learning facilitated by technology* gives students”… some element of control over time, place, path and/or pace.”

-- Digital Learning Now!
Effective digital learning is achieved when learning facilitated by technology gives students’… some element of control over time, place, path and/or pace.”

-- Digital Learning Now!
Effective digital learning is achieved when learning facilitated by technology gives students’… some element of control over time, place, path and/or pace.”

-- Digital Learning Now!
Effective digital learning is achieved when learning facilitated by technology gives students’… some element of control over time, place, path and/or pace.”

-- Digital Learning Now!
Digital Age Best Practices

- Digital Tools
- Student Questions
- Student Centered Learning
- Formative Assessment
- Horizontal Differentiation
- Vertical Differentiation
- Networked Collaboration
- Authentic Connections
Digital Age Best Practices

Effect Size

Formative Assessments
Student-generated Questions
Authentic Connections
Horizontal Differentiation
Vertical Differentiation
Digital-age Tools & Resources
Network Collaboration
Student-centered
Improving Achievement

With

Digital Age

Best Practices

Christopher M. MOERSCH
How can we accurately measure Digital Learning?
LoTi Digital Age Survey: Multiple-Uses

- Leading Research Metric for Digital Learning
- 350 Dissertations Published over 20 Years
- Statewide Assessments for Literacy and Technology Grants
- District One-to-One Initiatives, District Technology Grants, Technology Plans
<table>
<thead>
<tr>
<th>Year</th>
<th>Author(s)</th>
<th>University</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>015</td>
<td>Moen, Mary H.</td>
<td>University of Rhode Island</td>
<td>Teachers’ Self-Directed Informal Learning for Technology Integration in 1:1 Device High Schools</td>
</tr>
<tr>
<td>015</td>
<td>Tadeja, Chester</td>
<td>Pepperdine University</td>
<td>An enquiry into California school district superintendents: Their role in creating, promoting and sustaining a digital-age learning culture</td>
</tr>
<tr>
<td>015</td>
<td>Farsaii, Sam</td>
<td>Pace University</td>
<td>The Impact of the Levels of Teaching Innovation (LoTi8) Framework Professional Development on Administrators’ 1:1 Classroom Walkthrough Observation: A Case Study</td>
</tr>
<tr>
<td>014</td>
<td>Harbi, Hanaa Eid M AL</td>
<td>University of Queensland</td>
<td>An examination of Saudi high school teachers’ ICT knowledge and implementation</td>
</tr>
<tr>
<td>014</td>
<td>McGlothlin, Cheryle D</td>
<td>Ohio University</td>
<td>Evaluation of HQT Online Courses: Growth of Participants Technology, Pedagogy and Content Knowledge (TPACK)</td>
</tr>
<tr>
<td>014</td>
<td>Tourand, Cheryl C.</td>
<td>Royal Roads Univ. (Canada)</td>
<td>The Transformational Technology Innovation Process: Lived experiences in the Chilliwack BC secondary program</td>
</tr>
<tr>
<td>014</td>
<td>Turner, Henry J.</td>
<td>Boston College</td>
<td>Framing innovation: The role of distributed leadership in gaining acceptance of large-scale technology initiatives</td>
</tr>
<tr>
<td>014</td>
<td>Flanagan, Gina E.</td>
<td>Boston College</td>
<td>Framing innovation: Does an instructional vision help superintendents gain acceptance for a large-scale technology initiative?</td>
</tr>
<tr>
<td>014</td>
<td>Williams, Gavin C.</td>
<td>Northcentral University</td>
<td>An Analysis of Technology Integration Among Middle School Teachers in Technology-Rich Environments</td>
</tr>
<tr>
<td>014</td>
<td>Griffin, Bill</td>
<td>N/A</td>
<td>A Case Study: The Impact of School-Based Technology Implementation on Middle School Teacher Technology Efficacy</td>
</tr>
<tr>
<td>014</td>
<td>Morris, Krista</td>
<td>Walden University</td>
<td>Improving Technology In Agriscience Classrooms</td>
</tr>
<tr>
<td>014</td>
<td>Wisniki, Stephanie Kraft</td>
<td>Rutgers University</td>
<td>Environmental factors and Google Docs use in Monmouth County middle schools</td>
</tr>
<tr>
<td>014</td>
<td>Krause, Lorinda M.</td>
<td>Drexel University</td>
<td>Examining Stakeholder Perceptions of Accessibility and Utilization of Computer and Internet Technology In the Selinsgrove Area School District</td>
</tr>
<tr>
<td>014</td>
<td>Bello, Aderonike</td>
<td>Walden University</td>
<td>Impact of Technology Interventions on Student Achievement In Rural Nigerian Schools</td>
</tr>
<tr>
<td>ID</td>
<td>Last Name, First Name</td>
<td>Institution</td>
<td>Title</td>
</tr>
<tr>
<td>----</td>
<td>-----------------------------</td>
<td>--------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>999</td>
<td>Geranis, Joyce Monica</td>
<td>University of Arizona</td>
<td>Elementary Teachers’ Beliefs Regarding the Use of the Internet in K-5 Classrooms and the Impact on Their Teaching Practices</td>
</tr>
<tr>
<td>999</td>
<td>Deacon, Carolyn R.</td>
<td>Seton Hall University</td>
<td>The Effect of Computer Access and Subject Area on the Level of Teacher Implementation of Technology</td>
</tr>
<tr>
<td>999</td>
<td>Fuerstenau, Gregory W.</td>
<td>University of South Dakota</td>
<td>Factors that Influence the Integration of Technology in School Districts</td>
</tr>
<tr>
<td>998</td>
<td>Pinkston, Gary Lunn</td>
<td>University of Minnesota</td>
<td>Attitudes of Teachers Toward Informational Technology and Implications for Curriculum</td>
</tr>
<tr>
<td>998</td>
<td>Bernshauser, Diana Macon</td>
<td>University of Houston</td>
<td>Beyond the Brick Wall. Integrating Technology into Elementary Schools: A Case Study</td>
</tr>
<tr>
<td>998</td>
<td>Cerny, Jon Steven</td>
<td>University of Nebraska, Lincoln</td>
<td>The Effect of Administrator Concerns, Teacher Use of the Internet, and On-site Technical Assistance on Student Use of the Internet in Schools</td>
</tr>
<tr>
<td>998</td>
<td>Chiero, Robin Theresa</td>
<td>Claremont Graduate University and San Diego State University</td>
<td>Teachers’ Professional Uses of Computers and Perceptions of Their Value for Work Productivity</td>
</tr>
<tr>
<td>998</td>
<td>Jenkins, Marcia Anne</td>
<td>Georgia State University</td>
<td>Examining a Student-supported Technology Program for Teachers</td>
</tr>
<tr>
<td>998</td>
<td>Garcia, Penny Ann</td>
<td>University of New Mexico</td>
<td>Using an On-line Assistant with Fourth-grade Hypermedia Projects: Effects on Project Quality, In-process Interactions, and Attitudes</td>
</tr>
<tr>
<td>997</td>
<td>Redish, Traci Cheek</td>
<td>Georgia State University</td>
<td>An Evaluation of a One-year Technology Professional Development Program: The InTech Project</td>
</tr>
<tr>
<td>997</td>
<td>Slobojan, Marie T.</td>
<td>Widener University</td>
<td>Integrating Technology with Instruction: A Case Study of Mentors and Protégés</td>
</tr>
<tr>
<td>997</td>
<td>Lippman, Ethel</td>
<td>Widener University</td>
<td>A Study of the Factors that Influence the Level of Integration of Technology in “Technology-rich” Schools</td>
</tr>
<tr>
<td>996</td>
<td>Meyers, David Mark</td>
<td>University of Florida, Gainesville</td>
<td>Responses of Social Studies Preservice Teachers to a Presentational Software Package: Using the Computer to Contextualize and Recontextualize Academic Content</td>
</tr>
</tbody>
</table>
LoTi Framework

Level 0: Nonuse
Level 1: Awareness
Level 2: Exploration
Level 3: Infusion
Level 4: Integration
Level 5: Expansion
Level 6: Refinement
LoTi Framework

LoTi 0: Nonuse

√ Student learning is neither purposeful nor standards-based

√ Digital resources are not used to support standards-based learning.
LoTi Framework

Cognitive Complexity
(Low)

• Teacher-directed
  LoTi 1
  LoTi 2
  LoTi 3

• Practice-based
  LoTi 1
  LoTi 2
  LoTi 3

Cognitive Complexity
(High)

• Student-directed
  LoTi 4
  LoTi 5
  LoTi 6

• Problem-based
  LoTi 4
  LoTi 5
  LoTi 6
LoTi Framework

Cognitive Complexity (Low)

- Teacher-directed
  - LoTi 1
  - LoTi 2
  - LoTi 3

Cognitive Complexity (High)

- Practice-based
  - LoTi 1
  - LoTi 2
  - LoTi 3

- Problem-based
  - LoTi 4
  - LoTi 5
  - LoTi 6

- Student-directed
  - LoTi 1
  - LoTi 2
  - LoTi 3
Microsoft PowerPoint
LoTi Framework

- Problem-based
- Student-directed
- Practice-based
- Teacher-directed

Cognitive Complexity

- (Low)
- (High)

LoTi 1
LoTi 2
LoTi 3
LoTi 4
LoTi 5
LoTi 6
LoTi Framework

Cognitive Complexity (Low)

- Teacher-directed
  - LoTi 1
  - LoTi 2
  - LoTi 3

Cognitive Complexity (High)

- Student-directed
  - LoTi 4
  - LoTi 5
  - LoTi 6

- Practice-based
  - LoTi 1
  - LoTi 2
  - LoTi 3

- Problem-based
  - LoTi 4
  - LoTi 5
  - LoTi 6
### Making Inferences

<table>
<thead>
<tr>
<th>What I Already Know</th>
<th>Words From the Text</th>
<th>What I Infer</th>
</tr>
</thead>
</table>

---

**Excel Online**

**Padlet Backpack**
LoTi Framework

- Problem-based
- Student-directed
- Practice-based
- Teacher-directed

Cognitive Complexity (Low)
- LoTi 1
- LoTi 2
- LoTi 3

Cognitive Complexity (High)
- LoTi 4
- LoTi 5
- LoTi 6

Cognitive Complexity (Low)
- LoTi 1
- LoTi 2
- LoTi 3

Cognitive Complexity (High)
- LoTi 4
- LoTi 5
- LoTi 6
dotstorming
A real-time group brainstorming and decision making app

Kids Taking Action
Community Service Learning Projects, K-8
Pamela Roberts

Project Based Learning (PBL)

Real World Learning

Go to Google Docs
LoTi Framework

- Problem-based
- Student-directed
- Practice-based
- Teacher-directed

LoTi 1
LoTi 2
LoTi 3
LoTi 4
LoTi 5
LoTi 6

Cognitive Complexity
(Low)

Cognitive Complexity
(High)
KIDS + ACTION!

Oceans Connecting a Nation

The Global Schoolhouse

The Global Water Sampling Project

Take Action and Make a Difference

Challenge Based Learning
LoTi Framework

- Problem-based
- Student-directed
- Practice-based
- Teacher-directed

Cognitive Complexity

High

Low

LoTi 1
LoTi 2
LoTi 3
LoTi 4
LoTi 5
LoTi 6
In Hong Kong, Kids Take Action to Stop the Illegal Ivory Trade

Schoolchildren are working together to raise awareness of the toll of the illegal ivory trade.

By Laurel Neme, for National Geographic
PUBLISHED APRIL 25, 2014

GOOD NEWS Boy Invents Device to Prevent Kids From Being Forgotten in Hot Cars
LoTi Framework

- Problem-based
- Student-directed
- Practice-based
- Teacher-directed

Cognitive Complexity
(Low)

LoTi 1
LoTi 2
LoTi 3

LoTi 4
LoTi 5
LoTi 6

Cognitive Complexity
(High)
LoTi Framework

- Problem-based
- Student-directed
- Practice-based
- Teacher-directed

Cognitive Complexity

- (Low)
- (High)

LoTi 1
LoTi 2
LoTi 3
LoTi 4
LoTi 5
LoTi 6
LoTi Framework

LoTi 2 - Exploration

- Instruction emphasizes content understanding
- Teacher-directed
- Focus on lower cognitive levels
- Digital and/or environmental resources are used by students for extension activities, enrichment exercises, or information gathering
LoTi Survey: 61,781 KtO Teachers

LoTi Digital Age Survey: 61,781 Respondents
LoTi Walkthroughs: 46,057
LoTi Digital Age Survey: 61,781 Respondents
LoTi Walkthroughs: 46,057

Mean: 2.64
Mean: 2.43
LoTi Framework

LoTi 2 - Exploration

LoTi 3 - Infusion
Why measure Digital Learning?
To develop realistic S.M.A.R.T. Goals for Student Achievement
Achievement Difference (%) vs. Level of Teaching Innovation (LoTi) Difference

24 School Buildings
2012-2016
Grades 3-8

$r = 0.58$
Achievement Difference (%)

Level of Teaching Innovation (LoTi) Difference

$r = 0.58$
To ensure that the level of digital learning aligns with the rigor of District Benchmark Assessments

Walkthrough Information

Date: 04/13/16 11:18 AM EDT
Observer: Chris Moersch chris@loticonnection.com
Name: mmadden@promisesacadem charter.org Camden’s Academy Charter High School

Notes:
Students were analyzing and applying characteristics of the line tangent to a circle in order to solve the segment lengths during whole group instruction.

Commendation(s): Walking around the classroom and rendering individual assistance, prompting students to define tangent in their own words, including an agenda for students to activate their prior knowledge, requiring an exit ticket to confirm student understanding, encouraging students to consider different strategies that could be applied to solving the math problem.

Recommendation(s): Based on my informal walkthrough, please consider the items below.

- Add different forms of informal assessment during instruction to confirm student learning (e.g., Think-Pair-Share, hand signals, whole brain). Asking students, “Are there any questions?” seldom elicits any meaningful feedback from students and forces us to make too many assumptions about what students know and are able to do. Check out the PDF in the LoTi Classroom (www.loticlassroom.com) under the LoTi Teacher Evaluation System called A-Z List of Informal Assessment Strategies. The PDF is in Block 7 of the online course. Great ways to confirm student learning throughout the instructional episode.

HEAT Levels Observed
## ELA Benchmark Results 2015-16

### Students Completed

<table>
<thead>
<tr>
<th>Grade</th>
<th>Students Completed</th>
<th>Checkpoint 2 Test (Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 5 - RST: Social Studies</td>
<td>122</td>
<td>45.9%</td>
</tr>
<tr>
<td>Grade 6 - RST: Social Studies</td>
<td>122</td>
<td>39.4%</td>
</tr>
<tr>
<td>Grade 7 - RST: Social Studies</td>
<td>96</td>
<td>37.3%</td>
</tr>
<tr>
<td>Grade 8 - RST: Social Studies</td>
<td>95</td>
<td>50.5%</td>
</tr>
</tbody>
</table>

### LoTi Descriptors

<table>
<thead>
<tr>
<th>LoTi Level</th>
<th>% Observed</th>
<th>LoTi Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>Non-use</td>
</tr>
<tr>
<td>1</td>
<td>22</td>
<td>Awareness</td>
</tr>
<tr>
<td>2</td>
<td>44</td>
<td>Exploration</td>
</tr>
<tr>
<td>3</td>
<td>61</td>
<td>Infusion</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Integration</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>Expansion</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>Refinement</td>
</tr>
</tbody>
</table>

Sample Size: 64 GR5-8 ESL H.E.A.T. Walkthroughs
To monitor State Teacher Evaluation (e.g., Danielson, T-TESS) performance levels daily
LoTi Framework

Level 0: Nonuse
Level 1: Awareness
Level 2: Exploration
Level 3: Infusion
Level 4: Integration
Level 5: Expansion
Level 6: Refinement

T-TESS
Improvement Needed
Developing
Developing
Proficient
Accomplished
Accomplished
Accomplished
T-TESS Framework Alignment

Planning Dimension
1.1 Standards & Alignment
1.3 Knowledge of Students
1.4 Activities

Instruction Dimension
2.1 Achieving Expectations
2.2 Content/ Knowledge & Expertise
2.3 Communication
2.4 Differentiation
2.5 Monitor & Adjust

Learning Environment Dimension
3.1 Classroom Environment/Routines/Procedures
3.3 Classroom Culture

LoTi Framework
LoTi Framework

Level 0: Nonuse  
Level 1: Awareness  
Level 2: Exploration  
Level 3: Infusion  
Level 4: Integration  
Level 5: Expansion  
Level 6: Refinement

Danielson
Ineffective  
Partially Effective  
Partially Effective  
Effective  
Highly Effective  
Highly Effective  
Highly Effective
Danielson Framework Alignment

Domain 1: Planning & Preparation
1-A, 1-B, 1-C, 1-D, 1-E, 1-F

Domain 2: Classroom Environment
2-A, 2-B, 2-C, 2-D, 2-E

Domain 3: Instruction
3-A, 3-B, 3-C, 3-D, 3-E

LoTi Framework
To create a Vision for Effective Digital Learning
LoTi Digital Age Survey: 61,781 Respondents
LoTi Walkthroughs: 46,057

Mean: 2.64
Mean: 2.43
LoTi Levels

Mean: 4.26
Mean: 2.64
Mean: 2.43

LoTi Digital Age Survey: 61,781 Respondents
LoTi Walkthroughs: 46,057
Digital Learning Vision
LoTi Framework

Level 0: Nonuse
Level 1: Awareness
Level 2: Exploration
Level 3: Infusion
Level 4: Integration
Level 5: Expansion
Level 6: Refinement
Missing Link(s)?
LEVELS OF TEACHING INNOVATION

LoTi Level 3: Infusion

Current Instructional Practices: Intensity 5

Personal Computer Use: Intensity 2

H.E.A.T. FRAMEWORK

Higher Order Thinking
Students learning/questioning at the Analyzing level

Engaged Learning
Students collaborate to define the task, the process, and/or the solution

Authentic Connections
The learning experience focuses on students exploring/discussing real-world content connections

Technology Use
Teacher leads whole group learning with digital and/or environmental resources
LoTi Digital Age Survey: 2016-17
### LoTi Digital Age Profile Summary

<table>
<thead>
<tr>
<th>Weak or No Correlation</th>
<th>Moderate Correlation</th>
<th>Strong Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive = 0.00 to 0.39</td>
<td>Positive = 0.40 to 0.59</td>
<td>Positive = 0.60 to 1.00</td>
</tr>
<tr>
<td>Negative = -0.01 to -0.39</td>
<td>Negative = -0.40 to -0.59</td>
<td>Negative = -0.60 to -1.00</td>
</tr>
</tbody>
</table>

### Comparative Analyses: Use of Resources vs. LoTi Levels

*Required*

How often are your students using digital tools and/or environmental resources during the instructional day?

- Never
- At least once a year
- At least once a month
- At least once a week
- At least once a day
- Multiple times each day

Moderate (Positive 0.56)
LoTi (Digital Learning)

Frequency of Use (Students)

(r = 0.56)
### LoTi Digital Age Profile Summary

<table>
<thead>
<tr>
<th>Weak or No Correlation</th>
<th>Moderate Correlation</th>
<th>Strong Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive = 0.00 to 0.39</td>
<td>Positive = 0.40 to 0.59</td>
<td>Positive = 0.60 to 1.00</td>
</tr>
<tr>
<td>Negative = -0.01 to -0.39</td>
<td>Negative = -0.40 to -0.59</td>
<td>Negative = -0.60 to -1.00</td>
</tr>
</tbody>
</table>

### Comparative Analyses: Use of Resources vs. LoTi Levels

*Required*

How often are you (the teacher) using digital tools and/or environmental resources during the instructional day?

- Never
- At least once a year
- At least once a month
- At least once a week
- At least once a day
- Multiple times each day

Moderate (Positive 0.43)
LoTi (Digital Learning)

Frequency of Use (Teachers)

(r = 0.43)
<table>
<thead>
<tr>
<th>Weak or No Correlation</th>
<th>Moderate Correlation</th>
<th>Strong Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive = 0.00 to 0.39</td>
<td>Positive = 0.40 to 0.59</td>
<td>Positive = 0.60 to 1.00</td>
</tr>
<tr>
<td>Negative = -0.01 to -0.39</td>
<td>Negative = -0.40 to -0.59</td>
<td>Negative = -0.60 to -1.00</td>
</tr>
</tbody>
</table>

Comparative Analyses: Teacher Perceptions vs. LoTi Levels

I engage in a two-way cycle of communication and feedback with my school administrators.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate (Positive 0.47)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LoTi (Digital Learning)

Two-way Communication

(r = 0.47)
## LoTi Digital Age Profile Summary

<table>
<thead>
<tr>
<th>Weak or No Correlation</th>
<th>Moderate Correlation</th>
<th>Strong Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive = 0.00 to 0.39</td>
<td>Positive = 0.40 to 0.59</td>
<td>Positive = 0.60 to 1.00</td>
</tr>
<tr>
<td>Negative = -0.01 to -0.39</td>
<td>Negative = -0.40 to -0.59</td>
<td>Negative = -0.60 to -1.00</td>
</tr>
</tbody>
</table>

### Comparative Analyses: Teacher Perceptions vs. LoTi Levels

I understand and support the shared vision for our school's use of digital resources along with other key stakeholders.

- **Strongly Disagree**
- **Disagree**
- **No opinion**
- **Agree**
- **Strongly Agree**

---

**Strong (Positive 0.62)**
Which model best describes your approach to blended or hybrid learning in the classroom? Blended learning models include Flipped Classroom, Rotation, Online Lab, Flex, Self-Blend, Supplemental, Face-to-Face Driver, and Online Driver.

<table>
<thead>
<tr>
<th>No Blended Learning Model</th>
<th>Weak (Negative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak or No Correlation</td>
<td>Moderate Correlation</td>
</tr>
<tr>
<td>Positive = 0.00 to 0.39</td>
<td>Positive = 0.40 to 0.59</td>
</tr>
<tr>
<td>Negative = -0.01 to -0.39</td>
<td>Negative = -0.40 to -0.59</td>
</tr>
</tbody>
</table>

- Blended Learning using a Supplemental Model
  - Weak (Positive 0.03)

- Blended Learning using a Face-to-Face Driver Model
  - Weak (Positive 0.02)

- Blended Learning using an Online Driver Model
  - Weak (Negative -0.04)
LoTi Digital Age Profile Summary

Which model best describes your approach to blended or hybrid learning in the classroom? Blended learning models include Flipped Classroom, Rotation, Online Lab, Flex, Self-Blend, Supplemental, Face-to-Face Driver, and Online Driver.

<table>
<thead>
<tr>
<th>No Blended Learning Model</th>
<th>Weak (Negative -0.21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blended Learning using a Flipped Classroom Model</td>
<td>Weak (Positive 0.17)</td>
</tr>
<tr>
<td>Blended Learning using a Rotation Model</td>
<td>Weak (Positive 0.04)</td>
</tr>
<tr>
<td>Blended Learning using an Online Lab Model</td>
<td>Weak (Positive 0.06)</td>
</tr>
<tr>
<td>Blended Learning using a Flex Model</td>
<td>Weak (Positive 0.06)</td>
</tr>
<tr>
<td>Blended Learning using a Self-Blend Model</td>
<td>Weak (Positive 0.06)</td>
</tr>
<tr>
<td>Blended Learning using a Supplemental Model</td>
<td>Weak (Positive 0.03)</td>
</tr>
<tr>
<td>Blended Learning using a Face-to-Face Driver Model</td>
<td>Weak (Positive 0.02)</td>
</tr>
<tr>
<td>Blended Learning using an Online Driver Model</td>
<td>Weak (Negative -0.04)</td>
</tr>
</tbody>
</table>
LoTi Digital Age Profile Summary

What do you perceive as the greatest obstacle to advancing your use of digital resources in your instructional setting?

<table>
<thead>
<tr>
<th>None</th>
<th>Weak (Positive 0.14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak or No Correlation</td>
<td>Moderate Correlation</td>
</tr>
<tr>
<td>Positive = 0.00 to 0.39</td>
<td>Positive = 0.40 to 0.59</td>
</tr>
<tr>
<td>Negative = -0.01 to -0.39</td>
<td>Negative = -0.40 to -0.59</td>
</tr>
<tr>
<td>Other</td>
<td>Weak (Positive 0.02)</td>
</tr>
<tr>
<td>Obstacle</td>
<td>Rating</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>None</td>
<td>Weak (Positive 0.14)</td>
</tr>
<tr>
<td>Lack of Access to Digital Resources</td>
<td>Weak (Negative -0.24)</td>
</tr>
<tr>
<td>Time to Learn, Practice, and Plan</td>
<td>Weak (Negative -0.03)</td>
</tr>
<tr>
<td>Required Instruction Priorities (e.g., Statewide Testing, New Textbook Adoptions)</td>
<td>Weak (Positive 0.12)</td>
</tr>
<tr>
<td>District-Controlled Curriculum</td>
<td>Weak (Positive 0.08)</td>
</tr>
<tr>
<td>Lack of Staff Development Opportunities</td>
<td>Weak (Positive 0.02)</td>
</tr>
<tr>
<td>Other</td>
<td>Weak (Positive 0.02)</td>
</tr>
</tbody>
</table>
So what does this all mean?
Adams Middle School - Hypothetical
Grades: 6-8
Digital Infrastructure: One-to-One

<table>
<thead>
<tr>
<th>Category</th>
<th>Outcome</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Learning (LoTi)</td>
<td>Median: LoTi 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mode: LoTi 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean: LoTi 2.45</td>
<td></td>
</tr>
<tr>
<td>Blended Learning and LoTi</td>
<td>Correlation: .53</td>
<td>Moderate (Positive Correlation)</td>
</tr>
<tr>
<td>Teacher Perceptions and LoTi</td>
<td>Correlation: .87</td>
<td>Strong (Positive Correlation)</td>
</tr>
<tr>
<td>Administrator Feedback and LoTi</td>
<td>Correlation: -.51</td>
<td>Moderate (Negative Correlation)</td>
</tr>
<tr>
<td>Teacher “Voice” and LoTi</td>
<td>Correlation: .16</td>
<td>Weak (Positive Correlation)</td>
</tr>
<tr>
<td>Shared Vision and LoTi</td>
<td>Correlation: .76</td>
<td>Strong (Positive Correlation)</td>
</tr>
</tbody>
</table>
### Adams Middle School - Hypothetical

**Grades: 6-8**  
**Digital Infrastructure: One-to-One**

<table>
<thead>
<tr>
<th>Category</th>
<th>Outcome</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Digital Learning (LoTi)         | Median: LoTi 2  
  Mode: LoTi 2  
  Mean: LoTi 2.45               |                                   |
| Blended Learning and LoTi       | Correlation: .53                   | Moderate (Positive Correlation)    |
| Teacher Perceptions and LoTi    | Correlation: .87                   | Strong (Positive Correlation)      |
| Administrator Feedback and LoTi | Correlation: -.51                  | Moderate (Negative Correlation)    |
| Teacher “Voice” and LoTi        | Correlation: .16                   | Weak (Positive Correlation)        |
| Shared Vision and LoTi          | Correlation: .76                   | Strong (Positive Correlation)      |
LoTi Framework

Level 0: Nonuse
Level 1: Awareness
Level 2: Exploration
Level 3: Infusion
Level 4: Integration
Level 5: Expansion
Level 6: Refinement
Digital Learning (LoTi 3) Interventions:
Digital Learning (LoTi 3) Interventions:

- Excel Online
- Padlet Backpack
- COLD, WET, WINDY (Venn diagram)
### Adams Middle School - Hypothetical
Grades: 6-8
Digital Infrastructure: One-to-One

<table>
<thead>
<tr>
<th>Category</th>
<th>Outcome</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Learning (LoTi)</td>
<td>Median: LoTi 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mode: LoTi 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean: LoTi 2.45</td>
<td></td>
</tr>
<tr>
<td>Blended Learning and LoTi</td>
<td>Correlation: .53</td>
<td>Moderate (Positive Correlation)</td>
</tr>
<tr>
<td>Teacher Perceptions and LoTi</td>
<td>Correlation: .87</td>
<td>Strong (Positive Correlation)</td>
</tr>
<tr>
<td>Administrator Feedback and LoTi</td>
<td>Correlation: -.51</td>
<td>Moderate (Negative Correlation)</td>
</tr>
<tr>
<td>Teacher “Voice” and LoTi</td>
<td>Correlation: .16</td>
<td>Weak (Positive Correlation)</td>
</tr>
<tr>
<td>Shared Vision and LoTi</td>
<td>Correlation: .76</td>
<td>Strong (Positive Correlation)</td>
</tr>
</tbody>
</table>
Blended Learning Interventions:
### Adams Middle School - Hypothetical

**Grades: 6-8**
**Digital Infrastructure: One-to-One**

<table>
<thead>
<tr>
<th>Category</th>
<th>Outcome</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Learning (LoTi)</td>
<td>Median: LoTi 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mode: LoTi 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean: LoTi 2.45</td>
<td></td>
</tr>
<tr>
<td>Blended Learning and LoTi</td>
<td>Correlation: .53</td>
<td>Moderate (Positive Correlation)</td>
</tr>
<tr>
<td>Teacher Perceptions and LoTi</td>
<td>Correlation: .87</td>
<td>Strong (Positive Correlation)</td>
</tr>
<tr>
<td>Administrator Feedback and LoTi</td>
<td>Correlation: -.51</td>
<td>Moderate (Negative Correlation)</td>
</tr>
<tr>
<td>Teacher “Voice” and LoTi</td>
<td>Correlation: .16</td>
<td>Weak (Positive Correlation)</td>
</tr>
<tr>
<td>Shared Vision and LoTi</td>
<td>Correlation: .76</td>
<td>Strong (Positive Correlation)</td>
</tr>
</tbody>
</table>
LoTi (Digital Learning)

(r = -0.51)
Teacher Perceptions Interventions:
### Adams Middle School - Hypothetical

Grades: 6-8  
Digital Infrastructure: One-to-One

<table>
<thead>
<tr>
<th>Category</th>
<th>Outcome</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Digital Learning (LoTi)         | Median: LoTi 2  
Mode: LoTi 2  
Mean: LoTi 2.45 |                                      |
| Blended Learning and LoTi       | Correlation: .53               | Moderate (Positive Correlation)       |
| Teacher Perceptions and LoTi   | Correlation: .87               | Strong (Positive Correlation)         |
| Administrator Feedback and LoTi| Correlation: -.51              | Moderate (Negative Correlation)       |
| Teacher “Voice” and LoTi       | Correlation: .16               | Weak (Positive Correlation)           |
| Shared Vision and LoTi         | Correlation: .76               | Strong (Positive Correlation)         |
What are the *Missing Links to Effective Technology Use* in your school system?
Turn Up the H.E.A.T.

REGISTER

Create a LoTi Lounge account to take the LoTi Digital Age Survey or access other LoTi resources.

Sign me up!

LOGIN

Username: 
Password: 

Need help signing in?

TAKE THE LOTI DIGITAL AGE SURVEY FREE

As part of an ongoing research project, the National Business Education Alliance is sponsoring complimentary access to the LoTi Digital Age Survey through June 2017. Taking the survey provides participating teachers and building leaders with a free report that includes individual results and recommended resources for Future Ready Schools.

- Register and Take a Survey
- Try a Demo Survey
- Frequently Asked Questions
- Research Info: Finding the Missing Link to Effective Technology Use in Schools
- Additional Services: Group Survey Reporting

For more suggested resources each day, follow LoTi Connection on social media.
LEVELS OF TEACHING INNOVATION

LoTi Level 3: Infusion

Current Instructional Practices: Intensity 3

Personal Computer Use: Intensity 6
LoTi Digital Age Survey

LoTi Digital Age Results

H.E.A.T. FRAMEWORK

Higher Order Thinking
Student learning/questioning at the Analyzing level

Engaged Learning
Students collaborate to solve a teacher-directed problem with possible options

Authentic Connections
The learning experience emphasizes real-world content connections made by the teacher

Technology Use
Teacher leads whole group learning with digital and/or environmental resources
LoTi Digital Age Survey

LoTi Digital Age Results

DIGITAL AGE BEST PRACTICES

Student Questions
- Daily = 12%
- Weekly = 63%
- Monthly = 4%
- Annually = 19%

Student-Centered Learning
- Daily = 100%
- Weekly = 0%
- Monthly = 0%
- Annually = 0%

Differentiation (Horizontal/Vertical)
- Daily = 100%
- Weekly = 0%
- Monthly = 0%
- Annually = 100%

Real-World Experiences
- Daily = 6%
- Weekly = 0%
- Monthly = 1%
- Annually = 23%

Networked Collaboration
- Daily = 100%
- Weekly = 0%
- Monthly = 0%
- Annually = 0%

Formative Assessment
- Daily = 0%
- Weekly = 33%
- Monthly = 0%
- Annually = 67%
### OTHER FRAMEWORKS

<table>
<thead>
<tr>
<th>Framework</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puente'dura's SAM-R Framework</td>
<td>Modification*</td>
</tr>
<tr>
<td>Daggett's Rigor &amp; Relevance</td>
<td>Quadrant C: Assimilation*</td>
</tr>
<tr>
<td>Webb's Depth of Knowledge</td>
<td>Level 3: Short-term Strategic Thinking*</td>
</tr>
</tbody>
</table>

* The framework level listed represents LoTi's interpretation of your score's alignment to that specific framework. Each framework is the intellectual property of its respective researcher. For more information on the specific frameworks provided, click on the linked titles to visit the framework web sites.
LoTi Digital Age Survey Results

ISTE STANDARDS

ISTE Standards Alignment

- Digital-Age Work and Learning
- Digital-Age Learning Experiences and Assessments
- Student Learning and Creativity
- Professional Growth and Leadership
- Digital Citizenship and Responsibility

%
MY LEVEL OF TEACHING INNOVATION

The Level of Technology Implementation (LoTi) portion of the LoTi Digital-Age Survey assesses the participant’s level of implementing or supporting the instructional use of computers in the classroom.

At a Level 3 (Infusion), the instructional focus emphasizes student higher order thinking (e.g., Bloom’s Levels — analyzing, evaluating, creating; Webb’s Levels — short-term strategic thinking) and teacher-directed problems. Though specific learning activities may lack authenticity, the instructional emphasis is, nonetheless, placed on higher levels of cognitive processing and in-depth treatment of the content using a variety of thinking skill strategies (e.g., problem-solving, decision-making). The concept attainment, inductive thinking, and scientific inquiry models of teaching are the norm and guide the types of products generated by students.

Digital and/or environmental resources are used by students and/or the teacher to execute teacher-directed tasks that emphasize higher levels of student cognitive processing relating to the content standards.
# RECOMMENDED RESOURCES & STRATEGIES

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Improvement Strategy</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video</td>
<td>Case Studies</td>
<td>How to Prepare a Case Study</td>
</tr>
<tr>
<td>Article</td>
<td>Case Studies</td>
<td>Case Study-Based Learning</td>
</tr>
<tr>
<td>Video</td>
<td>Simulations</td>
<td>How to Build A Decision Simulation</td>
</tr>
<tr>
<td>Video</td>
<td>Simulations</td>
<td>Teaching Methods - Simulations</td>
</tr>
<tr>
<td>Article</td>
<td>Simulations</td>
<td>The Impact of Simulations on Higher Level Learning</td>
</tr>
<tr>
<td>Web Site</td>
<td>Educational Games</td>
<td>Training Games</td>
</tr>
<tr>
<td>Web Site</td>
<td>Educational Games</td>
<td>Educational Games</td>
</tr>
<tr>
<td>Web Site</td>
<td>Educational Games</td>
<td>Training Games, Ice Breakers, and Energizers</td>
</tr>
<tr>
<td>Video</td>
<td>Role Play</td>
<td>Corporate Role Play with Peers and Players</td>
</tr>
<tr>
<td>Video</td>
<td>Role Play</td>
<td>Role Play Example</td>
</tr>
<tr>
<td>Article</td>
<td>Role Play</td>
<td>Role Playing</td>
</tr>
<tr>
<td>Video</td>
<td>Problem-Based Learning</td>
<td>Digital Learning Design and Problem Based Learning</td>
</tr>
<tr>
<td>Web Site</td>
<td>Problem-Based Learning</td>
<td>What is Problem-Based Learning?</td>
</tr>
<tr>
<td>Web Site</td>
<td>Problem-Based Learning</td>
<td>Problem-Based Learning Faculty Institute</td>
</tr>
<tr>
<td>Web Site</td>
<td>Problem-Based Learning</td>
<td>Problem-Based Learning</td>
</tr>
<tr>
<td>Web Site</td>
<td>Problem-Based Learning</td>
<td>PBL@UD (Includes PBL Clearinghouse)</td>
</tr>
<tr>
<td>Web Site</td>
<td>Problem-Based Learning</td>
<td>Problem-Based Learning at Punahou School</td>
</tr>
<tr>
<td>Web Site</td>
<td>Problem-Based Learning</td>
<td>Problem-Based Learning for the 21st Century Classroom</td>
</tr>
<tr>
<td>Web Site</td>
<td>4MAT System</td>
<td>Individual Differences: The 4MAT System</td>
</tr>
</tbody>
</table>
Higher order thinking references the level of student cognition generated by students from the learning experience based on Bloom's taxonomy.

At a Higher Order Thinking level 5, students are analyzing their knowledge and the content.

The Higher Order Thinking rubric includes the following "look-fors":

1 = Students taking notes only; no questions asked
2 = Student learning/questioning at Remembering level
3 = Student learning/questioning at Understanding level
4 = Student learning/questioning at Applying level
5 = **Student learning/questioning at Analyzing level**
6 = Student learning/questioning at Evaluating/Creating levels
<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Improvement Strategy</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Site</td>
<td>Reflective Discovery</td>
<td>Marble Mania</td>
</tr>
<tr>
<td>Web Site</td>
<td>Reflective Discovery</td>
<td>Tower of Hanoi</td>
</tr>
<tr>
<td>Video</td>
<td>Staged Scenarios</td>
<td>Teaching Students to Work Together</td>
</tr>
<tr>
<td>Web Site</td>
<td>Surveys/Questionnaires</td>
<td>IQ Test</td>
</tr>
<tr>
<td>Web Site</td>
<td>Surveys/Questionnaires</td>
<td>Personal Learning Style</td>
</tr>
<tr>
<td>Web Site</td>
<td>Surveys/Questionnaires</td>
<td>Personality Test</td>
</tr>
<tr>
<td>Web Site</td>
<td>Surveys/Questionnaires</td>
<td>Drive of Your Life Interest Inventory</td>
</tr>
<tr>
<td>Web Site</td>
<td>Surveys/Questionnaires</td>
<td>School Climate Surveys</td>
</tr>
<tr>
<td>Web Site</td>
<td>Current Events</td>
<td>Education Place: Current Events</td>
</tr>
<tr>
<td>Web Site</td>
<td>Current Events</td>
<td>Scholastic News Online</td>
</tr>
<tr>
<td>Web Site</td>
<td>Current Events</td>
<td>PBS Online News Hour</td>
</tr>
<tr>
<td>Video</td>
<td>Discrepant Events</td>
<td>Heat Conduction</td>
</tr>
<tr>
<td>Video</td>
<td>Discrepant Events</td>
<td>Dangerous Reputation</td>
</tr>
<tr>
<td>Web Site</td>
<td>Discrepant Events</td>
<td>Teaching Science with Discrepant Events</td>
</tr>
<tr>
<td>Web Site</td>
<td>Questioning Toolkit</td>
<td>A Questioning Toolkit</td>
</tr>
<tr>
<td>Article</td>
<td>Questioning Toolkit</td>
<td>A Must Have Questioning Toolkit for Teachers and Educators</td>
</tr>
<tr>
<td>Web Site</td>
<td>Questioning Toolkit</td>
<td>The Question is the Answer</td>
</tr>
<tr>
<td>Web Site</td>
<td>Triggered Brainstorming</td>
<td>25 Useful Brainstorming Strategies</td>
</tr>
<tr>
<td>Article</td>
<td>Triggered Brainstorming</td>
<td>The 7 All-Time Greatest Ideation Techniques</td>
</tr>
<tr>
<td>Web Site</td>
<td>Triggered Brainstorming</td>
<td>Boosting Brainstorming</td>
</tr>
<tr>
<td>Web Site</td>
<td>Quescussions</td>
<td>The Centre for Teaching &amp; Learning: Quescussions</td>
</tr>
<tr>
<td>Web Site</td>
<td>Thesis Statements</td>
<td>Purdue OWL: Creating a Thesis Statement</td>
</tr>
</tbody>
</table>
### DOMAIN 1: Levels of Teaching Innovation

<table>
<thead>
<tr>
<th>Metric Measured</th>
<th>Reported Score</th>
<th>Target Score</th>
<th>% Below Target</th>
<th>% At Target</th>
<th>% Above Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels of Teaching Innovation</td>
<td>LoTi 3: Infusion</td>
<td>LoTi 4: Integration</td>
<td>80%</td>
<td>16%</td>
<td>4%</td>
</tr>
<tr>
<td>Current Instructional Practices</td>
<td>Intensity Level 5</td>
<td>Intensity Level 4</td>
<td>26%</td>
<td>49%</td>
<td>25%</td>
</tr>
<tr>
<td>Personal Computer Use</td>
<td>Intensity Level 2</td>
<td>Intensity Level 4</td>
<td>62%</td>
<td>27%</td>
<td>11%</td>
</tr>
</tbody>
</table>

### DOMAIN 2: H.E.A.T.

<table>
<thead>
<tr>
<th>Metric Measured</th>
<th>Reported Score</th>
<th>Target Score</th>
<th>% Below Target</th>
<th>% At Target</th>
<th>% Above Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher Order Thinking</td>
<td>Students learning/questioning at the Analyzing level</td>
<td>Students learning/questioning at the Applying level</td>
<td>26%</td>
<td>49%</td>
<td>25%</td>
</tr>
<tr>
<td>Engaged Learning</td>
<td>Students collaborate to define the task, the process, and/or the solution</td>
<td>Students collaborate to solve a teacher-directed problem with possible options</td>
<td>62%</td>
<td>27%</td>
<td>11%</td>
</tr>
<tr>
<td>Authentic Connections</td>
<td>The learning experience focuses on students exploring/discussing real-world content connections</td>
<td>The learning experience focuses on students exploring/discussing real-world content connections</td>
<td>38%</td>
<td>54%</td>
<td>8%</td>
</tr>
<tr>
<td>Technology Use</td>
<td>Teacher leads whole group learning with digital and/or environmental resources</td>
<td>Students use teacher-directed digital and/or environmental resources to accomplish learning outcomes</td>
<td>26%</td>
<td>49%</td>
<td>25%</td>
</tr>
</tbody>
</table>
## DOMAIN 3: Other Technology and Instructional Frameworks

<table>
<thead>
<tr>
<th>Metric Measured</th>
<th>Reported Framework Alignment</th>
<th>Target Framework Alignment</th>
<th>% Below Target</th>
<th>% At Target</th>
<th>% Above Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puentedura's SAM-R Framework</td>
<td>Modification*</td>
<td>Modification*</td>
<td>38%</td>
<td>54%</td>
<td>8%</td>
</tr>
<tr>
<td>Daggett's Rigor &amp; Relevance</td>
<td>Quadrant C: Assimilation*</td>
<td>Quadrant C: Assimilation*</td>
<td>26%</td>
<td>49%</td>
<td>25%</td>
</tr>
<tr>
<td>Webb's Depth of Knowledge</td>
<td>Level 3: Short Term Strategic Thinking*</td>
<td>Level 3: Short Term Strategic Thinking*</td>
<td>38%</td>
<td>54%</td>
<td>8%</td>
</tr>
</tbody>
</table>
## Domain 4: Digital Age Best Practices

<table>
<thead>
<tr>
<th>Metric Measured</th>
<th>Reported Frequency</th>
<th>Target Frequency</th>
<th>% Below Target</th>
<th>% At Target</th>
<th>% Above Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Questions</td>
<td>Daily</td>
<td>Daily</td>
<td>38%</td>
<td>62%</td>
<td>0%</td>
</tr>
<tr>
<td>Student Centered Learning</td>
<td>Weekly</td>
<td>Weekly</td>
<td>26%</td>
<td>49%</td>
<td>25%</td>
</tr>
<tr>
<td>Differentiation (Horizontal/Vertical)</td>
<td>Daily</td>
<td>Daily</td>
<td>12%</td>
<td>51%</td>
<td>37%</td>
</tr>
<tr>
<td>Real-World Experiences</td>
<td>Monthly</td>
<td>Weekly</td>
<td>26%</td>
<td>49%</td>
<td>25%</td>
</tr>
<tr>
<td>Student Collaboration</td>
<td>Weekly</td>
<td>Daily</td>
<td>12%</td>
<td>51%</td>
<td>37%</td>
</tr>
<tr>
<td>Formative Assessment</td>
<td>Weekly</td>
<td>Daily</td>
<td>12%</td>
<td>51%</td>
<td>37%</td>
</tr>
</tbody>
</table>
## Comparative Analyses: Digital Landscape vs. LoTi Levels

<table>
<thead>
<tr>
<th>How many years of teaching experience do you have in education?</th>
<th>Weak (Positive 0.13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than Five Years</td>
<td></td>
</tr>
<tr>
<td>Five to Nine Years</td>
<td></td>
</tr>
<tr>
<td>Ten to Twenty Years</td>
<td></td>
</tr>
<tr>
<td>More than Twenty Years</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Which statement best describes your classroom's digital infrastructure?</th>
<th>Moderate (Positive 0.53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No access to digital resources</td>
<td></td>
</tr>
<tr>
<td>Teacher workstation only</td>
<td></td>
</tr>
<tr>
<td>Classroom laptop/mobile device station(s)</td>
<td></td>
</tr>
<tr>
<td>Access to laptop/mobile device cart(s)</td>
<td></td>
</tr>
<tr>
<td>One-to-one laptop/mobile devices</td>
<td></td>
</tr>
<tr>
<td>BYOD (Bring Your Own Device)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>
## Comparative Analyses: Teacher Perceptions vs. LoTi Levels

**I know where (e.g., Teaching Channel, YouTube, Kahn Academy) or whom (e.g., campus technology specialist, academic coach, grade level teacher, curriculum coordinator) to go to when I need support for using digital resources in my classroom.**

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong (Positive 0.87)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**I receive useful feedback on the integration of digital resources into my instruction from my administrator(s).**

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate (Negative -0.51)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Comparative Analysis: School Climate vs. LoTi Levels

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel that I am listened to, represented, and feel I have a voice on campus.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I understand and support the shared vision for our school’s use of digital resources along with other key stakeholders.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Strongly Agree**
- **Agree**
- **No opinion**
- **Disagree**
- **Strongly Disagree**

**Weak (Positive 0.15)**

**Strong (Positive 0.76)**
Finding the Missing Link to Effective Technology Use in Schools

Chris Moersch, Ed.D.
Executive Director
LoTi Connection, Inc.
chris@loticonnection.com