



ReaderBench, the learning companion

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ReaderBench: The Learning Companion

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LSE, Univ. Grenoble Alpes

The LSE aims at analyzing educational processes in several contexts (classrooms, vocational, professional) for modeling purposes. Some LSE members are working on ways ICT support and analyze learning and teaching processes (e.g., computer-based assessment, novel tools acceptance, teacher cognition).

RACAI, Univ. “Politehnica”, Bucharest

The k-Teams laboratory is driven by theoretical and applicative research centered on the development of collaborative software to support and assess participation in virtual teams. Our inter-disciplinary approach is grounded in NLP, with strong connections to educational sciences, cognitive psychology, and philosophy.

ReaderBench, a Multi-Language Learning Companion

ReaderBench is a fully functional automated software framework, designed to be an educational helper for students, teachers, and tutors. The system makes use of text-mining techniques based on advanced natural language processing and machine learning algorithms to design and deliver summative and formative assessments using multiple data sets (e.g., textual materials, behavior tracks, self-explanations).

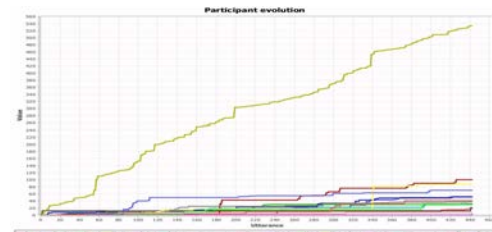
Textual Complexity Analysis

ReaderBench can assess **textual complexity** at several levels (semantics, morphology, surface factors integrated by support vector machines/DFA).

DISCOURSE FACTORS (COHESION-BASED SCORING MECHANISM)	
16.667	Average paragraph score
5.761	Paragraph score standard deviation
2.8	Average sentence score
1.612	Sentence score standard deviation
SEMANTIC COHESION (WU-PALMER)	
SEMANTIC COHESION (LSA)	
SEMANTIC COHESION (LDA)	

Participation Evaluation

ReaderBench can assess **participant’s involvement** and contributions in CSCL contexts.



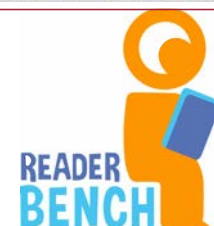
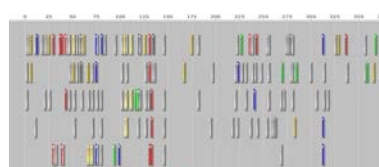
Comprehension Prediction

ReaderBench can analyse the reader’s **cognitive strategies** during understanding a text.



Topic Analysis

ReaderBench can analyse the **occurrences of topics** in discussions and texts.



Uses in Education

- Forum and chat discussions analysis
- Reading comprehension strategies analysis
- Textual complexity analysis
- Text materials comparison

Demo!

<http://readerbench.com>

- Dascalu, M. (2014) *Analyzing Discourse and Text Complexity for Learning and Collaborating*. New York: Springer.
- Dascalu, M., Trausan-Matu, S., McNamara, D. S., & Dessus, P. (2015). *ReaderBench - Automated evaluation of collaboration based on cohesion and dialogism*. *Int. J. CSCL*, 10(4), 395–423.
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