Using Assessment to Personalize Instruction: Preventing Reading Problems

Carol McDonald Connor
School of Education
University of California, Irvine
connorcm@uci.edu

Acknowledgements

• Funding for this research is provided by the National Institute of Child Health and Human Development, R01HD48539 and P50 HD052120

• and the U.S. Department of Education, Institute of Education Sciences, R305A130058, R305H04013, R305B070074 and R305F100027.

• Thank you to my collaborators and members of the ISI Lab

• Thank you to the schools, teachers, parents and students who participated in this research
Consequences of reading disabilities

• Serious public health issue
• Children who cannot read well are...
  • More likely to be referred to special education
  • To be retained a grade
  • To drop out of high school
  • To become a teen parent
  • To enter the juvenile justice system
• Co-morbidity with ADHD and math disabilities is high
Personalizing Classroom Instruction

- One reason that students fail to achieve proficient reading skills is that they do not receive the amounts and types of reading instruction they need.
  - Child characteristic X instruction interaction (CXI) effects on reading achievement
    - (Connor, Morrison, & Katch, 2004; Juel & Minden-Cupp, 2000)
  - Constellation of skills – decoding, comprehension, and vocabulary – also self-regulation (EF)
    - Interacting and bootstrapping effects (Lattice Model)
Development of Reading and Reading Comprehension

What does it take to attach meaning to text?

- Fluent decoding
- Oral language and vocabulary
- Knowledge about the world
- Self-regulation

Reading
Read this…

Now this!
Outside in the garden, over the dinner tables, the three objects Scrimgeour had given them were passed from hand to hand. Everybody exclaimed over the Deluminator and the Tales of Beedle the Bard and lamented the fact that Scrimgeour had refused to pass on the sword, but none of them could offer any suggestion as to why Dumbledore would have left Harry an old snitch.

Page 131, Harry Potter and the Deathly Hallows

Rufus Scrimgeour is the Minister of Magic
“Haig conferred with the lawyers again to consider their double-edged strategy – how to satisfy the committee and keep Nixon from scrapping the transcripts altogether.”

- What do you need to know to understand this paragraph?
Personalizing instruction: A2i and ISI

- Components
  - Assessment-to-Instruction (A2i) software
    - Recommendation algorithms
    - Integrated online assessments
    - Planning Tools
  - Teacher professional development
    - ½ day workshops in the summer and winter
    - Monthly communities of practice
      - (Bos, Mather, Narr, & Babur, 1999)
    - Bi-weekly in-classroom support
  - Implementation in the classroom
<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Teacher/Child Managed</th>
<th>Child Managed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code-focused</td>
<td>The teacher is working with a small group of students on an activity designed to help decode and spell multi-syllabic words by using similar root words with different prefixes and suffixes. (Morphological Awareness)</td>
<td>Students are working in small, peer groups to practice spelling and decoding multisyllabic words. (Word Encoding)</td>
</tr>
<tr>
<td>Meaning-focused</td>
<td>The teacher, working with a small group of students, asks them to make inferences between two or more stories they have just read, in order to help them make connections and build background knowledge. (Listening &amp; Reading Comprehension)</td>
<td>Students are working on a multiple-meaning vocabulary worksheet with the following words: bark, story, and track. Other students are engaged in writing a summary of a story they’ve recently read. (Print Vocabulary)</td>
</tr>
</tbody>
</table>
First Grade Child-Instruction Interactions – Fall Vocabulary by CPM-MF amount and slope

Potential Trajectories of Achievement
Welcome to A2i!

Your portal to planning for effective instruction and professional development resources. Visit Resources to see the latest A2i updates and new resources.

Visit the Discussion Board to see the latest A2i updates and new resources

User name
Password

Remember me

Log in

Forget your username or password?
Assessment-to-Instruction (A2i) Technology platform

Developed with teachers and principals
### Lesson Planning

<table>
<thead>
<tr>
<th>Type</th>
<th>Monday 09/28</th>
<th>Tuesday 09/29</th>
<th>Wednesday 09/30</th>
<th>Thursday 10/01</th>
<th>Friday 10/02</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM-MF</td>
<td>Word Knowledge &amp; book</td>
<td>Not teaching</td>
<td>TCRR Student Center Activities Grades 2 and 3</td>
<td>Not teaching</td>
<td>TCRR Student Center Activities Grades 2 and 3</td>
</tr>
<tr>
<td></td>
<td>Win book Week One</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit: 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Page: R05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Standard: RL.3.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary Standard: RL.3.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 Minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GE: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM-CF</td>
<td>FCRR Student Center Activities Grades 2 and 3</td>
<td>Not teaching</td>
<td>TCRR Student Center Activities Grades 2 and 3</td>
<td>Not teaching</td>
<td>TCRR Student Center Activities Grades 2 and 3</td>
</tr>
<tr>
<td></td>
<td>Syllable Snake</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit: 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Page: R03</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Standard: RL.3.3 c</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary Standard: L2.4. b</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 Minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GE: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM-MF</td>
<td>H-CRR Student Center Activities Grades 2 and 3</td>
<td>Word Knowledge &amp; book</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Opposite Attract</td>
<td>Win book Week One</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit: 1</td>
<td>Unit: 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Page: R06</td>
<td>Page: R06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core Standard: RL.3.4</td>
<td>Core Standard: RL.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 Minutes</td>
<td>15 Minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GE: 3</td>
<td>GE: 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Change</td>
<td>Change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM-CF</td>
<td>FCRR Student Center</td>
<td>Word Knowledge &amp; book</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FCRR Student Center</td>
<td>Win book Week One</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unit: 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Page: R06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Core Standard: RL.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Secondary Standard: RL.3.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 Minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>GE: 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Change</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
REVIEW OF RESULTS
Participants

**District 1**
- 8 schools – urban, suburban, rural
  - 24-92% Free and Reduced Lunch
- 27 classrooms
- 480 students/grade
  - 50% qualified for Free and Reduced Lunch
  - 45% African American
  - 50% White
  - 5% other ethnicities
  - 15% received Special Education Services

**District 2**
- 5 schools – urban, suburban, rural
  - 17-98% Free and Reduced Lunch
- 36 classrooms
- 560 students/grade
  - 50% qualified for Free and Reduced Lunch
  - 20% African American
  - 75% White
  - 5% other ethnicities
  - 13% received Special Education Services
Kindergarten: Multivariate Multilevel Modeling Results

First Grade

Study 1 (2005-2006)

- Spring Passage Comprehension W Score

Study 2 (2006-2007)

- Spring Letter-Word Recognition W Score


Accumulation of Instruction Effects

G1 ISI-Reading
258 students
G1 Mathematics
210 students
2008-2009
Reading d = .32

G2 ISI-Reading
305 students
G2 Mathematics
331 students
2009-2010
Reading d = .44

G3 ISI-Reading
295 students
G3 Mathematics
246 students
2010-2011
Reading d = .25
Connor, Carol McDonald, Morrison, Frederick J., Fishman, Barry, Crowe, Elizabeth C., Al Otaiba, Stephanie, & Schatschneider, Christopher. (in press). A Longitudinal Cluster-Randomized Control Study on the Accumulating Effects of Individualized Literacy Instruction on Students’ Reading from 1st through 3rd Grade. Psychological Science.
Using the A2i Technology predicts students’ reading gains

Take Away Message

• Individualizing or personalizing instruction based on students’ constellation of vocabulary, decoding, and comprehension skills is more effective than one-size-fits-all
• Planning to individualize and strong classroom organization is key
• Technology helps!
  • Effective use of assessment, including of language, improves learning opportunities for all children, including those with reading difficulties/dyslexia
  • Access to planning tools and evidence-based learning activities
  • But you actually have to use the technology
  • We won’t replace teachers
• Personalized instruction also strengthens self-regulation
  • Reading and classroom environment effects
• Prevention paradox