Technology and Teaching Writing for Academic Disciplines

October 18-19, 2013

Iowa State University

Ames, Iowa

Website: http://apling.public.iastate.edu/TSLL/2013/

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CONFERENCE SCHEDULE

Friday, October 18th, 2013	
Conference Session *(Pioneer Room, Memorial Union)*	
1:00pm - 3:00pm	PRE-CONFERENCE WORKSHOP The trouble with Toulmin for teaching argument in science **Heather Graves,** *University of Alberta*
3:00pm - ongoing	REGISTRATION
3:45pm - 4:00pm	Welcome by **Dr. Elena Cotos**, *Iowa State University*
4:00pm- 4:30pm	Dynamic intertextuality: The use of digital tools and texts by L2 writers in a university Spanish literature class **Elizabeth Deifell**, *The University of Iowa*
4:30pm - 5:00pm	Empowering CALL with Biometrics: Eye-tracking and key-stroke logging **Evgeny Chukharev-Hudilainen**, *Iowa State University*
Poster Session *(Oak Room, Memorial Union)*	
5:00pm - 6:00pm	Development and validation of a self-regulated learning questionnaire for AWE-supported ESL classes **Jim Ranalli**, **Kadir Karakaya, Zhi Li**, & **Hyejin Yang**, *Iowa State University*
	IEP student use and attitude toward L1 feedback in AWE **Jayme Wilken**, *Iowa State University*
	What are the students doing? Small group interaction in collaborative writing via Google Docs and text chat **Hyeyoon Cho**, *OISE, University of Toronto*
	A comparative study of the change of text quality and communicative strategies with the use online discussion boards and Google doc **Jing Xia**, *University of Michigan*
5:30pm - 7:00pm	RECEPTION *(Oak Room, Memorial Union)*

Saturday, October 19th, 2013	
Conference Session ***(Gallery Room, Memorial Union)***	
8:30am - 9:00am	REGISTRATION (Refreshments)
9:00am - 10:30am	PLENARY Corpus-based approaches to language description for specialized academic writing **Dr. John Flowerdew**, *City University of Hong Kong*
10:30am - 11:00am	BREAK
11:00am - 11:30am	Intradisciplinary variation and subregisters of academic research articles: Implications for corpus design **Bethany Gray**, *Iowa State University*
11:30pm - 12:00pm	Inter-annotator reliability for a discipline-specific AWE tool: The case of Research Writing Tutor (RWT) **Aysel Saricaoglu**, & **Elena Cotos**, *Iowa State University*
12:00pm - 1:00pm	LUNCH
1:00pm - 1:30pm	Stance adverbials in English learners' writings and published academic journals **Hong Ma**, *Iowa State University*
1:30pm - 2:00pm	Stance adverbs in book review genre **Ngan Vu**, *Iowa State University*
2:00pm - 2:30pm	Mismatched needs between EFL engineering faculty and graduate students: A case in Taiwan **Hui-Hsien Feng**, *Iowa State University*
2:30pm - 3:00pm	BREAK
3:00pm - 3:30pm	What do students write in engineering classes? **Leslie Potter**, *Iowa State University*
3:30pm - 4:00pm	The a model of argument structure in thesis introductions in science-based disciplines **Heather Graves,** *University of Alberta*
4:00pm - 4:30pm	Research discourse in engineering **Elena Cotos**, **Sarah Huffman**, **Stephanie Link**, & **Todd Paben**, *Iowa State University*
4:30pm - 4:45pm	CLOSING REMARKS **Dr. Carol Chapelle**, *Iowa State University*
Reception ***(Lower Lounge, St. Thomas Aquinas Catholic Church, across Memorial Union)***	
5:00pm - 7:30pm	Dinner

ABSTRACTS

(Friday, Oct 18; 1:00pm - 3:00pm; Pioneer Room, Memorial Union)

PRE-CONFERENCE WORKSHOP

The Trouble with Toulmin for Teaching Argument in Science

Heather Graves, *University of Alberta*

In this 1 ¾ hour workshop on teaching argument in science, I will start with an overview of the results of a small study of the structure of argument in 10 theses and dissertations in four areas of science (physics, chemistry, microbiology, and geology, n=40). This study identified two new structures of argument not previously discussed in the literature of argument (rhetoric/writing studies): indirect and cumulative. This overview will summarize the main features of these types of argument to identify how they differ from the general understanding of argument that provides the foundation in books on teaching writing to graduate students including Kamler and Thomson's *Helping Doctoral Students Write*. Next I will present several models of indirect argument structure that I've developed based on samples of argument in the Introduction sections from the thesis analysis.

In the second part of this workshop, I will review the ways in which I have incorporated these findings into my writing classes—a writing class for first-year science majors and a graduate class in writing for professional and academic success (open to any graduate student). In this part I will present the sequence of assignments that I've developed to help the undergraduate students understand the differences between writing arguments that they learned in their high school English classes and how scientists construct their arguments. I will also discuss the implications of my research for teaching argument at the graduate level, how I have integrated this information into the class that I teach, and what some of the graduate students in my classes have discovered about how arguments are structured in their disciplines that will guide my future research in this area.

Participants in this workshop will have opportunities to discuss further the implications of this research for teaching writing in STEM disciplines in general, for their own teaching practices specifically, and they can take away copies of whatever of the teaching material presented in the workshop seems relevant and useful to their particular situation.

(Friday, Oct 18; 4:00pm - 4:30pm, Pioneer Room, Memorial Union)

Dynamic intertextuality: The use of digital tools and texts by L2 writers in a university Spanish literature class

Elizabeth Deifell, *The University of Iowa*

This naturalistic exploratory study of the academic writing activity of L2 writers enrolled in an introductory Spanish literature course reveals the complex dynamicity of lookup behavior and the individual nature of engagement with digitally mediated tools and texts. A close examination of autonomous learner behavior during authentic tasks broadens our understanding of language use to inform teaching practice (Godwin-Jones, 2012).

The writing task, a 300-word essay reacting to a literary text, designed for communicative practice rather than for mastery of a genre, required students to upload a Microsoft Word document to the course management system's dropbox, thus necessitating their engagement with multiple digitally mediated resources. Participants completed the assignment outside of class in a computer lab, where data were collected from an etic and emic perspective and included field notes from observation and from screen recordings followed by a stimulated recall session and semi-structured interview about the participants' use and perception of digital resources.

Findings show that these students employed many strategies with a variety of resources, including online dictionaries, translators, and original and translated texts, when experiencing a lexical gap while writing. A close examination of second language writers' intertextual engagement with the affordances provided by these digitally mediated resources through an analytical frame informed by Complexity Theory (Larsen-Freeman and Cameron, 2009) reveals varied manners of engagement especially with Google Translate and Microsoft's Autocorrect, which, according to the participants, are rarely addressed by language instructors. Pedagogical implications, including the need to start where students are, will be discussed.

(Friday, Oct 18; 4:30pm - 5:00pm, Pioneer Room, Memorial Union)

Empowering CALL with Biometrics: Eye-Tracking and Key-Stroke Logging

Evgeny Chukharev-Hudilainen, *Iowa State University*

It is hard to overestimate the current need for highly efficient learning and assessment tools in CALL. In the present proof-of-concept paper, we argue for the usefulness of incorporating biometrics, such as eye-tracking and key-stroke logging, into newly developed CALL tools. Biometrics have been widely employed in psycholinguistic research, but their applications in CALL remain almost inexistent.

We present the results of two small-scale studies. In one of them, based on experimental data collected in diverse real-life educational settings, we were able to demonstrate that latency time in the lexical decision task is a good predictor of the language learner's knowledge of vocabulary. With a database of written naming norms in a number of European languages being collected at this time, incorporating typing latency and inter-keystroke interval analysis into vocabulary and writing assessment sounds increasingly promising. Based on our findings, a lexical decision activity has been implemented in a production vocabulary learning tool.

In the second pilot study, we have shown that automated eye-tracking can provide useful data about the student's receptive language knowledge. Specifically, certain patterns of eye movements indicate difficulties that the student experiences while reading, such as unknown vocabulary or grammatical structures. Our findings suggest that it should be possible to develop an automated CALL tool capable of providing useful feedback to the student and their language teacher by analyzing the student's eye movements.

(Friday, Oct 18; 5:00pm - 6:00pm, Oak Room, Memorial Union)

Development and validation of a self-regulated learning questionnaire for AWE-supported ESL classes

Jim Ranalli, *Iowa State University*

Kadir Karakaya *Iowa State University*

Zhi Li, *Iowa State University*

Hyejin Yang, *Iowa State University*

A concept of self-regulation in educational psychology has been developed to explain the ways learners initiate, evaluate and adapt their learning behaviors to achieve desired goals for learning. Key ideas in self-regulated learning (SRL) include self-efficacy beliefs and goal orientation. Previous research revealed that highly self-regulated students performed better than less self-regulated students in writing classes (Cumming & Riazi, 2000). Recent years witness an increased use of automated writing evaluation (AWE) systems due to instant feedback and scoring functions. Feedback in SRL is one of the key elements that characterizes many models of self-regulation. However, SRL in the context of ESL classes with AWE system has not been researched. This study aims to develop and validate a questionnaire of SRL for ESL students in AWE-supported writing classes at a large Midwestern university. Drawing on previous studies on self-regulation strategies, goal orientation, and technology use (Cumming, Kim, & Eouanzouki, 2007), we developed and piloted a questionnaire of SRL, which consists of 51 6-point Likert-scale items addressing three major constructs. In the spring semester of 2013, the questionnaire was administered to ESL writing classes. Exploratory factor analysis (EFA) was conducted to explore the construct measured by the questionnaire. After constructing a model based on the literature and the findings from EFA, confirmatory factor analysis was employed to validate the questionnaire through model fit analysis. Results of the analyses indicate that this questionnaire measures the targeted constructs with a high reliability. Follow-up research will focus on the mediating effect of AWE on ESL learners' SRL.

(Friday, Oct 18; 5:00pm - 6:00pm, Oak Room, Memorial Union)

IEP student use and attitude toward L1 feedback in AWE

Jayme Wilken, *Iowa State University*

Learner attitudes and use of L1 glossed feedback in Criterion®, an automated writing evaluation program, were investigated in an intact IEP classroom setting. In this 4-week mixed-methods study, students used Criterion write and revise short essays and responded to weekly surveys. In addition, semi-structured interviews and screen capture video were used with two focus subjects. In weeks 1 and 3, the students received English-only feedback and in weeks 2 and 4, the students also received feedback in their L1 as well. Open coding was used for analysis (Esterberg, 2002).

The students showed a positive attitude toward the tool in general, toward noticing of errors (Long, 1998), and toward the autonomy that they felt L1 glosses provided. However, while recognizing a need for translations, they believed that the L1 (Liao, 2006) should only be allowed for low-level learner use. The findings on writing on holistic scores, submission rates, word counts, and time spent were mixed. Holistic scores and words counts were higher and showed weekly gains with the L1 while the time spent and submission rates both went down in the first L1 week, but were highest in week 4. Writing, of course, is a highly complex task, and for these low proficiency learners who have not yet matriculated into the university, the L1 in AWE may prove to be a helpful tool (Atkinson, 1993; Storch & Wigglesworth, 2012) especially in the areas of motivation and autonomy.

(Friday, Oct 18; 5:00pm - 6:00pm, Oak Room, Memorial Union)

What are the students doing? Small group interaction in collaborative writing via Google Docs and text chat

Hyeyoon Cho, *OISE, University of Toronto*

With the emergence of Web 2.0, wiki collaborative writing has been recognized as a growing research area (Storch, 2011). While previous studies focused on exploring the effectiveness of wikis (Lee, 2010) and reporting teachers' and students' perceptions of using wikis (Franco, 2008), fewer studies have investigated group dynamics/interaction during wiki collaborative writing (Kost, 2011).

Motivated by these research gaps and sociocultural theory informing the use of pair/small group work in second language (L2) writing classes (Swain, 2000, 2010), this study focuses on adult ESL learners' synchronous collaborative writing by examining how interaction patterns facilitate and/or constrain them from achieving their task goals.

Three groups of three were recruited from an English debate club where ESL speakers meet voluntarily to practice English communication skills. Each group worked on three summaries of the debate by using first Google Docs and text chat, and then Google Docs and voice chat. For the third set of summaries, they chose what they preferred to use. The collaborative writing activities were screen recorded. After the tasks, participants performed stimulated recalls to see what they were thinking about others' comments on the tasks.

Learners' individual goals were identified from survey responses. Then, types of interaction patterns were categorized by adapting Storch's (2002) dyadic interaction model (e.g., expert-novice pattern). Influences of learners' goals on interactions and vice versa were investigated by analyzing the qualitative data (surveys, stimulated-recalls). This presentation will focus on reporting preliminary results on one of the groups' collaborative writing via Google Docs and text chat.

(Friday, Oct 18; 5:00pm - 6:00pm, Oak Room, Memorial Union)

A comparative study of the change of text quality and communicative strategies with the use online discussion boards and Google doc

Jing Xia, *University of Michigan*

This study examines the change of written quality and communicative strategies resulted from the use of two applications—the asynchronized discussion board and the synchronized Google doc—in two first-year composition classrooms. As language learning is best facilitated through social interaction, computer mediated classrooms are considered especially helpful as it creates a virtual learning community (Beauvois, 1992; Gonzalez-Bueno, 1998; Kern, 1995). Two main types of technology are available: the asynchronized technology (e.g. blogs, discussion boards) which allows users to respond to other's texts easily and the synchronized technology (e.g. wiki, Google doc) which gives all users the right to edit, delete or modify contents. It is not clear how these techniques will affect multilingual writers' writing and communication.

Two multilingual writing classes participated. In the first project, they wrote a response individually and then discussed it with their group members through an electronic medium (one class used Google doc and the other used discussion board). This process was repeated once with a different writing prompt. All group communications were online. Students also wrote a reflection in the end.

Written text quality as well as communication strategies were analyzed. Students' second individual texts were superior to the first in areas where the online group discussion has addressed; their reflection revealed the increase of communicative knowledge; the two mediums are expected to affect group discussion differently, with the Google doc being more efficient to produce the final group text, and the discussion board eliciting more participation from each student.

(Saturday, Oct 19; 9:00am - 10:30am, Gallery Room, Memorial Union)

PLENARY

Corpus-based approaches to language description for specialized academic writing

Dr. John Flowerdew, *City University of Hong Kong*

Language description is a fundamental requirement for second language program design, including for specialized academic writing, which is the theme of this conference. Great advances in language description have been made in recent decades with the use of electronic corpora and this will be the focus of this talk. In this presentation, I will begin by reviewing some of the most significant corpus-based work of relevance to specialized academic writing. I will then talk about my own early interactions with corpus-linguistics techniques in the context of an English for Specific Purposes (ESP) course. Finally I will describe some of my recent work with academic corpora, discussing some of the issues and challenges of this work and how these challenges have been/are being addressed.

(Saturday, Oct 19; 11:00am - 11:30am, Gallery Room, Memorial Union)

Intradisciplinary Variation and Subregisters of Academic Research Articles: Implications for Corpus Design

Bethany Gray, *Iowa State University*

Research documenting the linguistic characteristics of academic research articles often acknowledges that linguistic variation occurs along disciplinary lines, yet very little questions the definition of 'research articles' as a single register. Very little corpus-based research investigates the types of journal articles published within and across disciplines and how the use of linguistic features varies accordingly. In reality, the differing nature of research within and across disciplines may be leading to substantial linguistic variation not being captured by the studies that have been conducted to date. In fact, little research even systematically accounts for such variation in the corpus design, which has implications for corpus representativeness and the subsequent usefulness in applying findings to teaching materials and tools.

The purpose of this presentation is to illustrate that linguistic variation occurs both across and within disciplines, and that such variation can be related to systematic differences in types of research articles (sub-registers). The presentation will focus on selected results from four case studies spanning a range of linguistic levels: overall rhetorical structure, syntactic complexity (with a focus on clausal versus phrasal complexity features), the linguistic marking of epistemic stance, and pronoun use. These corpus-based analyses are based on a corpus of 270 research articles (c. 2 million words) that represents three different research types (theoretical, qualitative, and quantitative) in six disciplines (Philosophy, History, Political Science, Applied Linguistics, Biology, and Physics).

The findings are discussed in relation to corpus design, supporting the argument that future corpus-based studies of disciplinary writing should pay greater attention to corpus composition and the representation of sub-registers of research articles in order to better inform discipline-specific teaching materials and tools.

(Saturday, Oct 19; 11:30am - 12:00pm, Gallery Room, Memorial Union)

Inter-annotator Reliability for a Discipline-Specific AWE Tool: The Case of Research Writing Tutor (RWT)

Aysel Saricaoglu, *Iowa State University*

Elena Cotos, *Iowa State University*

Reliability has always been a central issue in the assessment of writing. With the emergence of computer-based assessment, this issue has been transmitted to automated writing evaluation (AWE) technology. In automated formative assessment, reliability often depends on the coded training data; therefore, it is crucial to validate the coding schema at an early stage of AWE development. One way for reliable AWE training data preparation is to test the effectiveness of the schema and its interpretation by the annotators via continuous calibration throughout the annotation process (Scott & Reynolds, 2010). However, research on how AWE tools are trained for reliable formative assessment is lacking. To address this gap, in our longitudinal mixed-methods study we explore inter-annotator reliability of coding training data for the Research Writing Tutor (RWT). This AWE program analyzes research articles and provides individualized formative feedback for learners from different disciplines (Cotos & Huffman, 2013). Our quantitative analysis of annotated texts revealed high reliable estimates both at the move and step level in different disciplines throughout the annotation process. The qualitative analysis of audio-recordings of the calibration meetings and semi-structured interviews with the annotators indicated that there were both annotator-related and discourse-related factors that may have decreased or increased the reliability. In our discussion, we report important practical implications for developing reliable automated formative assessment tools.

(Saturday, Oct 19; 1:00pm - 1:30pm, Gallery Room, Memorial Union)

Stance Adverbials in English Learners' Writings and Published Academic Journals

Hong Ma, *Iowa State University*

This study intends to investigate stance adverbs, which refer to adverbials that "overtly mark a speaker's or writer's attitude to a clause or comment about its content", such as obviously, definitely and so on (Biber, Conrad & Leech, 2007), since the use of stance adverbs "is very useful in structuring written discourse" (Lewis, 1993, p139).

Firstly, to identify the differences between international students and published academic writers in terms of their use of stance adverbs, the academic journals from the Corpus of Contemporary American English (COCA) and the International Corpus of Learner English (ICLE) are compared in terms of the frequencies of stance adverbials and their textual context.

Secondly, a series of widely circulated grammar textbooks for ESL/EFL students is examined on its coverage and presentation of stance adverbials.

(Saturday, Oct 19; 1:30pm - 2:00pm, Gallery Room, Memorial Union)

Stance adverbs in Book Review Genre

Ngan Vu, *Iowa State University*

As part of academic writing, book reviewing has not received much attention until recently (Babaii & Ansary, 2005; Motta-Roth, 1995; Nicolaisen, 2002; Nodoushan & Montazeran, 2013). The heavy focus on move structure and lack of investigations into lexico-grammar and text patterning in previous studies render a need to conduct a study into lexico-grammatical features of the book review genre. Among various linguistic features, stance adverbs, a category of stance adverbials, can well contribute to evaluative language of the book review genre. Using a corpus of more than 500,000 words, collected from 250 full-length book reviews in Applied Linguistics, I investigate reviewers' use of stance adverbs in their evaluation of scholarly works by quantitatively examining occurrences, sentential positions and rhetorical functions of stance adverbs across semantic categories (i.e., epistemic, attitudinal, and style). The results revealed that epistemic adverbs occurred most frequently and a majority of all stance adverbs occurred in medial positions. Regarding rhetorical functions, epistemic and attitudinal stance adverbs were distributed in all four moves, and most frequently in Move 2 (Outlining the book) and Move 3 (Highlighting parts of the book), while style adverbs did not occur in Move 1 (Introducing the book). A step-level analysis indicated that book reviewers most commonly used epistemic and attitudinal stance adverbs to state topics of each chapter, and to provide focused evaluation. The implications of these results for book reviewers to manage their academic discourse are discussed.

(Saturday, Oct 19; 2:00pm - 2:30pm, Gallery Room, Memorial Union)

Mismatched needs between EFL engineering faculty and graduate students: A case in Taiwan

Hui-Hsien Feng, *Iowa State University*

English, as a Lingua Franca (Hülmbauer, HBöhringer, & Seidlhofer, 2008), has influenced the communication in academia. For example, engineering graduate students in Taiwan, despite living and studying in a Chinese-speaking environment, are commonly required to write theses, dissertations, and international journal/conference publications in English. Only a few studies have examined the EAP instructional needs of EFL engineering graduate students (Cho, 2009) or developed curriculum accordingly (Kaewpet, 2009). However, no studies have explored the needs of non-English majors in Taiwan EFL context. The purpose of this study is to investigate the needs of Taiwanese graduate students in engineering majors from both faculty's and graduate students' perspectives. Participants were five Taiwanese engineering faculty and thirty Taiwanese graduate students in a Taiwanese university. Multiple sources of data were collected for triangulation (Long, 2005) through various instruments: semi-structured interviews, surveys, document analyses, and ethnographic observations. The findings show that Taiwanese graduate students must complete a thesis/dissertation to meet their graduation requirements. Publishing international journal articles and presentation in international conferences depend on individual faculty members and "laboratory tradition." On the other hand, only when presenting in conferences and facing foreign faculty members, speaking and listening in English are necessary. Interestingly, while faculty prioritizes the abilities of writing and reading in English, the graduate students prefer to improve their listening and speaking skills. These valuable insights from engineering faculty and graduate students are the best directions for EAP curriculum design. The technology use in teaching and the feasibility of course development will be discussed in the presentation.

(Saturday, Oct 19; 3:00pm - 3:30pm, Gallery Room, Memorial Union)

What Do Students Write In Engineering Classes?

Leslie Potter, *Iowa State University*

Knowledge of the genres of writing that are required in engineering classes is critical for the design of effective discipline-specific writing instruction. This presentation will show examples of the genres of writing (e.g., proposal, milestone report) that students engage in during an undergraduate program in Industrial and Manufacturing Engineering at Iowa State University. I will explain the role of writing for engineering accreditation, describe how the writing assignments are chosen to help students to become engineers, and point out some of the challenges that students face in completing the writing assignments from the perspective of the engineering faculty.

(Saturday, Oct 19; 3:30pm - 4:00pm, Gallery Room, Memorial Union)

A Model of Argument Structure in Thesis Introductions in Science-based Disciplines

Heather Graves, *University of Alberta*

Current models of argument are based on studies of law (Toulmin & Jonsen 1988; Perelman & Olbrechts-Tyteca 1969), academic discourse (Swales 1990, 2004; Hyland 1998; Mitchell and Andrews 2000), and literature (Burke 1968): in these models argument is a claim followed by reasons/evidence (Toulmin 1958), which identifies a microstructure. The 1990 and 2004 CARS model (Swales) provides a framework for cataloging the broader structure (or macrostructure). These models assume the validity of evidence based on beliefs, values, and assumptions shared between writer and reader (Toulmin 1958; Pereman/Olbrechts-Tyteca 1969), an assumption that extends across fields that debate ethics, theory, and philosophy (e.g., literature, philosophy, education, history) (Giltrow 2002; Stockton 1998; Kamler & Thomson 2006; Ramage *et al* 2009; Killingsworth 2005). But does this model still function in fields where beliefs, values, and assumptions are secondary to the claims? In chemistry, for example, data, experimental methods, and shared understanding of the science—not shared *values*—form the basis for argumentative claims (of course, chemists share assumptions about "good" results, but a "good" explanation rests not on the value itself but on the logic of the explanation).

This presentation draws on findings from an analysis of 10 graduate theses (master's & doctoral) from chemistry, physics, and microbiology (total of 30) to demonstrate how a focus on data, experimental methods, and logical analysis re-shapes the structure of argument in these fields. I will characterize the main features of the argument structure used in these fields (i.e., indirect argument), and I will present a model of how arguments are constructed from published literature in the field in the Introduction sections using a selection of theses examined in the study.

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(Saturday, Oct 19; 4:00pm - 4:30pm, Gallery Room, Memorial Union)

Research discourse in Engineering

Elena Cotos, *Iowa State University*

Sarah Huffman, *Iowa State University*

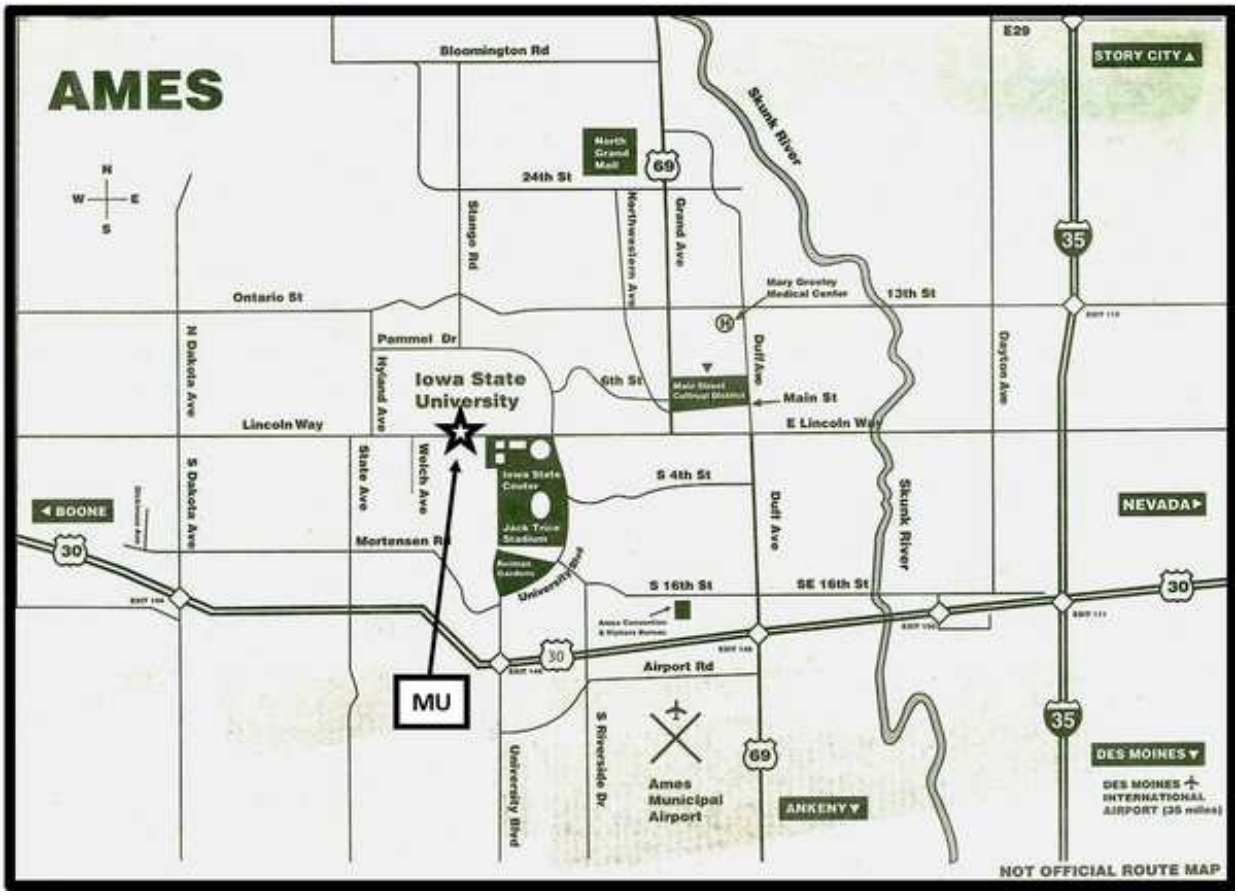
Stephanie Link, *Iowa State University*

Todd Paben, *Iowa State University*

The research article (RA) genre has evolved from socio-disciplinary interactions that institutionalize the writing conventions of discourse communities. EAP has widely adopted this genre in the teaching of discipline-specific writing, employing Swales' (1981, 1990) framework of moves, or communicative acts intended to achieve specific communicative objectives. Swales' seminal work has generated a wealth of research and analytic frameworks that help practitioners teach students how to shape the structural and rhetorical organization of RAs. However, existing frameworks are descriptive mainly of individual disciplines and do not allow for cross-disciplinary generalizations, which are needed in L2 writing classes with students from various disciplines. Comprehensive cross-disciplinary examinations of the RA are necessary to fully conceptualize this genre and to further elaborate on potential pedagogical implications and technology-enhanced applications. Therefore, the purpose of our study was to develop and validate a cross-disciplinary move/step schema descriptive of IMRD-structured RAs. Having compiled a corpus of 900 articles in 30 academic fields, we conducted a top-down analysis (Biber, Connor, & Upton, 2007) assuming a functional-semantic focus that resulted in a move/step schema for each RA section. The newly-devised schemas were then applied to the annotation of the corpus, the analysis of which, along with expert evaluation, provided evidence supporting their applicability within and across disciplines. We will use three Engineering disciplines as examples to share specific findings, particularly focusing on the linguistic realizations of rhetorical functions, and to show how they are applied to automated discourse analysis and formative feedback on student RA writing.

MAPS

Directions to the Memorial Union



Conference Session: ***Pioneer Room & Gallery Room (Memorial Union)***

Poster Session: ***Oak Room (Memorial Union)***

Reception (Dinner): ***Lower Lounge, St. Thomas Aquinas Catholic Church (across the Memorial Union)***