Presentations by IES-Funded Researchers
Annual Meeting of the Society for Text and Discourse – 2015

25th Annual Meeting
July 6 – 8, 2015
Hyatt Regency in Minneapolis, Minnesota
http://research.cehd.umn.edu/text-discourse/

Monday, July 6

8:00am – 11:00am

Assessment System for Research and Practice
Chair: *Theodore J. Christ*

This workshop will review FAST as a cloud-based assessment and data system that was developed at the University of Minnesota with funding from IES (2009 to present). Those who attend will learn about FAST and its potential to support a variety of basic and applied research and development. This includes the use of current measures and the development of new measures, which might be shared and distributed widely. A variety of performance data are recorded in the database, which includes accuracy, response choices, and response times (in milliseconds) on an item-by-item basis. Much of the reporting is automated, immediate and exportable in csv files. As an applied research team, we are interested to support basic science, theory development, and their implications for practice. The current domains of assessment span reading, mathematics, and social-emotional behavior. This workshop will be of interest to those who might (a) use FAST to support data collection, (b) explore extant data from large multi-state samples, or (c) use FAST to develop and refine new measures.

3:30pm – 5:00pm

Multiple Texts & Sources

Validation of New Epistemological Scales Related to Inquiry Learning
Carlos Salas, Thomas D. Griffin, Jennifer Wiley, M. Anne Britt, Dylan Blaum, Patricia Wallace

Abstract. Data is presented showing the validity of 2 subscales that can be used to assess epistemological beliefs of particular importance for multiple-document-inquiry tasks. The subscales show similar psychometric properties across grade-levels and for parallel versions worded for science and history. The subscales provided unique predictive utility for the quality of explanations that students constructed for two science topics that differed in difficulty. In particular, the integration subscale reflects a novel dimension of epistemological beliefs.

5:00pm – 6:30pm

Poster Session

How Struggling Readers Process Narrative and Informational Texts: Insights from Think-Alouds
Bonita Janda, Kristen McMaster, Pyung-Gang Jung, Jaehyun Shin, Paul van den Broek, Christine Espin

Abstract. The purpose of this study was to examine online processes used during reading that may contribute to comprehension. One hundred twenty-four fourth-grade students with proficient decoding but poor reading comprehension skills responded to narrative and informational texts using a think-aloud procedure. Analysis of think-aloud transcripts revealed that readers made significantly more text-based connections while reading narratives and more knowledge-based connections while reading informational texts. Findings have implications for further research on reading comprehension processes.

Novice Literary Interpretations: Prompting and Processing Matter
Candice Burkett, Susan R. Goldman

Abstract. Research suggests literary novices are inept at interpreting literary works (Graves & Frederiksen, 1991; Zeitz, 1994). The current study investigated novices' literary interpretations for a short story. Results indicated more interpretations when prompted than during initial reading despite evidence of elaborative processing, attention to literary devices, and adequate story comprehension. Furthermore, elaborative processing was positively related to interpretations. These results implicate differences between experts and novices in what is entailed in "reading" a literary work.

Tuesday, July 7

8:30am – 10:00am

Computational Applications

The Effect of Reading Ability on Learning a Summarizing Strategy with AutoTutor
Haiying Li, Jon-Mikeal Rhodes, Morgan C. Douglass, Tiffany Hunter, Arthur C. Graesser

Abstract. This study investigated whether the reading ability of human learners and the ability of a peer computer agent could predict the learning of a summarizing strategy in an intelligent tutoring system, called AutoTutor. Participants were 47 adult learners of English as Foreign Language (EFL). Results revealed significant differences in the learner's ability, with learning positively related to ability. However, the ability of the agent did not significantly predict performance.

Capturing the Writing Process: Keystroke Logging in a Writing Tutor
Matthew Jacovina, Laura Allen, Erica Snow, Danielle McNamara

Abstract. Writing research traditionally analyzes finished products (e.g., complete essays) instead of the moment-by-moment writing process. Although product-based analyses have successfully characterized writers and writing quality, they cannot capture nuances during writing. In this project, we analyzed keystrokes logged in a web-based writing tutor to compare product measures (e.g., word count) with process measures (e.g., varying productivity). We generally found high correlations between the two. However, they were not redundant, suggesting the utility of keystroke data.
10:30am – 12:00pm

Learning Processes

Mind Wandering during Re-reading of Instructional Texts
Catilin Mills, Natalie Phillips, Sidney D'Mello Evan Risko

Abstract. This research explored the effect of re-reading, a common study technique, on mind wandering. In Study 1, participants responded to intermittent mind wandering probes while reading two texts: one text was read once and another text twice. Participants reported increased mind wandering during re-reading and there was no benefit of re-reading on comprehension. Experiment 2 replicated these results with the additional finding that type of mind wandering (unintentional versus intentional) displayed differential patterns during re-reading.

Integrating Multiple Representations

Causal Science Explanations: The Role of Annotations of Texts and Graphics
Candice Burkett, Katie M. James, Susan R. Goldman, Project Readi Science Team

Abstract. Learners often fail to comprehend and synthesize across texts and graphics despite the important role multiple representations play in understanding and explaining scientific phenomena. The current study investigates the outcomes from a classroom with supports to encourage engagement with multiple representations to create evidence-based explanations of scientific phenomena. Results indicate number of annotations and connections between representations increased from pre to post-assessment and suggest a relationship between annotations and causal explanations. Instructional implications are discussed.

Making Connections: Improving Student Learning about Climate Change
Allison Jaeger, Thomas D. Griffin, M. Anne Britt, Jennifer Wiley

Abstract. This study manipulated whether students received a brief lesson about the complex and often indirect causal relationships that comprise scientific explanations before completing a multiple document inquiry task. Students who received the lesson made more selective and useful annotations during reading, were more responsive to the writing prompt, and included more causal concepts and connections in their essays. They also did better on inference verification task and gave more sophisticated answers on an epistemology scale.

2:45pm – 4:15pm

Reading Assessments

Exploitation of Theory for Applied Problems: Let's Throw It at the Wall and See What Sticks
Theodore J. Christ, Mary Jane White, Danielle M. Becker

Abstract. We will present third year outcomes of an IES Goal 5 (measurement) project explore innovative solutions for K to 8th reading development. The preferred outcome is a fully-automated technology-based measure that yields profiles for skills analysis and narrow band measures for repeated measurement and monitoring. The team will present some combination of four solutions they developed and field tested. Kane's (2006, 2011) validation framework and instructional implications will frame the presentation.

The MOCCA Measurement Model: Challenges and Possible Solutions
Mark Davison, Bowen Liu, Ben Seipel, Sarah E. Carlson, Gina Biancarosa

Abstract. The Multiple-choice Online Cloze Comprehension reading comprehension test for 3rd – 5th grades has a unique structure in which each incorrect alternative corresponds to a type of inference

error. This structure requires revised thinking about measurement issues: reliability, an appropriate item response model, and interpretation of error responses for diagnostic purposes. The presentation will cover scoring of error responses, selecting an appropriate item response theory, and developing a decision rule for diagnosing error tendencies.

Implementing Cognitive Theory into 3rd through 12 Grade Reading Assessments: Opportunities and Challenges
Tenaha O'Reilly, John Sabatini

Abstract. Over 11,000 students in grades 3-12 completed two scenario-based reading comprehension tests. The computer-based tests required students to read a collection of sources for a specific purpose. Analyses revealed the tests had adequate properties and were feasible to implement in a real school setting. A vertical scale was created to examine how performance on the assessment changes over grades. Despite the complexity, even some younger students can engage in complex reading in a structured environment.

STEM Reasoning

Is the Moon a Satellite? "No, it is a Big Piece of Rock. It's a Moon!" Examining Scientific Reasoning in Elementary Students' Performance on Scenario-based Assessments
John Sabatini, Tenaha O'Reilly

Abstract. The study examines scientific reasoning of elementary students. Students were administered a scenario-based assessment on science topics. Questions were designed to direct their attention and probe understanding of key text content. A culminating question asked them to apply what they learned and explain their reasoning. While many students scored highly on the test, only a subgroup of top scoring students provided adequate explanations. Results are interpreted with respect to quality of causal/situation model formation.

4:15pm – 6:00pm

Poster Session

Examining Expository Text Recall and Comprehension Using Factor Analysis
Esther Lindstrom, Donald Compton, Laura Steacy

Abstract. In this study, 255 fifth graders read and listened to two expository passages, provided oral retells, and answered comprehension questions. Confirmatory factor analyses and item-level crossed random effects modeling were used to predict question performance using retell elements. Findings suggest retell factors and prior knowledge significantly predict passage comprehension. Findings also support the use of factor analysis in examining retell data, specifically pertaining to text representation.

Are Hybrid Cars the Answer? Thinking about Solutions when Learning about Climate Change
Dylan Blaum, M. Anne Britt, Michelle Platt, Alexis Clark, Thomas D. Griffin, Jennifer Wiley

Abstract. This study examined whether solution-based prompts improve learning from document sets in science, by increasing the perceived utility of constructing causal explanations. Solution-based reading prompts led to better recall of information and better responses on a solution generation task, however no differences were seen on an inference-verification task. Future work is needed to identify when

solution-based prompts might be more likely to help readers to refine their task models and improve understanding from science texts.

What's in a Response? An Investigation of How Two Think-aloud Worlds Collide
Sarah E. Carlson, Ben Seipel, Gina Biancarosa, Mark Davison

Abstract. Responses from two think-aloud tasks (traditional; closed forced-choice) were used to identify whether good and poor comprehenders utilize similar comprehension processes across the two methods. Results from 3rd-5th grade readers' responses provide initial support for validating the types of processes used during comprehension of narratives. Additional analyses will be conducted to determine if these findings replicate across diverse demographic groups. Results could inform the development of new instructional methods for improving struggling readers' comprehension skills.

Assessing Skill in Task-Based Relevance Judgments in a Multiple Documents Situation
Karyn Higgs, Joseph P. Magliano, M. Anne Britt

Abstract. Multiple document readers may have difficulty disengaging from familiar reading strategies based on text importance and engaging task-based relevance strategies. To investigate, we had participants read texts about different topics and rate sentences for text-based importance or relevance to an across-documents reading goal. Comparisons of within-group agreement suggested comparable skill, with a non-significant trend towards greater agreement for relevance raters. Additionally, interest in the across-documents topic was positively correlated with agreement for both groups.

Am I Wrong or Am I Right? Gains in Monitoring Accuracy in an Intelligent Tutoring System for Writing
Laura Allen, Scott Crosley, Erica Snow, Matthew Jacovina, Cecile Perret, Danielle McNamara

Abstract. We investigated whether students increased their self-assessment accuracy and essay scores over the course of an intervention with a writing strategy intelligent tutoring system system, W-Pal. Results indicate that students were able to learn from W-Pal, and that the combination of strategy instruction, game-based practice, and holistic essay-based practice led to equivalent gains in self-assessment accuracy compared to heavier doses of deliberate writing practice (offering twice the amount of system feedback).

Factors that Impact the Integration of Multiple Texts
Brent Steffens, M. Anne Britt, Keith K. Millis, David J. Boveri, August Raack

Abstract. The current study examined how the coherence of a first text and causal chain completeness influenced the integration of information across texts. Contrary to expectations, increased cohesiveness did not improve integration. However, participants given an integrated causal model demonstrated better integration of the chain information than participants given a chain divided across two texts. A second experiment addressed limitations of the first experiment by examining the effect of text boundaries and organization on integration.

Development and Evaluation of a Computer-Based Reading Span Task
Michael Herriges, Theodore J. Christ

Abstract. Working memory is the cognitive system that performs maintenance and manipulation of information for brief periods of time. Reading span tasks are commonly used to measure individual differences in working memory, but are inefficient to administer. This presentation addresses the

creation and evaluation of an automated, computerized reading span task intended for use in applied settings. This innovative tool may help school psychologists and educators determine an underlying source of reading comprehension difficulties.

Effect of Local and Global Reading Skills on Argumentation Skill
Tenaha O'Reilly, John Sabatini

Abstract. Over 1,300 students in grades 5-6 completed a scenario-based reading comprehension test that measured local and global comprehension as well as select argumentation skills. The assessment structured and sequenced tasks to build up students understanding as they integrated multiple sources. The results indicated the assessment displayed adequate properties and younger students were able to show evidence of higher-level thinking. However, lower level comprehension processes did predict a large amount variance in students' argumentation skill.

Wednesday, July 8

8:30am – 10:00am

Developing Readers

Children's Productive Use of Academic Vocabulary
Shufeng Ma, Richard C. Anderson

Abstract. Instructional influences on productive use of academic vocabulary were investigated among 460 fifth graders. Participants received a 6-week unit on wolf management involving collaborative groups (CG) or direct instruction (DI). In an individual oral transfer problem, whether whaling should be allowed, both CG and DI students used significantly more general and domain-specific academic vocabulary from the Wolf Unit than uninstructed control students. CG students used more domain-specific vocabulary than DI students.

Inference Making in Developing Readers: Profiles in Good and Poor Comprehenders
Josefine Karlsson, Linda Van Leijenhorst, Anne Helder, Paul van den Broek

Abstract. We examined reader profiles of good and poor comprehending developing readers using Think-Aloud. In both comprehension groups we found two subgroups of readers: Paraphrasers and Elaborators.Within each Subgroup, the quality of elaborative inferences differentiated between good and poor comprehenders. Good comprehenders produced more valid and fewer invalid elaborative inferences than poor comprehenders. These findings support the existence of subgroups of readers, and emphasize the importance of the correct use of background knowledge during reading.

1:30pm – 2:30pm

Keynote Address: Making Learning Stick: Equipping Students to Learn Smarter and Forget Less
Mark McDaniel