COAST – CUSTOMIZABLE ONLINE SYLLABLE ENHANCEMENT IN TEXTS: A FLEXIBLE FRAMEWORK FOR AUTOMATICALLY ENHANCING READING MATERIALS

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ABOUT
Provides customizable web-based text enhancement facilities
Targets learning therapists & teaching practitioners
Generates enhanced reading materials for (dyslexic) children

SYLLABLE ENHANCEMENT OPTIONS AND TEMPLATES

BACKGROUND AND MOTIVATION

Dyslexia affects 4 – 8% of the German population [1]
• One major cause: deficient phonological awareness [2]
• Impaired syllable stress detection strongly predicts dyslexia [3;4]
• Syllable synthesis and analysis essential for evidence-based reading training [5;6;7]

Input Enhancement
• In SLA input enhancement [8] used to facilitate noticing [9]
• Visual text enhancement facilitates reading [10;11;12]
• e.g. font, colors, spacing

INCORPORATION OF USER EXPERTISE

Requirement analysis (N=4)
• Expert interviews with learning therapists before system design
• Requested incorporation of user expertise:
  • In-tool option for manual adjustment of automatic analysis
  • Utilization of user knowledge for system improvement
  • Implemented as local database updates
• Prompt user community to verify local entries for global updates

USABILITY EVALUATION WITH USER TESTS

Sample (N=7)
• 3 experts, aged 40 to 51
• 4 laymen, aged 22 to 27

Method
• Think aloud study
• After scenario questionnaire
• Likert scale (strongly agree – strongly disagree)

Scenarios
1. Text analysis and enhancement
2. Annotation and enhancement template
3. Verification of user-generated entries

CONCLUSION

• Highly flexible system for customized text enhancement
• Designed in close collaboration with teaching practitioners
• Current version successfully evaluated in user tests
• Successfully annotates texts automatically
• Allows to customize texts flexibly and time efficiently
• Learns from user input to improve future analyses
• Includes user annotations to local database for re-use
• Uses crowd to verify user entries to update global database

OUTLOOK

• Add features requested in think aloud study
• Re-design visual appearance
• Deploy COAST to learning facilities
• Development of the accompanying COAST App
• Tutoring system featuring exercises for learners
• Optimized for mobile devices

REFERENCES

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