

SCiP 2006 Program



36th Annual Meeting of the Society for Computers in Psychology

Hilton Americas Houston, Texas
Thursday, November 16, 2006

SCiP 2006

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Hello and welcome to Houston. This has been a year of challenges for our conference organizers, which is atypical to say the least. I hope you find the program that has been formed to be exciting and enjoy the talks and posters. I would like to thank both Ulf-Dietrich Reips and Roman Taraban for all the extra hours they put in getting this conference off the ground. Please enjoy your time and please be sure to visit our vendors!

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Welcome from the President



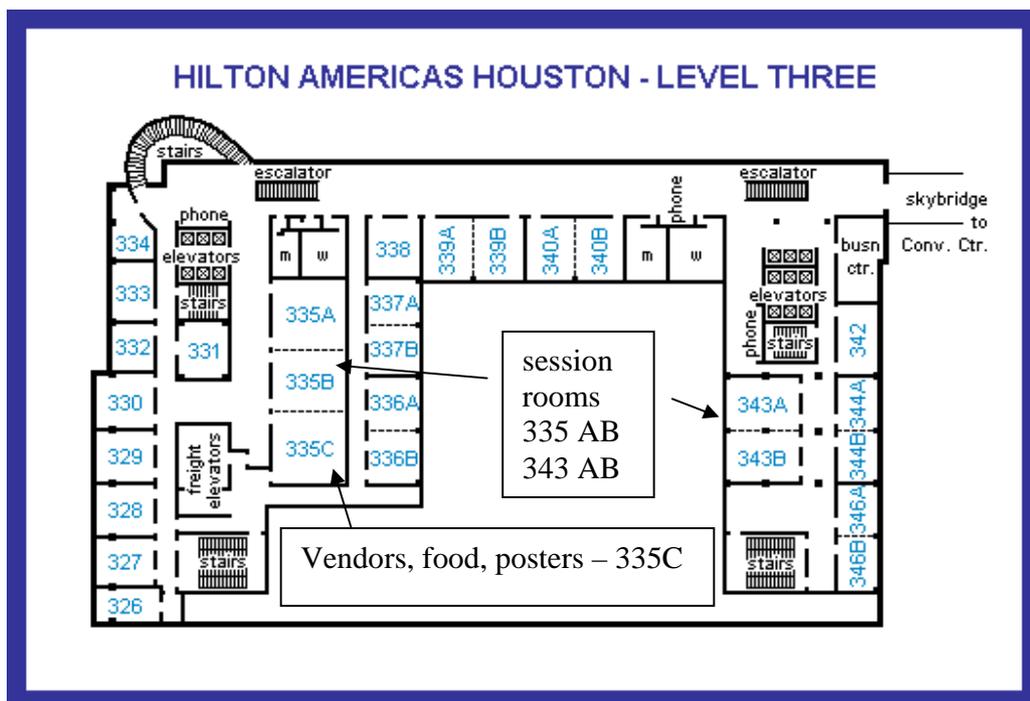
Welcome to the 36th annual meeting of the Society for Computers in Psychology. Computer technology, in particular Internet-related systems, has become more important than ever. There is almost no one who isn't using some type of computer every day -- it may be as ordinary as a mobile phone.

Psychologists use computers and the Internet in research and teaching, and they also do research on the human impact of these technologies. The SCiP meeting is a place to exchange the results and discuss their potential impact, as the newly created forum on the SCiP Web site is between meetings.

Even though I have the honor to break with some traditions by being the first SCiP president who is not from North America it is not to be feared that European chaos may wobble the program structure, where we'd find a place for Cappuccino with Croissants between Bratwurst, Smørrebrød, and Baked Beans, Swiss Chocolate or even Grappa. The present meeting continues in the tradition of previous ones of including paper and poster sessions and symposia.

In the preparation of this year's conference I would like to acknowledge with great appreciation the contributions of our assistant program chair (now acting program chair), John Williams, and our secretary, Kay Livesay, to organizing this conference. I would like to extend my gratitude to these, and all other steering committee members and all contributors, for the exciting program that we see this year, and I hope that you gain much useful knowledge and renewed connections to colleagues and friends from the meeting.

Conference Floor Map



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Cedrus

7:30 am Registration –Foyer of room 335 AB Refreshments (coffee and treats) in the 335 C		
Conference Room 335 AB	335 C	Conference 343 AB
8:30-9:50 – Web-Based Research chair: Ulf-Dietrich Reips 8:30 Procter & Vu 8:50 Reips & Funke 9:10 Vu, Chambers, Derby, Erselius, Gracia, Kraft, Marquez, McMath, Nelson, Ngo, Pekarek, & Wiebe 9:30 Plant, Trapp & Rebetz	Vendors and posters	8:30-9:50 – Language and Modeling chair: Ping Li 8:30 Taraban, Definis, Brown, & Weigold 8:50 Wang & Yang 9:10 Jones, Oliver, Kintsch, & Mewhort 9:30 Sheu, Cheng, Jheng, Yu, & Chen
9:55-10:55 – Computer-based Research Tools chair: Jon Vaughan 9:55 Crutcher 10:15 Ozubko & Joordens 10:35 Vaughan, Yee, Borton, & Vaughan		9:55-10:55 – Quantitative chair: Roman Taraban 9:55 Brown, Heathcote, & Marley 10:15 Schulte-Mecklenbeck, Johnson, & Willemsen 10:35 Faul, Erdfelder, Lang, & Buchner
10:55-11:15 – Break - Refreshments in 335 C! Have a cup of tea, visit with vendors, view some posters!		
	Vendors and posters	11:15-12:45 – Symposium: “Discourse and Natural Language Technologies” Organizers: Arthur C. Graesser and Danielle S. McNamara

12:45-1:45 – Lunch

1:45-2:15 – Poster Session – in 335 C

1. Livesay & Duggan; **2.** Mangan & Reips; **3.** Lin, Li, Barrett, Zhang & Washburn; **4.** Barrett, Gullede & Washburn; **5.** Liu, Shu & Li; **6.** Vaughan, J.

2:15-3:45 – Symposium:

“Digital Video and Artificially Intelligent Multimodal Expert Systems: Training and Teaching Applications in Psychology”

Organizers: Roger Ray and Jessica Ray

**Vendors
and
posters**

2:15-3:55 – Education and Instruction

chair: Kay Livesay

2:15 Gilliam, Magliano, Millis, Levinstein, & Boonthum
2:35 Levinstein, Boonthum, Pillarisetti, & McNamara
2:55 Schoeke, Roewer, & Schmalhofer
3:15 Pare & Joorden
3:35 Beran, Chan, Evans, et al.

**3:55- 4:10 Break – refreshments in Room 335 C –
cookies and drinks**

4:15-5:15 – Presidential Address in 343 AB

**Ulf-Dietrich Reips
University of Zurich, Switzerland**

"Internet-based psychological research. See more. Do more."

5:15-5:30 – Business Meeting in 343 AB

Web-based Research

8:30-9:50 am

Conference Room 335 AB

chair: Ulf-Dietrich Reips

8:30 Qualitative and Quantitative Analyses of Web Privacy Policies and Preferences

Robert W. Proctor, Purdue University
Kim-Phuong L. Vu, California State University, Long Beach

Because all research methods have strengths and weaknesses, a combination often provides the best approach to understanding human behavior in real-life tasks. We illustrate how various methods complement each other in the study of usability issues associated with two aspects of online privacy: comprehension of privacy policies and setting privacy preferences. Each of several research methods (archival research, surveys, data mining techniques, quantitative observations, and controlled experiments) yielded unique information needed to develop an understanding of user privacy concerns. This information was used to determine whether privacy preference tools achieve the goals of users and to evaluate how their usability can be improved. This research illustrates the benefits of using multiple research methods in the study of human-computer interaction.

8:50 Visual analogue scales for Internet-based research: VAS Generator

Ulf-Dietrich Reips, University of Zurich
Frederik Funke, University of Zurich

The present paper describes VAS Generator (<http://www.vasgenerator.net>), a free Web service for creating a wide range of visual analogue scales that can be used as a measurement device in Web surveying and Web experimentation, and also for local computerized assessment. A step-by-step example for creating and implementing a visual analogue scale with visual feedback is given. VAS Generator and the generated scales work platform-independent, the underlying languages are HTML and JavaScript.

9:10 Combining Teaching, Learning, and Service: Teaching Usability Evaluation Methods using a Departmental Web Site

Kim-Phuong L. Vu,
Vanessa Chambers,
Paul Derby,
Keith Erselius,
Fredrick Garcia,
Jerome Kraft,
California State University, Long Beach

Patricia Marquez,
Julie McMath,
Deborah Nelson,
Thuan Ngo,
Christina Pekarek,
Jeff Wiebe

The departmental Web site provides a rich source of information for students, faculty, and staff. Yet, department sites are often varied in terms of content and style. As a means for teaching usability techniques while providing a service to the department, students enrolled in a human factors course assessed the usability of the Psychology department's Web site. Results yielded a list of strengths and weaknesses of the site. More important, it allowed students to apply a variety of behavioral research methods in the evaluation. Because the department's site was extremely

relevant to students, they were motivated to perform a thorough evaluation, putting in more effort than that required by the assignment, and showed enthusiasm for sharing the results with others.

9:30 Psychologypracticals.com: a web-based resource for teaching and research

Richard R. Plant, University of York, UK

Annie Trapp, University of York, UK

Christine Rebetz, University of York, UK

Most departments run computer-based research methods courses. Often lecturers struggle to find the time to put together courses and students increasingly expect high quality materials and professional delivery. Bearing in mind these demands we have created psychologypracticals.com. This is a repository of high quality resources that can be used by lecturers looking for teaching materials. However the repository is not just intended for lecturing staff. “How to” screencams show students the basics of packages such as SPSS and E-Prime. To help ensure consistent high quality a dedicated cataloguing team review all resources and classify them in a discipline relevant way. Users can search and browse the archive and innovative cross-linking features helps them easily locate cognate resources whether by type, author, publication source, experiment generator etc. Here we outline the structure of the repository, its intended role and elicit feedback from SCiP delegates in order to enhance ongoing development.

Language and Modeling

8:30-9:50

Conference Room 343 AB

chair: Ping Li

8:30 Analyses of Think-Aloud Data to Describe Cognitive Outcomes of Students' Interactions with an Instructional CD

Roman Taraban, Texas Tech University
Alli Definis, Texas Tech University
Ashlee G. Brown, Texas Tech University
Arne Weigold, Texas Tech University

In previous research on students' interactions with computer-based instructional materials for an advanced course in cognitive psychology, my colleagues and I demonstrated robust time-on-task effects (BRMIC, 33, 217-225), and in other work, we used paper-and-pencil questionnaires and computer tracking to investigate students' allocation of study time (BRMIC, 31, 263-269). In the present research, verbal protocols were gathered using standard think-aloud methods as science and engineering majors worked through a portion of a multi-media, interactive, instructional CD for introductory thermodynamics. Data analyses were time-consuming and demanded the close collaboration of multiple raters to establish a rubric for parsing and coding participant utterances. The think-aloud approach was highly effective in revealing the level of the metacognitive and comprehension strategies that students used, a sense of the students' "engineering literacy," as well as technical shortcomings of the software. In this talk, we will present the basic results of the analyses.

8:50 Using R to implement ATRIUM

Shi-Wen Wang, National Chung Cheng University
Lee-Xieng Yang, National Cheng Kung University

This proposal introduces how to implement a complex neural network model for categorization — ATRIUM in R. For people who do not know computer languages but still want to implement a neural network model, R is a good choice for them. In addition to possessing powerful data analysis and graphic functions, R allows users to create their own functions for their particular needs. With these advantages, R is a good candidate for implementing computational models. ATRIUM is a complex neural network model and able to account for some special categorization phenomena. Thus, we implement and test ATRIUM in R by replicating the two major results reported by Yang and Lewandowsky (2004) supports our proposal.

9:10 Exploring the Roles of Context and Algorithm in Co-Occurrence Learning

Michael N. Jones, Indiana University
William L. Oliver, University of Colorado
Walter Kintsch, University of Colorado
D. J. K. Mewhort, Queen's University

Recent advances with contextual co-occurrence models have provided both tools for semantic word similarity, and theoretical models of human semantic representation. A key component in all co-occurrence models is that a word's meaning can be derived by observing its co-occurrence with other words in contexts. The notion of "context," however, has not been greatly examined. We manipulated context (sentences and paragraphs) in three principled co-occurrence learning models, and observed changes in their ability to predict semantic distance and association strength between words in large norms. Generally, we found that context may be particularly task dependent, and some algorithms perform better on some contexts than on others. Further, differences between semantic and associative strength in learned representations are more dependent on the learning algorithm than the specific notion of context.

9:30 Using R to implement ATRIUM

Shi-Wen Wang, National Chung Cheng University
Min-Hsiung
Chia-Yi
Lee-Xieng Yang, National Cheng Kung University

This proposal introduces how to implement a complex neural network model for categorization — ATRIUM in R. For people who do not know computer languages but still want to implement a neural network model, R is a good choice for them. In addition to possessing powerful data analysis and graphic functions, R allows users to create their own functions for their particular needs. With these advantages, R is a good candidate for implementing computational models. ATRIUM is a complex neural network model and able to account for some special categorization phenomena. Thus, we implement and test ATRIUM in R by replicating the two major results reported by Yang and Lewandowsky (2004) supports our proposal.

Computer-based Research Tools

9:55-11:15 am

Conference Room 335 AB

chair: Jon Vaughan

9:55 CAPAS2: A Computer Tool for Coding Transcribed or Digitally Recorded Verbal Reports

Robert J. Crutcher, University of Dayton

A new computer software tool for coding and analyzing verbal report data is described. Combining and extending the capabilities of earlier verbal report coding software tools, CAPAS2 enables researchers to code two different types of verbal report data: 1) verbal reports previously transcribed and stored in text files; or 2) verbal reports in their original digitally recorded audio format. For both types of data, individual verbal report segments are presented in random order and coded independently of other segments, adhering to a localized encoding principle. Once all reports are coded, CAPAS2 converts the coded reports to a formatted file suitable for analysis by SPSS

10:15 Super Mirror-io Bros.: Using a Videogame Paradigm to Test the Generalizability of the Mirror Effect and Validity of the Dual-Process Account

Jason D. Ozubko, University of Waterloo
Steve Joordens, University of Toronto at Scarborough

Although videogames offer the potential to test the generalizability of phenomena from within the lab, to date videogames have been a generally underused method in psychology. In memory research, dual-process accounts of an effect known as the mirror effect suggest it arises because low frequency words are more distinctive and high frequency words are more familiar (e.g., Joordens & Hockley, 2000). A traditional and a videogame paradigm are used to examine the generalizability of the mirror effect. The results confirm the dual-process claim that distinctiveness and familiarity (not low and high frequency words per se) seem to be at the heart of the mirror effect. Furthermore, the mirror effect looks to generalize to more distracting (and potentially real world) situations.

10:35 PsySquash X: A Utility Program for Analyzing PsyScope Data Files

Jonathan Vaughan, Hamilton University
Penny Yee, Hamilton University
Jennifer Borton, Hamilton University
Virginia Vaughan, Hamilton University

Many Macintosh users rely on PsyScope (a free program for Macintosh OS 9 and OS X) to precisely control of stimuli and accurately record manual and vocal response times in laboratory experiments. The program generates a single plain-text data file for each experimental session, which records each trial and its outcomes in a single line of text. Psysquash, a data-analysis utility

for PsyScope data files, has been revised for Macintosh OS X. PsySquash X allows users to specify multiple data files, identify and select independent and dependent variables, filter data for outliers, and generate statistical summaries in a variety of formats. The RealBasic source code for PsySquash X is available to users who may wish to add special-purpose filters.

Quantitative Methods

9:55-10:55 am

Conference Room 343 AB

chair: Roman Taraban

9:55 Efficient computer implementation of a ballistic accumulator model of response time.

Scott Brown, Andrew Heathcote, & A.A.J. Marley

We first give an overview of a new model of absolute identification. This model includes a response time (RT) submodel based on the ballistic accumulator model of Brown & Heathcote (2005, Psych Review). Implementing that model can be difficult for some computer users, so we provide efficient and accurate C-code for the model. This code allows different model variants to be tested, with consequences for psychological theories. The code is based on efficient matrix algebra solutions for multiple-choice RT situations, and is fast enough to allow numerical integration of RT distributions in most applications.

10:15 (Re-)presentation of process data

Michael Schulte-Mecklenbeck
Eric J. Johnson
Martijn Willemsen

Using process tracing data can provide better understanding of participants behavior in information search tasks. First we want to emphasis this point in demonstrating how models that include process predictions can be tested using a process tracing technique called MouselabWeb. We find that quite different conclusions must be drawn if the process level is studied in detail. Second, the visual presentation of process data provides several challenges. Two approaches that present different measures in one display will be introduced. Icon Graphs combine the amount of acquisitions, time of acquisitions and transitions between information cells into one display. Heat maps, which are borrowed from biology, focus solely on transitions.

10:35 G*POWER 3: A statistical power analysis program for t-, F-, z-, χ^2 - and exact tests in the social, behavioral, and biomedical sciences.

Franz Faul¹, Christian-Albrechts-Universität Kiel, Kiel, Germany

Edgar Erdfelder, Universität Mannheim, Mannheim, Germany

Albert-Georg Lang, Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany

Axel Buchner, Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany

G*POWER (Erdfelder, Faul, & Buchner, BRMIC, 1996) was designed as a general stand-alone power analysis program for the statistical tests commonly used in social, behavioral, and biomedical research. G*POWER 3 is a major extension of, and improvement over the previous versions. It runs on widely used computer platforms (Windows XP, Mac OS X 10.4) and covers many different statistical tests of the t-, F-, and χ^2 -test families. In addition, it includes power analyses for z tests and some exact tests. G*POWER 3 provides improved effect size calculators and graphic options, it supports both a design-based and a distribution-based input mode, and it offers all types of power analyses users might be interested in. Like its predecessor, G*POWER 3 is freeware.

“Discourse and Natural Language Technologies”

Organizers: Arthur C. Graesser and Danielle S. McNamara

Discourse and Natural Language Technologies
Organizers: Arthur C. Graesser and Daniel McNamara
Department of Psychology and the Institute for Intelligent Systems
University of Memphis
a-graesser@memphis.edu, d.mcnamara@mail.psyc.memphis.edu

There has been a revolution in automated analyses of text and discourse during the last decade. This symposium describes some of the recent systems, tools, and automated analyses developed in the interdisciplinary Institute for Intelligent Systems at the University of Memphis. These 7 presentations cover a broad spectrum of applications and levels of text and discourse analysis. There are systems that: critique written text, identify topic sentences in paragraphs, detect deception, measure cohesion in tutorial dialogue, classify texts into genre, identify the gender of writers, and analyze large semantic spaces. These projects have blossomed from our original suite of learning environments and text analysis tools developed in the IIS (e.g., Coh-Matrix, QUAID, AutoTutor, iSTART, HURAA).

1. WRAID: An Online Tool that Helps Writing and Reading Texts

Zhiqiang Cai, Yan Yan, Art Graesser

Writers and readers should benefit from computer tools that help identify possible problems in text with respect to comprehension difficulty. We have developed an online tool that assists writers and readers in identifying problems with the wording, syntax, and semantics of a text. Writing and Reading Aid (WRAID; www.psyc.memphis.edu/wraid.html) requires only information about the target reader level and text genre. From this, WRAID returns a list of potential problems with text comprehension, including analyses of *difficult words*, *long sentences*, *semantically isolated sentences*, *complex syntax*. One can also access properties of words, such as *frequency*, *familiarity*, *concreteness*, *polysemy*, and *hypernym* levels. WRAID variables are derived from a number of sources including the MRC psycho-linguistic database, CELEX lexical database, WordNet. WRAID is an extension of our online system QUAID (Question Understanding Aid; www.psyc.memphis.edu/quaid.html), which is free for public use. WRAID differs from QUAID in two major aspects. First, QUAID only analyzes survey questions, whereas WRAID analyses text of any kind. Second, QUAID identifies problems based on human ratings of a set of survey questions, whereas WRAID uses Coh-Matrix-derived TASA norms, which contain the statistical values of 54 indices on language and discourse. WRAID offers the opportunity for writers to create text that is better suited for its designated target audience. WRAID also offers help to readers in that their texts will be more appropriate for their level of knowledge and skill. Finally, WRAID offers the opportunity of helping readers identify areas of weakness in their reading ability.

2. Computationally Identifying Topic Sentences: Comparing the Co-Reference Model to an Individual Features Model.

Philip McCarthy, Adam Renner, Michael Duncan, Mary Hanks, & Danielle McNamara

Readers of expository text benefit from paragraphs in which an explicit topic sentence is given early in a paragraph (Graesser, McNamara, & Louwerse, 2003). A wide variety of empirical research from both composition studies and psychology lends much support to this notion (Aulls, 1975; Braddock, 1974; Clements, 1979; Kieras, 1982; Lorch, Lorch, & Matthews, 1985; McNamara, Kintsch, Songer, & Kintsch, 1996, Popken 1991). However, while research and current teaching theory tend to advocate topic sentences in paragraphs as valuable structural aids for the reader, identifying and assessing the quality of topic sentences can be time consuming and prone to inaccuracy. Therefore, we have expanded Coh-Metrix (Graesser, McNamara, Louwerse, & Cai, 2004) to analyze topic sentencehood. Coh-Metrix is a computer tool that assesses text on over 400 indices of cohesion, difficulty, and reading, with the long-term goal of better matching texts to readers. One computational model that assesses topic sentencehood is the co-referential model (Kintsch, 2002). This model uses latent semantic analysis (LSA, Landauer & Dumais, 1997) to compare all sentences within a text section to all other sentences. The rationale for such a model is that the sentence that has the most in common with other sentences in the paragraph is the sentence that is most representative (and therefore most thematic) in the paragraph. As an alternative model, we propose that topic sentences can be distinguished from non-topic sentences based on individual features of the sentence. In our study, we present evidence showing that the co-referential model does not locate topic sentences; instead, the co-referential model simply tends to locate longer sentences within the paragraph. The individual features model, on the other hand, uses a variety of sentence-level Coh-Metrix variables to predict topic sentencehood. We present evidence showing that the individual features model identifies topic sentences with an accuracy that is comparable to human raters even when no contextual evidence is supplied. The accuracy of topic sentence identification increases when there is information about the genre of the text or sentence position.

3. Discovering where the Truth Lies: Using Coh-Metrix to Detect Deception in Text

Nick Duran, Philip McCarthy, James Pennebaker, Danielle McNamara

We attempted to derive linguistic profiles of deception from the variation of cohesion in false and true statements. Using the same data and statistical analysis of Newman, Pennebaker, Berry, and Richards (2003), over 450 dimensions of cohesion, difficulty, and readability were used to predict deception. However, Coh-Metrix variables did not replicate the findings of Newman et al. (2003), which showed a successful distinction between true and false statements along lexical-semantic dimensions derived from the Linguistic Inquiry and Word Count (LIWC) software. We hypothesize that the discrepancy between the two analyses is the result of the nature of the deception task. Newman et al. (2003) did not address the cognitive complexity of lying, but rather the emotional dynamics of arguing against a moral belief. We argue that it is the cognitive complexity of lying that will most affect cohesion. Deceivers must continually recall a coherent and consistent version of a false story. This burden on cognitive resources, compared to telling the truth, will alter the cohesion of the false story in the course of conceptual reorganization. We also propose that this construct of deception operates in a context that is typically encountered by law enforcement, namely, as an interrogation that tests the validity of episodic memory. Cohesion measures, although unsuccessful with Newman's et al. (2003) paradigm, would function well in this framework. A linguistic profile of deceit also needs to consider individual differences. The rationale that cohesion measures could accomplish this is provided by McNamara's (2002) study on the interaction of individual differences in discourse

comprehension and cohesion. In summary, this symposium session will provide the impetus and direction for using Coh-Metrix to detect deception.

4. Using Coh-Metrix to Assess the Role of Background Knowledge on Cohesion in Tutorial Dialogue

Moongee Jeon and Arthur C. Graesser

Coh-Metrix is an automated software tool, developed to analyze text and discourse on over 400 types of cohesion relations and measures of text, language, and readability (Graesser, McNamara, Louwerse, & Cai, 2004). We have analyzed tutorial dialogue using Coh-Metrix to investigate the effect of college students' background knowledge on various cohesion relations in the dialogue. Coh-Metrix was used in this study to compare the tutorial dialogue of high-knowledge students who had already taken the relevant topics in a college physics class versus novice students who had not taken college physics while interacting with AutoTutor (Graesser, Lu, Jackson, Mitchell, Ventura, Olney, & Louwerse, 2004), an animated pedagogical agent that scaffolds students to learn about conceptual physics by holding conversations in natural language (Graesser, Person, Lu, Jeon, & McDaniel, 2005). AutoTutor scaffolds students to generate ideal answers to difficult questions requiring deep reasoning by using a variety of dialogue moves (e.g., hints, prompts, assertions, corrections, answers to student questions). Our findings showed that the tutorial dialogue of high-knowledge students substantially shared similar linguistic features with the dialogue of novice students in coreference, syntax, connectives, causal cohesion, logical operators, and other measures. However, there were significant differences in the dialogue with high-knowledge students versus novice students in semantic/conceptual overlap. It appears that the background knowledge of the students on the subject matter promoted the deeper levels of comprehension (i.e., the mental models) of conceptual physics while interacting with AutoTutor.

5. Automatic Text Genre Classification

Yan Yan, King-Ip (David) Lin, Arthur C. Graesser, and Danielle S. McNamara

We have been developing and testing algorithms that classify texts into different genre, such as narrative, science, versus social studies. Genre is known to influence comprehension processes very robustly, so an automated genre classifier would benefit researchers in discourse processing, as well as the field of education. We recently developed a new promising classifier that combined LSA and prototype theory. The core idea is to define a set of prototypes and to calculate their LSA vectors. When a specific text is analyzed, the closest prototype is identified and the text is assigned to the genre of that prototype. We found that texts are clustered very well in each genre by grades; that is, in each genre of each grade, the texts are scattered around its center. The center of each genre varied between grades, so we generated the prototype LSA vector separately for each genre in each grade. Therefore, when we classified the text, we first decided the grade of the text (which is quickly computed by a simple algorithm) and then calculated which genre in the grade is closest to the text. The genre classification algorithm in turn had two steps. It first generates the prototype LSA vector and second calculates the similarity between the LSA vectors of the given text with each prototype; the genre with the highest similarity wins. An analysis of thousands of texts showed impressive performance when classifying texts into narrative, science, social studies, versus other. The mean scores, using standard performance metrics in computational linguistics, were .76, .76, and .75 for recall, precision, and the F-measure. These performance data will be compared with the performance of other classifiers.

6. Using a Computational Linguistic Approach to Investigate Gender and Linguistic Variations

Courtney M. Bell, Philip M. McCarthy, and Danielle S. McNamara

This study compares two text analysis tools, *Coh-Metrix* and the Linguistic Inquiry and Word Count (*LIWC*) by examining gender differences in language within the context of marital conflict. We examine linguistic variations across gender in light of the biological and social construction theories of gender. The biological theory defines gender in terms of biological sex, which results in polarized and static language differences. The social constructionist theory contextually defines gender, which results in the use of a variety of linguistic strategies. Using a corpus of 54 texts, 27 male and 27 female, generated from counseling transcripts, we examine several dimensions from *Coh-Metrix* and the Linguistic Inquiry and Word Count (*LIWC*). *Coh-Metrix* is a computational tool that analyses written texts on over 400 dimensions of cohesion, language, and readability. The *Coh-Metrix* indices we examine include syntactic complexity, global argument overlap, global LSA, frequency, local argument overlap, density of logical connectors, local LSA, density of clarifications, and causal verbs and particles. Significant differences appeared in syntactic complexity, which was biased towards males. Marginally significant differences appeared in global argument overlap, which was biased towards females. *LIWC* is a computational tool that examines written text and classifies it along 70 dimensions, based on properties of words. *LIWC* provides a word count for the text, calculates percentage of words matching up to 85 language dimensions, and records the data into 74 preset dictionary categories. The *LIWC* indices we examined include self-reference, social, positive emotion, and negative emotion words. Significant differences appeared in self-reference words, which were biased towards males. Marginally significant differences appeared in social words, which were biased towards females. The results from both analyses failed to support the sociological theory and provided some evidence for the biological theory. Future research will use the tools to examine linguistic differences between males and females across a variety of contexts.

7. Theoretical Framework of Semantic Spaces: More Applications

Xiangen Hu, Zhiqiang Cai, Nicholas D. Duran, and Andrew Olney

Hu, Cai, Graesser, and Ventura (2005) proposed a general framework of a definition of Semantic Space. This definition characterizes the most widely used semantic spaces, such as LSA and HAL. Based on this general definition, the concept of induced semantic structure (ISS) was introduced, allowing comparisons between completely different semantic spaces at three different levels: *combinational*, *permutation*, and *quantitative*. The proposed framework was used to compare the "meaning of life" for LSA spaces that were built from different corpora. This presentation uses the same theoretical framework to evaluate different parameters of semantic spaces on the meaning of life. First, we systematically varied the dimensions of the vector representation of an LSA space for a given corpus. Second, using two different methods (LSA and HAL), we generated two semantic spaces based on the same corpus. After the two ISSs were created, we examined the two spaces for meaning of life. We conclude that the Hu et al (2005) framework of analyzing semantic spaces can be used to evaluate differences between semantic spaces associated with different statistical models of meaning.

Modeling Semantics in High-Dimensional Space: a New Corpus

Kay Livesay, Linfield College
Phillip Duggan, Linfield College

Early researchers (e.g., Osgood & Suci, 1955) constructed high-dimensional semantic spaces by deciding on a fixed set of qualities (e.g., pleasant/unpleasant, abstract/concrete, animate/inanimate) and had people rate the words based on these qualities (using a Likert scale). More recently researchers (Lund & Burgess, 1996; Landauer, Foltz & Lahem, 1998) have used large corpora of words and co-occurrence statistics to create high-dimensional semantic spaces. These new spaces are not limited by the subjective nature of the previous work and allow for latent associations to emerge via contextual co-occurrence. The present research uses a new input corpus.

Sleep, Sex, and the Strengths and Weaknesses of the Web in Surveying of a Difficult-to-Reach Clinical Population

Michael A. Mangan, University of New Hampshire
Ulf-Dietrich Reips, University of Zurich

One major advantage of Web-based research lies in the possibility to reach and study people with rare conditions of interest. Secondly, due to the anonymity of the survey situation, the Internet is particularly suited for surveys on sensitive topics. Sexsomnia is a newly identified medical condition in which sufferers engage in sexual behavior in their sleep. Problematic cases are highly distressing and have forensic implications. The consensus among opinion leaders in sleep medicine is that it may be quite common but often goes unreported because of shame and embarrassment. Thus, little is known of the demographics and clinical features of this condition. This poster reports findings from a sample analysis of 20 years of research on sexsomnia and discusses the results, strengths and weaknesses of a Web-based survey conducted on this difficult-to-reach clinical population.

Genetic Granular Cognitive Fuzzy Neural Networks for the Study of Relational Learning

Cui Lin, Georgia State University
Jun Li, Georgia State University
Natasha Barrett, Georgia State University
Yanqing Zhang, Georgia State University
David A. Washburn, Georgia State University

This research focuses on the new architecture of genetic granular cognitive neural networks that

can solve the long-term challenges to traditional supervised learning algorithms for a neural network. To illustrate this architecture and its new user-friendly interface, behavioral data from monkeys are modeled. Such studies provide insight into the emergence of generalized and relational forms of learning from associative experience, and the reasons why organisms—and simulations—may sometimes fail to learn relationally.

Testing Two Transcranial Technologies

Natasha Barrett, Georgia State University
Jonathan P. Gullledge, Lee University
David A. Washburn, Georgia State University

Transcranial Doppler sonography provides a noninvasive measure the brain activity of the left and right cerebral hemispheres. Transcranial Magnetic Stimulation uses pulses of magnetic energy to disrupt neural activity for localization studies. We compare the benefits and drawbacks of each technology for biobehavioral inquiry, illustrating with data from cognitive research.

Psycholinguistic Norms and Naming Latencies for Chinese Characters

Youyi Liu & Hua Shu Beijing Normal University
Ping Li University of Richmond

In this study we present normative data and naming latencies for 2,423 Chinese single-character words. For each word, we report values for the following 15 variables: word frequency, character frequency, phonological frequency, homophonic neighborhood size, age of learning, age of acquisition, number of word formation, number of meaning, number of component, number of stroke, familiarity, concreteness, imageability, pronunciation of phonetic part, and initial phoneme. Factor analysis and multiple regressions show that naming latencies of Chinese single-character words are predicted by frequency, semantics, visual feature, pronunciation of phonetic parts and initial phonemes. These analyses show distinct patterns in word naming between Chinese and alphabetic languages and demonstrate the utility of normative data in the study of non-alphabetic orthographic processing.

Psychonomic Archive of Norms, Data, and Stimuli

Jonathan Vaughan
Hamilton College

Symposium: 2:15-3:45 pm

Conference Room 335 AB

“Digital Video and Artificially Intelligent Multimodal Expert Systems: Training and Teaching Applications in Psychology”

Organizers: Roger Ray and Jessica Ray

Train-To-Code: An adaptive expert system for training systematic observation and coding skills

Jessica M. Ray , University of Central Florida
Roger D. Ray , Rollins College

While systematic observation has long been used as a foundation in scientific inquiry, problems with observer reliability and accuracy are still fundamental concerns in the use of observational data. This paper addresses the development of an adaptive intelligent tutoring system (ITS) designed to teach and calibrate individual observation and coding skills. This system, called “Train-To-Code,” allows an instructor to pair any video and any taxonomy, thereby creating a customized expert training system. An operant response shaping instructional model then utilizes this expert system to provide student training through a series of adaptive levels offering various combinations of prompts and feedback. Data from an initial formative evaluation are presented that demonstrate the effectiveness of the system and that illustrate how data are being used to guide design modifications in the ongoing development process.

Virtual laboratory experiences: Adding artificially intelligent adaptive interactivity to video.

Roger D. Ray, Rollins College
Jennifer S. Queen, Rollins College
Brittany L. Lee Rollins College
Jessica M. Ray, University of Central Florida
Melanie A. Tumlin, Rollins College

Demonstrated effectiveness of active learning processes suggest the need for teaching students to be more interactive within the context of learning scientific methods and processes. Unfortunately, most university learning environments limit laboratory experiences to graduate students or highly selected undergraduates. Computers have been used effectively to simulate the conduct of experiments or experimental participation, including analysis of simulated data, and thus have offered simulations of limited laboratory exercises. But to date, with exceptions such as CyberRat, digital video has very limited use for such purposes. This paper presents the concept of video-based Virtual Laboratory Tours and their use for artificially intelligent adaptive exercises to teach scientific research and communications procedures and skills.

Adaptive computerized tutorial systems: Teaching scientific content and audio-visual comprehension skills simultaneously

Brittany L. Lee, Rollins College
Roger D. Ray, Rollins College
Jennifer S. Queen, Rollins College
Melanie A. Tumlin, Rollins College
Jessica M. Ray, University of Central Florida

An adaptive computerized software system for presenting highly interactive digital video instructional content is described. While the system may incorporate any digital video source material, our present illustration focuses on video-based virtual laboratory visits. The system incorporates an adaptive tutorial strategy extant within a commercially used artificially intelligent adaptive tutoring system called MediaMatrix (Ray, 2004). As with MediaMatrix proper, this audio-visual extension is both an authoring environment and a presentation vehicle that adapts complexity of presentations in real time to changes in a student's current level and rate of learning. Expanding upon MediaMatrix's use of only text-based semantic networks, or concept maps, the present system explores graphic and audio concept properties for incorporation into developing student concept maps.

Respondent/Discussant: Robert G. Morrison, Ph.D. Executive Director, Xunesis

Education and Instruction

2:15-3:55 pm

Conference Room 343 AB

chair: Kay Livesay

2:15 Assessing the format of the presentation of text in developing a Reading Strategy Assessment Tool (R-SAT)

Sara Gilliam	Northern Illinois University	sgilliam@niu.edu
Joseph P. Magliano	Northern Illinois University	jmagliano@niu.edu
Keith K. Millis	Northern Illinois University	kmillis@niu.edu
Irwin Levinstein	Old Dominion University	ibl@cs.odu.edu
Chutima Boonthum	Old Dominion University	cboont@cs.odu.edu

We are constructing a new computerized test of reading comprehension called the Reading Strategy Assessment Tool (R-SAT). R-SAT elicits and analyzes verbal protocols that readers generate in response to questions as they read texts. We examined whether the amount of information available to the reader when reading and answering questions impacted the extent to which R-SAT accounts for comprehension. We found that R-SAT was most predictive of comprehension when the readers did not have access to the text as they answered questions.

2:35 iSTART 2: Improvements for Efficiency and Effectiveness

Irwin B. Levinstein' Old Dominion University
Chutima Boonthum' Old Dominion University, Hampton University'
Srinivasa P. Pillarisetti' University of Memphis
Danielle S. McNamara' University of Memphis

Improvements to educational software focus on improving student experience and reducing burdens for administrators. This is the case with iSTART, a web-based reading trainer that develops students' comprehension by training them to self-explain difficult text. Pedagogical agents present its curriculum interactively, introducing self-explanation, demonstrating a student self-explaining, and coaching trainees in generating self-explanations. Curricular revisions aim at increased interactivity, increased availability of scaffolding, improved feedback, and a less intense but extended regimen. Version 2 also benefits experimenters who can set up and evaluate experiments with less time and effort because pre/post testing has been fully computerized and the process of preparing a text for the practice module has been reduced from over a person-week to about an hour's time.

2:55 Authoring a WikiBook on Cognitive Psychology/Cognitive Neuroscience as an Undergraduate Class Project

Andrej Schoeke, University of Osnabrueck
Imme Roewer, University of Osnabrueck
Franz Schmalhofer, University of Osnabrueck

Can college students learn about cognitive psychology and cognitive neuroscience by authoring their own Wikibook on this topic? Will the resulting Wikibook be useful for other students as well? About 80 students authored such a Wiki-book during the summer semester of 2006 (http://en.wikibooks.org/wiki/Cognitive_Psychology_and_Cognitive_Neuroscience). Similar to the already well-known Wikipedia, Wikibooks is a project of the Wikimedia Foundation for generating free textbooks collaboratively on a website. Wiki means that anyone can edit book modules without their contributions being reviewed before the suggested modifications are accepted. In this presentation, we will describe the educational goals as learning by an interactive knowledge mediation process. We will report the progress as well as the achieved results and our future plans for this project.

3:15 peerScholar: An Online Peer-Evaluation Tool Designed to Return Knowledge-Use Skills to Large Classes

Dwayne E. Paré, University of Toronto Scarborough
Steve Joordens, University of Toronto Scarborough

As class sizes increase it is typical for student assessment to move away from essay or short-answer type assignments and towards multiple-choice questions. While this seems to effectively deal with the problem of generating marks for such large classes, we argue that this shift places emphasis on knowledge-acquisition while de-emphasizing knowledge-use. With this concern in mind we developed a web-based tool called peerScholar that utilizes peer-evaluation as a way to bring back critical thinking and writing skills into large classes. In this presentation we will describe and demonstrate the implementation of peerScholar in our extremely large Introductory Psychology class as well as present some of our preliminary findings from research examining the fairness of peer given grades.

3:35 A Computerized Method for Testing Primate Intelligence Across Species, Ages, and Input Devices

Michael J. Beran, Language Research Center, Georgia State University
Betty Chan, Language Research Center, Georgia State University
Theodore A. Evans, Language Research Center, Georgia State University
Timothy M. Flemming, Dept. of Psychology and Language Research Center, Georgia State University
Emily H. Harris, Dept. of Psychology and Language Research Center, Georgia State University
Emily D. Klein, Language Research Center, Georgia State University
Duane M. Rumbaugh, Dept. of Psychology and Language Research Center, Georgia State University
David A. Washburn Language Research Center, Georgia State University, and Great Ape Trust of Iowa

We assessed learning styles (relational vs. associative) in two monkey species, rhesus macaques and capuchins, using a computerized reversal-learning task called the mediational paradigm. First, monkeys were trained to respond with 90% accuracy on a two-choice discrimination (A+B-). We then examined differences in performance on three different types of reversal trials (A-B+, A-C+, B+C-) as a function of species, age, and response modality (joystick or touchscreen). All

animals performed relatively consistently, with performance most indicative of relational (as opposed to an associative) learning.

4:15-5:15 pm

Conference Room 343 AB

Presidential Address

**Ulf-Dietrich Reips
University of Zurich, Switzerland**

**"Internet-based psychological research.
See more. Do more."**

5:15-5:30 pm

Conference Room 343 AB

Business Meeting

**Minutes of the Annual Meeting of the Steering Committee of the
Society for Computers in Psychology
Wednesday, November 9, 2005**

Overview

1. Opening comments
2. Federation of Behavioral, Psychological, and Cognitive Sciences
3. Secretary report
4. Program Chair report
5. Archive report
6. Website report
8. Expert consulting proposal
9. Other announcements
10. Summary of decisions regarding future conferences

1. Opening comments

President Christopher Wolfe thanked Kay Livesay and Katja Wiemer-Hastings for the organization of the conference and introduced Barbara Wanchisen.

2. Wanchisen

Barbara Wanchisen talked about the functions of The Federation of Behavioral, Psychological, and Cognitive Sciences (FBPCS) to the group and emphasized the importance of researchers being involved in advocating behavioral research. Members of the Federation are lobbying to increase / secure the funding of behavioral research in D.C. Researchers with concerns about funding decisions are welcome to contact Barbara or a Federation representative. Barbara also reported that the NIH funding situation has in the recent past given reasons for concern, but is right now stable. The new NSF director appears to be very supportive of behavioral research and has ensured good funding of the SBE program. [See <http://www.thefederationonline.org> for more information on the Federation.]

3. Secretary Report

Katja Wiemer-Hastings reported a slight decrease in Society finances (down to currently 10,674.50). Key issues to secure future funding of the Society appear to be a substantially decreased number of vendors at the conferences and increased hotel expenses. A key area to explore is website funding to avoid further increases of conference participant fees.

Katja thanked Christopher Wolfe for running the election. She announced the new elected officials: Roman Taraban was elected as the next President-elect; Kay Livesay will take over the post of Secretary-Treasurer, and new members of the steering committee are Curt Burgess and Katja Wiemer-Hastings.

4. Program Chair

Kay Livesay reported that the conference will feature 33 talks, 14 posters, and two symposia, for a total of 58 presentations. Three submissions were rejected, one presentation was withdrawn.

Cyrus Shaol was announced as the winner of the student Castellan Award. The title of his presentation was “Towards a more psychologically relevant high dimensional model of lexical semantics.”

Curt Burgess accepted the post of program chair for the following conference. John Williams was nominated as assistant program chair.

5. Archive

Jon Vaughan reported that the archive attracts a lot of hits, with an average of 130 per day. About 63 files are downloaded daily. This number may be somewhat inflated due to maintenance downloading. Norms were downloaded most frequently. The archive contains both archive materials and the associated articles in PDF format. Both are downloaded frequently.

The archive style sheet was downloaded rarely, which is an indicator that few new submissions are being made to the archive. It is thus important to encourage authors in Psychonomic journals to submit their materials to achieve a steady rate of additions to the archive.

Jon also announced that the Toglia & Battig norms will be added to the archive (pending publisher approval).

6. Website Report

Katja Wiemer-Hastings gave the report on behalf of Xiangen Hu who was unable to attend this year’s meeting. According to Xiangen, the website attracts a lot of hits. Over the past few days before the conference, the website was accessed about 250 times per day. Discussion on the website included two issues: maintenance and improvement.

first, how to organize regular maintenance and improvement of the site. Gary Bradshaw and Peter Foltz agreed to help with updating of individual modules. Suggestions for improvement were unanimously agreed on and included a. reducing the amount of information presented on the site, b. placing important links in a salient position (e.g., registration), and c. making sure that links are accessible to any viewers.

Given the high traffic on the website, it was agreed that improvement of the site should be a priority for the committee for the next year. Pending changes include the above mentioned suggestions for improvement, as well as setting up the logo links for our current vendors (PST, Empirisoft, and Mary Ann Liebert Inc.).

Further discussion items were the possibility of Kay Livesay’s husband, who is a professional web designer and user interface designer, to set up a webpage for the Society to be maintained for free and with easy access for committee members.

8. Expert consulting

Christopher Wolfe proposed officially launching the expert consulting program on the SCiP Website. The immediate Society benefits are increased visibility and more value for Society membership. The proposal was voted on and passed unanimously. Christopher Wolfe volunteered to manage the program; John Krantz and Ulf Reips volunteered to function as (first) experts.

9. Other announcements

Katja Wiemer-Hastings proposed hosting an integrated lunch buffet and poster session at future conferences. One way to make this happen is to add the lunch price to the general registration cost; a more flexible option (but more tedious to track for the Secretary) is to include the lunch buffet as an option for attendees. The idea of the integrated session was generally received positively. Benefits of the

session include a. time for attendees to talk and interact, b. higher attendance at posters, c. having conference participants “back” on time from lunch, and d. more time for scheduled sessions.

Katja Wiemer-Hastings also asked the members of the committee to listen for feedback regarding the reduction to two parallel sessions.

Further discussion items were the possibility of bringing university-owned projectors to future meetings to reduce the costs. Katja Wiemer-Hastings offered to check with the conference organizers at Conferon whether the conference hotels permit use of personal equipment at the conference.

The option of moving the conference to a local University was raised again; the key advantages would be the reduced expense and easier AV set-up. However, many members felt that dissociating SCiP from the main Psychonomic Meeting would substantially reduce the visibility and attendance of the meeting.

Ideas were discussed how to advertise the diversity of the conference more effectively:

- Inviting authors of BRM to submit papers to SCiP (requires access to email list)
- Clear mission statement on webpage
- Organizing theme sessions / symposia by contacting specific researchers (ideas: computer assessment, gaming)
- Send out / post program outline earlier to invite participation

10. Summary of decisions regarding future conferences:

There was strong consensus to

- Have the program decided on earlier to advertise it effectively
- Advertise the program widely (web posting, email lists)
- Limit the program to two parallel sessions
- Offering a lunch buffet (included in registration) during the poster session

Respectfully submitted by Katja Wiemer-Hastings
SCiP Secretary-Treasurer

**Minutes of the Annual Business Meeting of the
Society for Computers in Psychology
Thursday, November 10, 2005**

1. Barbara Wanchisen (The Federation of Behavioral, Psychological, and Cognitive Sciences) encouraged active participation of SCiP members in the activities of the Federation of BPCS. Joseph Young volunteered to be the Society's local representative in Washington D.C. This offer was accepted with unanimous approval and applause.

[See <http://www.thefederationonline.org> for more information on the Federation.]

2. Katja Wiemer-Hastings (Secretary-Treasurer) reported a slight decline in finances over the last year and suggested increased hotel costs and decreased support by vendors as two important factors. This year's conference attracted about 80 registered attendees, which is somewhat down from last year. The suggestion was made to offer a lunch buffet during the poster session at subsequent conferences. This suggestion was received positively. Finally, the new elected officers were announced: Roman Taraban was elected as the President-Elect; Kay Livesay was elected new Secretary-Treasurer, and Curt Burgess and Katja Wiemer-Hastings were elected to serve on the Steering Committee.

3. Kay Livesay (Program Chair) reported that the conference featured 33 talks, 14 posters, and two symposia. Three submissions were rejected, one presentation was withdrawn. Cyrus Shaol was announced as the winner of the student Castellan Award. The title of his presentation was "Towards a more psychologically relevant high dimensional model of lexical semantics." Curt Burgess (UC Riverside) was announced as the program chair for the 36th Annual Meeting, and John Williams (UNI) as the assistant program chair.

4. John Krantz (BRM Editor) reminded participants to submit their SCiP presentations to the journal. He extended the deadline for submissions to November 21.

5. Katja Wiemer-Hastings (Secretary-Treasurer) reported on behalf of Jonathan Vaughan that the Psychonomic Society Archive is being used regularly, and that authors submitting to the journals of the Psychonomic Society are strongly encouraged to submit eligible materials to the archive to achieve a stable rate of additions.

6. Katja Wiemer-Hastings (Secretary-Treasurer) announced that the steering committee has decided to significantly improve the Society website in the coming year to make it up-to-date and substantially more user-friendly.

7. Christopher Wolfe (President) announced the decision of the steering committee to establish a new service of the Society. An database will be constructed on the Society web page, where Society members with specific areas of SCiP relevant expertise can offer consultant services.

8. Christopher Wolfe (President) officially handed over the presidency to Ulf Reips, who is the first international Society member to assume this position.

Respectfully submitted by Katja Wiemer-Hastings
Secretary-Treasurer



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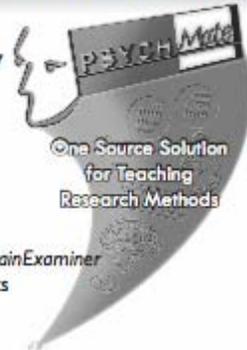


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