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# Modeling Student Authorship: The Rhetoric of Markup in the Writing Classroom

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This poster reports on research that examines the use of XML markup for student authoring, a marked shift from the mimetic roots of XML and its primary use in digital humanities research, the TEI. Thus far, two courses have been taught with a total enrollment of 35 students (19 students in advanced writing for the technical professions, Summer 2016; 14 students in first-year writing, Fall 2016). The research questions are: How does markup function rhetorically when used for authorship? Does writing in XML and designing schemas for authoring contribute to students' understanding of their writing and reading processes? Do reading and writing practices in the markup classroom transfer to other contexts?

These research questions present unique methodological concerns for the study of markup. How can we make claims about the rhetorical and expressive capacities of *authorial* markup? How can we better understand the role of the schema, the markup, and the platform(s) in students' writing, reading, and thinking processes? In short, how do we study this? These questions will animate the presentation of preliminary results, the subject of the poster.

There has been considerable interest in the semantics of markup languages at recent TEI (Ciotti & Tomasi, 2014; Eide, 2013) and DH conferences (Sperberg-McQueen Marcoux, & Huitfeldt, 2010, 2014), most of which has centered around formal approaches to modeling semantics to explicate the meaning of markup (Sperberg-McQueen, Huitfeldt, & Renear, 2000). A related thread of markup research has examined the rhetorical and expressive capacities of markup (Flanders, 2004; Flanders & Fiormonte, 2007), growing out of an understanding of markup as not merely descriptive, but also interpretive and, indeed, performative (Renear, 2000). Though

Wernimont and Flanders (2007) have discussed the potentials of authorial markup to expand our shared notions of scholarly communication, markup in this authorial realm remains rarely used (one exception being the work of Desmet et al., 2005) and even more rarely studied in a systematic way. This poster will present preliminary results from just such an attempt—a sustained study of an experimental approach to XML as a technology for the production of texts.

The production of texts, in this case, was undertaken by two cohorts of undergraduate students. In addition to writing their assignments in XML (using Oxygen), these courses engaged students in a semester-long, collaborative writing project: the design and implementation of a custom XML schema that structurally and rhetorically models a range of genres of writing. Pedagogically, this approach aims to foster the close attention and metacognition often cited in classroom-oriented uses of XML/TEI (e.g., Singer, 2013; Conatser, 2013). Where this approach to markup differs from earlier uses, however, is in the thoroughly bottom-up, data driven approach to schema design (Piez, 2001). Students begin with a (basically) bare schema and—iteratively and deliberately over the course of an entire semester—design and revise the schema for a range of writing tasks using document analysis and modeling, qualitative writing research methods, and their own experiences of authorship.

To research these classes, I employed a teacher research methodology—a systematic approach to data collection that **honors the inside perspectives of teachers and students**—that adapted qualitative research methods culled from ethnography, education, and writing studies research. Data was gathered from direct participant observation, reflective journaling, qualitative interviews (three interviews each with nine case study students), survey, and the collection of student writing (normal prose and XML, including version control logs for all XML files). Teacher research foregrounds and honors the experiences and perspectives of students as they compose; thus, the particular methods deployed in this study concern writing as a process, rather than as a static product. This methodology aligns with research in rhetoric and writing studies, which, fundamentally, understands “writing (and broader rhetorical practice) as a verb rather than a noun” (McNely and Teston, 2015: 115).

Preliminary results from the study speak to 1) how students develop and operationalize genre knowledge; 2) the rhetorical constraints and affordances of schema design as collaborative writing; and 3) markup's reported intervention into students' thinking and writing processes.

This poster frames this research study as a case study, a demonstration of the kinds of insights that systematic, qualitative research into markup can foster. It aims to organize the audience around a series of questions, including: How are rhetorical theories pertinent to our examination of DH tools and methods, particularly those of data modeling and representation? How does the study of student writing/authorship necessitate a willingness to invent methods sensitive to, and emergent from, particular sites of research? What methodological (re)orientation does an expansion of our disciplinary objects of inquiry require? These questions are best explored interactively, through the dynamic presentation of data generated through this research, and an exploration of the opportunities and limitations of this qualitative approach to markup research.

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