Text Readability and Simplification
LEAD intramural projects evaluating relevance & impact in education

Overview

Aims
• Evaluate the utility of computational approaches to readability and simplification in educational settings.
• Study the correlations between computational linguistic and cognitive models of text complexity.

Projects
I. Cognitive Correlates Project
– Link linguistic & cognitive measures of text complexity.

II. ReBIL: Towards appropriate reading materials for Bilingual classrooms
– Evaluate the role of linguistic complexity analysis and text simplification in authentic learning contexts.

III. Reading Demands Project
– Compare the linguistic complexity of German school books across grades and school types.

1 The Cognitive Correlates Project

Research Questions
• How does linguistic complexity of texts affect the reading behavior?
• Which alterations in texts will have the biggest impact on students’ reading processes and outcomes?
• How do the linguistic measures of text complexity correlate with cognitive measures like reading time?

Team
• Sowmya Vajjala, Detmar Meurers, Katharina Scheiter, Alexander Eitel

Method: Eye-tracking studies
• Reading materials:
  – Texts belonging to two reading levels, prepared by experts at OneStopEnglish.com.
  – Original texts are from The Guardian newspaper.
• Evaluation:
  – recall and comprehension questions after reading.
  – eye-tracking measures like reading time, fixation duration etc.,

Current Status
• The eye-tracking experiments are designed and will be run as the semester starts.

Duration: October 2013 – March 2015

2 The ReBIL Project

Research Questions:
1. Are the native language texts different from bilingual texts in terms of their linguistic complexity?
2. How does the linguistic complexity of a text affect
   • the student’s learning gains i.e., text comprehension?
   • the student’s motivation and emotions while working with the text?

Team
• Sowmya Vajjala, Kathrin Jonkmann, Jörg-U. Kessler, Detmar Meurers

Duration: June 2014 — June 2015

Project Plan
1. Procure the English textbooks used in bilingual and native schools (US/UK) and digitize them.
2. Analyze their linguistic complexity using our readability model (Vajjala & Meurers, 2014).
3. Prepare simplified versions of native texts using our simplification approach.
4. Evaluate student comprehension with simplified vs unsimplified versions of texts.

3 The Reading Demands Project

Research Questions
• Do German school books across grades and school types differ in terms of their linguistic complexity?
• Can we build computational models the classify school textbooks based on their text complexity?

Approach
• Start with German text complexity measures from Hancke, Vajjala & Meurers (2012) and Hancke (2013).
• For more details on current status, visit Karin’s poster!

Team
• Karin Berendes, Sowmya Vajjala, Detmar Meurers, Doreen Bryant, Tobias Kolditz, Lisa Nassif, Harriet-Sophie Biedermann

Duration: October 2013 – October 2014

References
Detailed discussion of the approaches and results so far can be found in five peer-reviewed publications (IJAL, EACL-14, PITR-14, COLING-12, BEA-12) online at: http://purl.org/dm/papers.html