**Overview**

- What is a systematic review?
  - Keyword map
  - In-depth review

- This systematic review:
  - Keyword map: methodology and results
  - In-depth review methodology
  - In-depth review results for...
    - Effectiveness in promoting language acquisition
    - Non-linguistic pedagogical benefits

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**What is a systematic review?**

**Keyword map:**

1. Establish broad review question
2. Establish inclusion/exclusion criteria
3. Establish search strategy
4. Conduct exhaustive database searches
5. Apply inclusion/exclusion criteria
6. Key word and map the identified studies

**In-depth review:**

1. Establish in-depth review questions
2. Establish inclusion/exclusion criteria
3. Apply inclusion/exclusion criteria
4. Assess weight of evidence of identified studies through double blind review
5. Synthesize the findings of identified studies

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**This systematic review: Keyword map: Method (cont.)**

- Search strategy
  - Language AND Learning AND Computer OR technology OR individual technologies AND (primary OR secondary) NOT (Pre-school OR Postsecondary OR Special education OR Teacher training OR Online processing)

- Databases searched
  - Education Resources Information Center (ERIC)
  - Language and Learning Behavior Abstracts
  - TRIP
  - PsycINFO

- Hand searches of journals and literature reviews
  - CALL Journal
  - CALL Journal
  - Language Learning & Technology

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**This systematic review: Keyword map: Results**

- 87 studies met the inclusion criteria
- Studies by country (US (32), Taiwan (8), China (7), UK (4))
- Studies by target language: English (71), European languages (27)
- Studies by phase of education: Primary (30), Secondary (58)

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<table>
<thead>
<tr>
<th>Studies by year and linguistic knowledge and skill</th>
<th>1995-1999</th>
<th>2000-2004</th>
<th>2005-2009</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>11</td>
<td>13</td>
<td>19</td>
<td>43</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>6</td>
<td>6</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Grammar</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Pronunciation</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Reading</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Writing</td>
<td>5</td>
<td>4</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>Listening</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Other/Not instructed</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
This systematic review: Keyword map: Results (cont.)

- Studies by technology and decade (n=97)
  - 1990-1999: 14
  - 2000-2009: 83

- Other technologies used in the studies
  - Hypercard (3), Test (3), Animation (3), Web search (3),
    Parser-based CALL (3), Text-to-speech synthesis (3),
    Electronic dictionaries (2), Videodisc (2),
    Video conferencing (2), Mobile peer-assisted learning (2),
    Adaptive systems (2), Dialogue systems (2),
    Electronic encyclopedias (1), Turtle logo (1),
    Network-based (1), Text-based conferencing (1),
    Newsgroups (1), Bulletin boards (1), Blogs (1),
    Test messaging (1), Virtual learning environments (1),
    Corpus (1), Waveform manipulation (1),
    Storytelling software (1), Authoring software (1)

This systematic review: Keyword map: Results: Reading

- Studies by country: UK (15), Taiwan (8),
- Studies by target language: English (15), European languages (4),
- Studies by phase of education: Primary (12), Secondary (11)

This systematic review: In-depth review: Method

- Review questions
  1. Can evidence be found that new technologies facilitate the acquisition of reading in EFL? (Product)
  2. What pedagogical insights can be gained regarding the use of new technologies in the teaching of reading in EFL? (Process)

- Additional inclusion criteria
  1. To teach reading
  2. The study included English as a Foreign Language (EFL) or English as a Second Language (ESL)
  3. The evidence was reported between 2000 and 2009

- Weight of evidence
  1. Relevance of the focus of the study
  2. Appropriateness of the study’s research design for addressing the review questions
  3. Trustworthiness of the study’s overall methodology
  4. Contribution of the study (as a result of 1-3) to the review questions.

Zoe Handley & Catherine Walter,
University of Oxford
This systematic review: In-depth review. Linguistic benefits

<table>
<thead>
<tr>
<th>Experimental conditions</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>participant: 21st grade students in the 1st year of New High School</td>
<td>Cognitive technology (Visual sailing learning environment)</td>
</tr>
<tr>
<td>Condition: (1) Computer-based software (PN=18)</td>
<td>Inclusion of treatment in the curriculum</td>
</tr>
<tr>
<td>Experimental conditions: (2) Classroom instruction (PN=12)</td>
<td>Improvement in the learning environment</td>
</tr>
<tr>
<td>Condition: (1) Where the classroom is in the city (PN=21)</td>
<td>Improved learning outcomes</td>
</tr>
<tr>
<td>Condition: (3) Type of work: (PN=30)</td>
<td>Increased motivation</td>
</tr>
<tr>
<td>Condition: (4) Mobile-Assisted Learning (PN=1) (PN=1)</td>
<td>Enhanced cooperation</td>
</tr>
</tbody>
</table>

This systematic review: In-depth review. Non-linguistic benefits: Conclusion

- What evidence is there that new technologies facilitate the acquisition of reading in EFL?
- There is little evidence regarding the effects of new technologies on reading outcomes.
- Frustrated by the quality of texts.

**Implications**

- Future research should focus on the differential effectiveness of the different attributions or coding elements of technologies.
- Studies should have a pre-test post-test format and use a delayed posttest (Chavarel, 2004).
- Building up to large-scale studies.
- Qualitative data should be collected to confirm that the technology is being used as intended (Chavarel, 2004) and for further hypothesis formation (Leroy and Stockwell, 2006).

The review team

- Core reviewers:
  - Prof. Ernest Macaro (PI), Dr. Zoe Handley, Dr. Catherine Walter
  - Adose Sharpe (Editorial Director, EFL, Oxford University Press)

- We are grateful to the following for their assistance:
  - Applied Linguistics Group, Department of Education, University of Oxford
  - Dr. Marie Heron, Ameda Holbrook, Dr. Victoria Murphy, Dr. Valene Rogers, and Robert Water

- English Language Teaching Division, Oxford University Press

- Luke Bauer, Julia Bell, Elaine Boyd, Jenny Cammack, Phil Davis, Katharine Goldsmith, Joanna Freas, Catherine Headley, Kate Maciver, Antonella Mazzon, Alex Miller, Sarah Parsons, Gill Pasque, Stephanie Richards, Lynne White, Katherine Ryaff

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Unfiled Notes Page 3
Thank You! & Questions?

Lan et al (2009) CAREER system

Proctor et al. (2007)

Troll (2004) FastForWord

Waveform Manipulation

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