Liminality and Transition: Text Features in Postsecondary Student Writing

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Framed by research on liminality, transition, and knowledge adaptation across writing contexts, this longitudinal study examines defined text features of postsecondary student writers as they move between a first-year writing course (focused on developing the rhetorical flexibility students need for academic success) and a first-year seminar (intended to gesture toward disciplinary writing perspectives while still focusing on first-year needs). Using a descriptive, single case study design with three replications, the sampling plan includes 156 students and 636 text samples. Texts were reliably hand-coded for the 7 text features and 38 accompanying facets ($\kappa = .78$). Through use of generalized estimating equations, the design thus allows for granular analysis of the rhetorical moves that students make across courses. In terms of the text features and their facets, statistically significant differences are present in each replication as students move between the two courses and meet different writing expectations; these shifts are underscored by documented reoccurrence, or not, of the features and their facets between courses. Additionally, correlation analysis provides a relational study of rhetorical moves that students make. The study suggests the need for extensive ongoing empirical research on textual features to deepen our understanding of student writing in terms of noticeable rhetorical differences in defined writing features, the transitions our students make in their texts as they work with articulated learning objectives, and the reuse or adaptation of learning that occurs across disciplinary settings.

Introduction

In the context of US higher education, the move from generic introductory writing courses to writing courses in disciplinary contexts can be a powerful writing transition—a liminal space in which individuals create just-noticeable differences in moving across intermediate and ambivalent contexts. The study of writing knowledge "transfer"—how that which was learned in one situation might be reused, adapted, or transformed in others—has a richly evolving tradition in writing studies research, beginning with the work of Marilyn Sternglass (1993) and continuing through current research by scholars such as Anne Beaufort (2007), Rebecca Nowacek (2011), and Jenn Fishman and Mary Jo Reiff (2008). Closely related to transfer is the study of transition—literate engagements within and

beyond the academic community—exemplified in recent landmark studies by Kevin Roozen (2009), Christiane Donahue (2010), or Angela Rounsaville (2017). With small sample sizes allowing for detailed analysis, these studies have enabled researchers to theorize how learning occurs and to target behaviors and attitudes associated with successful language use across contexts.

Benefitting from such studies, the study reported here considers a microcosm of this transition as seen in defined textual structures obtained as students moved from a general first-year writing course to a discipline-inspired first-year writing course. A group of first-year writing faculty descriptively and longitudinally analyzed a sample of students' texts for three years, seeking to establish whether and how student texts demonstrated defined features, shared or different, over time. That data was then analyzed through generalized estimating equations, an innovative method of testing hypotheses regarding the influence of factors on binary distributed response variables collected within subjects across time (Liang & Zeger, 1986). Thus, our study was designed to provide granular detail at the level of text regarding the transitions students make across time. Also, because our study is considerably larger than most studies of transfer—that is, large enough to support generalization inferences about the total student population at the specific institution—the granular analysis yields important directions for large-scale studies. Our aim is thus straightforward: the more that can be known in detail about these transitions as they are studied in large student samples, the better we will be able to advance student learning in terms of transfer.

Literature Review

We begin with research on the conceptual frames of liminality, transitions, and writing knowledge adaptation, which can help to frame an analysis of student writing across university contexts. A discussion of liminal stages in student writers' trajectories, framing students' literate experiences as they move through different stages of their education and beyond, offers insights into the work student writers must do and the way their contexts afford or obstruct their pathways.

Liminality

Concepts of liminality come to writing studies from anthropology. The concept was developed by Arnold van Gennep (1909) and then expanded by Victor Turner (1964). Van Gennep introduced the notion of societal "*rites de passage*" and described three stages of movement through these "rites": separation, margin (or limen), and aggregation (Ratiana, 2007). Turner (1964) studied more closely the margin stage with its liminal aspects, foregrounding what he called the "interstructural" nature of an individual in a liminal stage (p. 46). The transition that takes place in "*rites de passage*" is "a process, a becoming, and . . . even a transformation" (pp. 46–47), in contrast to the more stable states in which we are normally, and which are "structural," with accompanying normed behaviors and ethics (p. 47). The "liminal phase is an intermediate, transitory and ambivalent condition in which the individual dissociates from the normative context and creates the op-

positional antipode of the world through the process of valuable transformation," with particular emphasis on that transformation and move to an alternate system (Ratiana, 2007, p. 2).

The introduction of the notion of liminality to rhetorical studies has been attributed to Whalen (2004), who defines learners in transition at "a threshold (or limen), caught between practices, cultures, frames for knowing the world, and modes of communication" (p. 1). Liminality and transformative transition can thus be seen as lenses through which to study writers moving from one "state" to another, one normed community to another quite different one; the dynamic time-space of moving through is charged with potential and fraught with uncertainty. Liminality is unstable, in-between, no longer in the previous state, not yet in the new one. In terms of writing transitions, that instability might be particularly interesting, both in its nature and in its duration. In terms of distinction, liminality urges attention to the just-noticeable difference—and therefore suggests conceptual attention to detail as a mark of difference.

Transition

Liminal stages and transitions have been studied in several writing contexts: from secondary to postsecondary, from first-year university work to later years of study; from later years of study into doctoral-level work and into the workplace; and across countries and languages. In each case, the existing research has contributed to our picture of transitional writing phases. Transitions have been studied to "bring to light students' in-between-ness as the students engage with academic discourses in all their complexity" (Scott, 2011, p. 12), in particular given globalized student mobility that increases the chances for confronting multiple transitions, diversified and new (Alexander, 2005; Scott, 2011; Sunstein, 2001).

For the early university years that most interest us, transition research has focused on the contradictions inherent in US-style "general education" writing work through analysis of students' writing in a general education course other than first-year writing. In a cultural-historical activity theory–framed case study analysis of one writer, using data from a larger institutional ethnography and drawing on textual, interview, and classroom observation data, Russell and Yañez (2003) point to the difficulty encountered when a discipline-embedded faculty member's goals conflict with a nonspecialist student's abilities and motivations. Usefully, Russell and Yañez charted a possible way forward by helping students negotiate the specialized discourse of the field of history in ways that could be connected to other, future specialized discourses in which the students might choose to participate.

In this and similar studies, research on writing knowledge in relation to disciplinary expertise has been particularly developed (Carter, 2007; Grossmann, 2014; Rinck & Sitri, 2012). A few longitudinal studies in the United States have offered additional insights into what those opportunities and transitions might look like by examining the transitions student writers experience in the move from general education to work in a major. Lucille McCarthy's hallmark 1987 naturalistic, single-student, sociolinguistically framed, longitudinal case study, "A Stranger in Strange Lands," set out to explore how students learn to write as they move into and out of

contexts. McCarthy (1987) studied the student's curriculum, texts, interviews and observation, and think-aloud protocols in order to understand how, as a "stranger in [various] strange lands," he made or didn't make his way. She determined as much about the shifting nature of the student's context over time as she did about his status as a "repeating newcomer" (McCarthy, 1987, p. 261) focused on a subset of concerns and not able to automatically reuse and adapt writing knowledge from one context to another. She also established that her student's awareness of what was changing in his writing did not match the changes.

Donahue's (2010) longitudinal study of 16 US undergraduates drew from empirical text analysis, surveys, and interviews to explore the evolution in the students' writing ability over time and from first-year general writing to final-year discipline-specific projects. She noted that their writing was marked by specific changes in source integration strategies, length, coherence, use of disciplinary terminology, ways of introducing self-as-author, representations of knowledge, and representations of writing in knowledge construction. However, the students' writing changes were not paralleled by changes in student awareness, in many cases, of those changes and their importance. The study showed that the earlier writing, most often forms of analysis papers, and the later writing, which was grounded in research in the disciplines, drew on different competencies. The later student research work demonstrated mature practices in disciplinary discourse. The study concluded that the liminal spaces between general education and discipline-specific writing could be navigated textually without students being fully aware of their navigation of those spaces.

A recent analysis by Adler-Kassner (2014) of general education in the United States makes a strong argument for the context-specificity of all competencies, not only writing competencies. Adler-Kassner (2014) analyzed official institutional documents to determine that the transition from US-style liberal arts general education to disciplinary work in a major might be negotiated more effectively if students were to learn to "lay the groundwork for studying how to develop competencies within specific contexts by identifying boundaries of and contexts for competencies" (p. 449)—that is, by learning *strategy* rather than specific writing rules or forms. This approach helps students to work toward building a kind of meta-analytic capacity that can support them as they work recursively through liminal spaces, via the development of strategic knowledge about both the discipline and the discourse as interrelated entities.

Some work has focused entirely on later-stage academic liminality, notably for doctoral students who again encounter a shifting moment and new communities of practice (Lave & Wenger, 1998), or for students transitioning from university to workplace writing. While the focus in this article is on the liminal spaces of the early university years, these other studies offer insight into the nature of "transition." Catterall et al. (2011), for example, offer a thorough study of students and their dissertation supervisors working through the new challenges of doctoral-level expectations, emerging with new disciplinary understanding and new competencies for writing. Their mixed-methods study of 29 supervisors and 36 students through

questionnaires, interviews, and focus groups led them to see that "increasing control over the use of scientific language, particularly in writing, is a transformative process" for these doctoral candidates, who experience a multidirectional evolution in their knowledge and mastery (Catterall et al., 2011, p. 2). Transitions occur again as writers move into the workplace. Dias and Paré (2000) studied writers moving from the university into the workplace with an empirical ethnographic case study approach. They suggest that new employees must "redefine the goals and criteria for their writing by locating it within an entirely different activity system" (Dias & Paré, 2000, p. 231; see also Dias, Freedman, Medway, & Paré, 1999).

Studies of transition challenges for writers considered to be "expert" can also help us to conceptualize the contours of liminal challenges. Chris Anson (2016) highlights the challenges even "expert" writers in one domain face when they try to compose in an entirely different domain—different in terms of the five aspects Beaufort (2007) offers: writing process knowledge, subject matter knowledge, rhetorical knowledge, genre knowledge, and the framing knowledge of the discourse community. Anson's (2016) study of an accomplished scholar struggling to write about his son's games for the local paper offers a rich story of the in-between-ness and messiness of this transitional work (Smart, 2000).

The knowledge transfer frame on which scholars like Anson or Smart build was initially developed in Europe to analyze learning in general; in fact, for decades, much of the analysis focused on how knowledge acquired in one context could be (re)used in another, in domains not related to writing or language (Davydov, 1990; Hilaricus, 2011; Tuomi-Grohn & Engestrom, 2003). More recently, writing studies scholars have recognized the potential of this model for understanding a long-standing writing question: How, in fact, does a student writer reuse, adapt, or transform writing knowledge across contexts? And by extension, what is the relationship between the apparently generic writing we teach in US first-year writing courses and the writing students will need to produce in the rest of their college career and beyond?

Transfer

We include the term *transfer* and what it implies as part of the literature review for comparative purposes, though we feel that *transition, reuse,* and *adaptation* are the better terms for the portrait of students we are presenting here. In its 2012 report, the National Research Council (2012) highlighted transfer as the defining characteristic of the deeper learning required for academic and workplace success. To assess transfer, the authors of *Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century* suggest that a defined transfer model is needed, as well as tasks that enable student performance relative to the model and an interpretation framework that can be used to draw inferences about student performance. Because learning is a situated phenomenon, the report observes, transferrable knowledge is best examined within specific contexts in which defined topics and disciplinary situations are used.

While *transfer* is currently the most-used term in writing studies, other terms can complicate our understanding of how writing knowledge is reused and adapted.

At first the term *transfer* appeared adequate, but scholars studying this phenomenon in higher education have moved over time toward more sophisticated and complex terms to visualize and identify what might make learning to write effective, including: *generalization* (Hatano & Greeno, 1999), in which something learned in one context generalizes to others; *expansive learning* (Davydov, 1990; Engestrom, 2001), in which learners construct and implement new knowledge based on previous learning; *acculturation* (Descheeper, 2008), in which the learner joins a culture to successfully employ its knowledges; *appropriation* (Meirieu, Develay, Durand, & Mariani, 1996), in which learners make knowledge their own in order to successfully reemploy it; *autonomisation* (Astolfi, 2002), in which learning is so deeply acquired that it becomes automatic for the learner to reuse it; and *knowledge mobilization* (Perrenoud, 1999), in which acquired knowledge is only useful if it can be mobilized in new contexts.

While we thus acknowledge the trend toward a *transfer* frame in US writing studies, we choose instead here to highlight the language fluidity implied by *liminality, transition,* and *knowledge reuse/adaptation/transformation* as framing concepts. Some of the more linear and reductive ideas of "transfer" of writing knowledge currently available can be replaced with these models of writing knowledge reuse (the use again of a textual feature in a new context) and adaptation (the adapting and transforming of a textual feature to a new context) (Doly, 2002; Hatano & Greeno, 1999; Perrenoud, 1999; Tozzi, 2002).

Study Design

While much US research to date has used indirect measures such as student self-report through surveys or interviews to study students' reuse of their writing knowledge, we propose that reuse and adaptation can be *textually* studied, in at least some ways, by looking at textual features that reappear or don't in new, often quite different contexts, and that this textual analysis raises questions that we might not otherwise see. We seek to construct an understanding of the *textual* transition student writers are making from one context to another. These transitions are messy, unstable, but often-productive liminal spaces in which the learners negotiate new contexts and appropriate, reuse, and adapt some parts of writing knowledge. We wanted to know whether the texts do show any reuse and adaptation of writing knowledge, and if so, what they show, in terms of stability or change in textual variables as the writers move through liminal-transitional spaces.

In its emphasis on precise liminal spaces, our design resonates with that recommended by the National Research Council (2012) in its emphasis on a defined transfer model, tasks within a curriculum that enable student performance relative to the model, and an interpretative framework used to draw inferences about student performance. As we set out to examine whether a large number of first-year US college student texts showed reuse and adaptation of writing knowledge, we asked: In the transition within and between courses, what stability and change can be empirically documented in textual variables?

Study Classification

The specific transitional space we studied here was the liminal space of a first college year. We used a descriptive, longitudinal case study design (Loeb et al., 2017)—longitudinal in the sense that the study's investigative mechanism was replicated across points of time (and is itself replicable, aggregable, and data-supported; Haswell, 2005). We sought to identify traces of the textual transition as it appeared in writing in the first year of US college education, as students moved from one context to another—that is, from a general first-year writing course into a *discipline-inspired* one: not a disciplinary course, in our case, but a course designed to teach first-year writing while also introducing students to a topic in a particular (inter)discipline and gesturing toward disciplinary writing.

Classified as a single case study design—one in which an individual case is the unit of intervention administration and data analysis, the case is its own control for purposes of comparison, and the variables are measured repeatedly within and across different conditions—the present research is aligned with the 2017 pilot standards proposed by the Institute of Education Sciences (pp. A2–A17). That is, the variables (in this case, the text features) were systematically examined, inter-assessor agreement was collected in each phase and at least 20% of the data points in each condition were examined for reliability; and four time-points were examined for each student. Because there was no attempt at deliberate variable manipulation in order to examine the efficacy of one method of instruction over the other, the variables were not systematically manipulated.

Institutional Context

The institution in which this study took place is a private US university identified under the Carnegie Classification of Institutions of Higher Education as a doctoral university of high research activity with a highly residential majority undergraduate student body and an arts-and-sciences focus. The general writing course, first-year writing (FYW), in a one-term and a two-term version (both fully credit-bearing), is a topic-based course focused on developing the rhetorical flexibility students will need for college writing success. The discipline-inspired course, first-year seminar (FYS), is intended to continue that work while also introducing students to a disciplinary perspective. All students thus take at least two courses in their first year, in sequence: the first is meant to support their writing and reading transition from secondary to postsecondary studies, and the second, while still part of the required writing sequence, is designed to move their development further by addressing writing within a discipline-inspired course. This creates a kind of "bridge" moment in students' learning that is particularly interesting to study in terms of transition and adaptation.

Cohorts

At the institution in this study, this first-year writing requirement has been, since 2004, an independent administrative program. At the time of the study (2013), students were in four possible cohorts, three of which will be considered here. These cohorts are shown in Table 1. In Cohort 1, students took three terms of

Table 1. Cohorts of First-Year Student Writers and Text Sampling

Cohort	Terms	Students in Sample	Text Samples[a]
1 ($n = 124$)	Fall Writing / Winter Writing (two-term course); Spring First-Year Seminar	52	219
2 ($n = 414$)	Fall Writing (one-term course); Winter First-Year Seminar	52	216
3 ($n = 345$)	Winter Writing (one-term course); Spring First-Year Seminar	52	201
***N* = 883**		**156**	**636**

[a]Students occasionally turned in an additional text sample, which accounts for the slightly uneven numbers.

writing: fall, winter, and spring. The three-term sequence included two terms of FYW, followed by one term of FYS. Students in this sequence determined at matriculation by directed self-placement that they needed the most time and support working on their college writing and thus received a total of three terms of writing instruction. In Cohort 2, students took two terms, fall and winter. The two-term sequence included one term of FYW and one term of FYS. Students in this sequence were following the "standard" requirement. In Cohort 3, students took two terms, winter and spring, with the same sequence as in Cohort 2. The difference between Cohort 2 and Cohort 3 was a distinction in timing for the start of the sequence (fall vs. winter).

Sampling Plan Design

The students in the three study cohorts came from a broad range of precollege contexts, including roughly half public and half private high schools, in the United States and internationally. The institution is selective, with an acceptance rate of 10% (2,338 accepted of 22,428 applications in 2012–2013). Of the students who enrolled in 2013 (1,192), 399 ranked in the top 10% of their high school class. The first-year class included 9% first-generation college students (112). Student backgrounds were about half White (541 students), 7% African American (84 students), 17% Asian American (203 students), 6.5% Latino (75 students), 4% Native American (46 students), and 8% international (95 students).

In order to study textual traces of students' work across first-year writing contexts, for a three-year period, each year we collected all final submitted drafts of the first and last "source-based" papers written by students in the course (representing, approximately, the beginning and end of the course) and submitted by

their instructors with a student opt-out option; only 11 students opted out, and 90% of faculty submitted their students' work. The faculty member was responsible for identifying the "first" and "last" source-based paper for his or her class. The writing from which the samples were drawn was thus produced by most of the 883 students in the various cohorts of the first-year writing sequence described above.

From this total ($N = 883$), we drew a random sample of 52 papers from each of the three cohorts, for a total of 156 participants. Using standard sample-size estimation for small populations based on a 95% confidence interval (Bernard, 2013, p. 158), we considered the sample of sufficient size to allow for generalization inference to the larger student population. Random selection of participants, combined with the increased precision resulting from multiple measurements for each student, strengthened the validity of our findings.

Learning Outcomes

While there are no specific genre requirements for either course, there are faculty-developed shared learning outcomes. Students are expected to demonstrate an understanding that ideas shape the form of their essays, not rules or formulas; that writing processes are complex and necessary, each with strengths and weaknesses; and that voices operate in various ways within compositions. Operationally, students are expected to make informed decisions about integrating the ideas of others into their own writing; to craft sentences with working parts that convey meaning clearly; to balance rhetorical complexity with linguistic concision; to use active and informed language and vocabulary, paying close attention to voice and audience; to craft a strong, supportable thesis; to develop and use voice to complement and enhance a written argument; to use an array of appropriate structural and rhetorical devices to refine and enhance argument; to accept and respond to feedback from instructors; to revise at both substantive and editing levels as appropriate; to articulate their preferred writing process; and to articulate weaknesses that need to be addressed. Such broad and specific outcomes lend themselves to the study of defined textual features.

The average FYW course entails three to four assignments in a range of types, multiple stages of drafting and revision, and reading not restricted to one genre; the average FYS will increase the reading, scale back on the extensive revision allowed in FYW, and attend to changes in expectations introduced by the discipline. The courses demand, intentionally, that students learn about writing in more than one context while learning strategies that should apply across contexts. The "zone of proximal development" (Vygotsky, 1978) between the two is thus generally—and, again, intentionally—relatively close, providing an ideal occasion for the study of what we normally expect will "transfer."

Textual Features

Shown in Table 2, the seven textual features reported here from among the larger set analyzed in this program of research are as follows: thesis presence, thesis type, introduction type, overall text structure, evidence types, conclusion type, and overall essay purpose. Also shown in Table 2 are the facets (the specific aspects of

the feature) of each of the seven text features. For the seven text features in this study, there are 38 accompanying facets.

It is important to emphasize the congruence between the defined learning outcomes and targeted textual features. For example, because students are expected to craft a strong, supportable thesis, the text features of thesis presence and thesis type shown in Table 2 should be identifiable in written texts. If students are expected to use an array of appropriate structural and rhetorical devices to refine and enhance argument, then introduction, overall text structures, evidence, conclusion, and purpose should be able to be examined within documents. A special feature of our design, therefore, is the examination of learning outcomes at a lexicogrammatical level.

Coding

These textual features were then distilled into categories indicating binary distributed response variables; that is, under the text feature *one thesis* shown in Table 2, coders identified the absence or presence of this feature. Readers tested, defined, retested, and redefined these text features and their accompanying facets until we could achieve 85% agreement or higher among the 12 of our 30 trained faculty coders who worked on the year's data reported here—78% after applying Cohn's kappa (κ), using a preliminary subset of data (30 papers), a coder-developed glossary, and a set of "if-then" directions to help maintain standard shared definitions.

Generalized Estimating Equation

With the codes established and applied, we used a generalized estimating equation (GEE; Ballinger, 2004; Liang & Zeger, 1986) procedure to examine the changes in use of text categories, which were reported as counts and percentages. GEE is appropriate for correlated data with binary outcomes and is useful when a study contains a range-limited and defined set of variables (such as the text feature of *thesis presence* and its facet of one thesis that either is or is not present). We were therefore able to study repeated responses within each cohort over the span of the writing courses.

Distinct from the scholarship of Sternglass (1993), Beaufort (2007), Roozen (2009), and Rounsaville (2017), the present study, as part of a larger research program pursuing these kinds of features and facets in different writing contexts (see Donahue, 2008, 2012), targeted specific text features according to a defined model. Because that model was derived from, and related to, specific learning outcomes, we were able to examine, in great detail, the longitudinal stability and variability of text features. While our study was informed by earlier work, its specific design—with an identified model and longitudinal inquiry—allowed GEE to be used and thus provided detailed empirical information based on probabilistic reasoning.

Results and Inferences

The results presented here are divided into three sections. The first section is a presentation of the text features that appear across the three cohorts in terms of

statistically significant differences (as determined using GEE). These results are shown in Table 2. The second, more focused section presents results of correlations between text features, with special exclusive emphasis on thesis type and overall essay purpose. These results are shown in Table 3. Finally, a brief third section offers selected results from analysis of features from the start to the end of each course, within and across courses.

Text Features across Time

In general, the textual variables and their facets shown in Table 2 were notably stable in Cohort 1 and Cohort 3. There was a difference, however, in Cohort 2.

For the 7 text features in this study, there were 38 accompanying facets. In Cohort 1, there were 5 statistically significant differences, so only 13% of the facets changed across time. In Cohort 2, there were 11 statistically significant differences, so 29% of the facets changed across time. In Cohort 3, there were 6 statistically significant differences, so only 16% of the facts changed across time. The results suggest stability of 87% of the facets in Cohort 1, 71% in Cohort 2, and 84% in Cohort 3. That is, the portrait is largely one of stability, but the writers appeared to be quite capable of adaptability when needed.

For each of the seven text features, statistically significant differences between FYW and FYS were distinctly present. In Cohort 1, students increased their use of an *explicit thesis* between the two-term FYW course and FYS, yet decreased their use of *context* in their introduction types. Students increased their use of *external sources*, yet decreased their use of *example* when providing evidence types. In Cohort 2, where the most variability was present, students increased their use of *evaluative* and *descriptive thesis* types between the one-term course and FYS, yet decreased their *interpretive thesis* use. Students provided fewer *contexts* in their introduction types, but provided more *data*, less *interpretation of objects of analysis*, more *summary*, and increased use of *external sources* in their evidence types. In terms of essay purpose, students *analyzed* fewer *objects*, *argued* their *views* more, and wrote more to *inform, using research.* In Cohort 3, in their transition from the one-term course to FYS, students increased their location of a thesis at the *beginning* of their essay, increased their use of *summary*, provided fewer *examples* and *definitions*, chose less to *restate a thesis*, and wrote to *inform.* The GEE model held for the majority of the text features and their facets. However, the model did fail to converge in instances of low or no occurrence of text features—an aspect seen in the majority of the features in the overall text structure in Cohort 2.

Inferentially, Table 2 provides what we believe is a documented record of reuse or adaptation of facets between courses. In the cases where text features and their unique facets appear across courses, we see stability. Based on the learning outcomes in Cohort 1, Cohort 2, and Cohort 3, students overwhelmingly used one explicit thesis at the beginning of their essays; favored evaluative and interpretive types of thesis use; introduced their essays by previewing an argument and providing context; controled their text structure based on their critical thesis; provided interpretation and employed external sources; restated their thesis statement as it evolved; and considered objects of analysis as they offered viewpoints. Conversely,

Table 2. Average Percentages of Text Features across Cohorts and Courses

Text Features	Cohort 1			Cohort 2			Cohort 3		
	Course 1 (2-Term FYW)	Course 2 (FYS)	Z Statistic	Course 1 (1-Term FYW)	Course 2 (FYS)	Z Statistic	Course 1 (1-Term FYW)	Course 2 (FYS)	Z Statistic
1. Thesis Presence/Location									
One thesis	94%	95%	-0.05	96%	90%	1.46	98%	99%	-0.55
No thesis	4%	1%	1.32	4%	8%	-0.98	2%	1%	0.55
Explicit thesis	93%	97%	-2.01*	95%	89%	1.25	98%	94%	1.41
Beginning of essay	79%	83%	-0.76	79%	81%	-0.47	77%	87%	-1.98*
Middle of essay	10%	4%	1.44	8%	5%	0.58	5%	5%	0.13
End of essay	6%	9%	-0.71	9%	6%	0.88	15%	7%	1.68†
2. Thesis Type									
Descriptive	8%	12%	-0.69	3%	10%	-1.67†	9%	10%	-0.19
Evaluative	36%	32%	0.63	15%	37%	-3.55***	32%	24%	1.02
Interpretive	41%	41%	-0.01	73%	34%	4.09***	55%	49%	0.72
Summative	9%	13%	-0.96	4%	11%	-1.61	3%	15%	-3.31***
3. Introduction Type									
Previews argument	61%	71%	-1.50	61%	68%	-0.90	68%	71%	-0.35
Provides context	27%	16%	1.75†	30%	17%	2.00*	14%	19%	-1.11
Poses a problem	3%	6%	-1.14	4%	5%	-0.38	4%	3%	0.4
Uses anecdote	4%	2%	0.98	3%	6%	-0.79	9%	3%	1.53
4. Overall Text Structure									
Thesis-driven critical	62%	60%	0.32	70%	62%	1.11	74%	77%	-0.74
Linear, additive	23%	22%	0.06	16%	24%	-1.34	17%	14%	0.58
Summary	2%	3%	-0.39	1%	2%	-0.58			

Narrative structure									
Question-driven	1%	3%	-0.92	4%	3%	0.37	2%	1%	0.54
Five-paragraph essay	1%	1%	0.03				2%	1%	0.53
Discipline-specific	1%	1%	0.03						
Discovery	1%	4%	-1.19				2%	2%	-0.05
5. Evidence Types									
Data	27%	22%	0.72	5%	30%	-3.84***	16%	25%	-1.18
Interpretation of object of analysis	53%	51%	0.18	85%	39%	4.99***	60%	60%	0.09
Summary	32%	26%	0.84	11%	21%	-1.69†	13%	20%	-1.15
External source as authority	55%	65%	-1.63†	49%	78%	-4.86***	54%	61%	-0.92
Anecdote	18%	5%	2.47*				9%	4%	1.31
Example	19%	11%	1.71†	11%	9%	0.39	20%	5%	2.73**
Definition	3%	2%	0.50	7%	3%	1.18	7%	1%	1.79†
6. Conclusion Type									
Restatement of thesis – simple	28%	31%	-0.58	30%	29%	0.22	25%	24%	0.28
Restatement of thesis – evolved	52%	46%	0.89	52%	52%	0.00	51%	62%	-1.52
Restatement of thesis – new	6%	9%	-0.65	9%	4%	1.25	14%	5%	2.05*
Entirely new information	10%	11%	-0.30	6%	7%	-0.03	6%	8%	-0.51
7. Overall Essay Purpose									
Analyze an object	44%	37%	0.96	70%	33%	3.96***	47%	43%	0.55
Argue viewpoint	37%	26%	1.32	14%	28%	-2.46*	36%	29%	0.88
Describe object, place, event	5%	2%	1.13						
Inform, using research	11%	28%	-2.61**	6%	32%	-3.95***	12%	21%	-1.70†
Summarize source argument	2%	3%	-0.42	1%	2%	-0.58			

Note. FYW = first-year writing; FYS = first-year seminar. The binary raw data are represented here as percentages. Analysis employed generalized estimating equation procedure with a binomial distribution and autoregressive error structure. Blank cells indicate the models did not converge.

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

students rarely placed a thesis statement inductively at the middle or end of an essay; used descriptive or summative types of thesis statements; posed a problem or used an anecdote in their introductions; organized their texts as summaries, questions, or five-paragraph essays; used disciplinary or discovery genres; used definitions in providing evidence; stated a new thesis or provided new information in their conclusions; or summarized arguments from their sources.

It appears, then, that the students learned a useful set of rhetorical strategies that they could use (or elect not to use) between courses, and—equally significant—that they could increase the use of these strategies as the writing task at hand demanded.

Relationship of Text Features

As might be imagined, a detailed presentation of the 38 facets over three cohorts of students would extend beyond the space allotted and the "big picture" presentation intended for this article. Most useful, we believe, is a limited analysis of thesis type and overall essay aim as a demonstration of our method of studying the relationship between an essay's thesis design and its overall aim—a study of students' ability to let form follow function. Table 3 presents this selected analysis.

Interpretively, we suggest these correlation ranges of statistically significant relationships: low positive and negative correlations = 0.00 to 0.29; medium positive and negative correlations = 0.30 to 0.69; and high positive and negative correlations = 0.70 to 1.0.

Table 3. Average Correlations between *Thesis Type* and *Text Primary Purpose* Features by Cohort and Course

COHORT 1

		Thesis Type							
		Descriptive		Evaluative		Interpretive		Summative	
		2-Term FYW	FYS	2-Term FYW	FYS	2-Term FYW	FYS	2-Term FYW	FYS
Overall Essay Purpose	Analyze object	-0.16	-0.24	-0.53***	-0.32*	0.83***	0.62***	-0.15	-0.30*
	Argue viewpoint	-0.14	-0.07	0.75***	0.32	-0.50**	-0.10	-0.2	-0.11
	Describe object, place, or event	0.10	0.43**	-0.18	-0.12	-0.40**	-0.18	-0.05	-0.08
	Inform research	0.13	0.11	-0.13	0.04	-0.23	-0.38*	0.70**	0.45*
	Summarize source argument	0.50**	0.54***	-0.11	-0.14	-0.13	-0.22	-0.04	-0.10

Note. FYW = first-year writing; FYS = first-year seminar. Number of students: two-term FYW = 47, FYS = 46.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Continued on next page

Table 3 (Continued)

COHORT 2

		Thesis Type							
		Descriptive		Evaluative		Interpretive		Summative	
		1-Term FYW	FYS	1-Term FYW	FYS	1-Term FYW	FYS	1-Term FYW	FYS
Overall Essay Purpose	Analyze object	-0.34*	-0.16	-0.34*	-0.48**	0.62***	0.78***	-0.23	-0.17
	Argue viewpoint	-0.09	-0.11	0.64***	0.51**	-0.45**	-0.29†	-0.03	-0.22
	Describe object, place, or event	0.23		-0.11		-0.34*		-0.05	
	Inform research	-0.07	0.21	-0.11	0.02	-0.14	-0.39*	0.43**	0.44*
	Summarize source argument	-0.04	0.38**	-0.05	-0.14	-0.09	-0.15	-0.02	-0.07

Note. FYW = first-year writing; FYS = first-year seminar. Number of students: fall FYW = 47, FYS = 46.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

COHORT 3

		Thesis Type							
		Descriptive		Evaluative		Interpretive		Summative	
		1-Term FYW	FYS	1-Term FYW	FYS	1-Term FYW	FYS	1-Term FYW	FYS
Overall Essay Purpose	Analyze object	-0.17	-0.07	-0.51***	-0.37†	0.60***	0.53**	-0.06	-0.30†
	Make argument	-0.08	-0.19	0.57***	0.57**	-0.46**	-0.22	-0.05	-0.13
	Describe object, place, or event		0.41**		-0.10		-0.18		-0.06
	Inform or explain from scholarly research	0.20	0.04	-0.05	0.19	-0.17	-0.25†	0.20	0.52**
	Summarize another source's argument		0.35*		-0.07		-0.16		-0.05

Note. FYW = first-year writing; FYS = first-year seminar. Number of students: winter FYW = 45, FYS = 49.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

As is the case for the analysis of text features across time, correlation analysis provides a fine-grained analysis of the rhetorical moves made by students. For example, students in all three cohorts who wrote with the purpose of analyzing an object elected to use an interpretive thesis; these correlations appeared at medium-to-high levels. In individual cohorts, further patterns were also apparent. In Cohort 1, students who wrote to summarize a source argument chose a descriptive thesis in both courses (two-term FYW and FYS). Similarly, students who wrote to inform selected a summative thesis type. In Cohort 2, students in both the fall FYW and FYS courses who wrote to argue a viewpoint chose an evaluative thesis, and those who wrote to inform preferred a summative thesis. In Cohort 3, students who wrote with the purpose of making an argument employed an evaluative thesis.

Of interest as well are the negative statistically significant correlations. In Cohorts 1, 2, and 3, students in both writing courses who wrote with the purpose of analyzing an object did not select an evaluative thesis type, a finding that empirically confirms that these rhetorical strategies are incompatible. In individual cohorts, further patterns were again apparent. In Cohort 2, the aim of arguing a viewpoint was incongruous with an interpretive type of thesis for both courses.

Inferentially, Table 3 provides what we believe is a documented record of the way the text features and their accompanying facets are related to each other. Both the positive and negative statistically significant correlations are meaningful in allowing us to observe patterns of congruence and dissimilarities in the rhetorical choices and text use patterns that students make.

In terms of the curriculum, it appears the useful set of rhetorical strategies that students could use (or choose not to use) between courses were correlated with each other, often at medium-to-high levels of statistical significance. Therefore, we may infer that the model of writing used in response to the learning objectives of the curriculum at hand holds together and may therefore be understood as able to be used in both a consistent and unified fashion across courses and across the first-year curriculum.

Reset Effect

A third set of results, not reported here in detail because of space constraints for this article, is nevertheless key to the study's impact. We looked at how texts presented the features and facets studied, not only across courses but within them, early and late in the course. We identified, for several of the facets, what we are calling an intriguing "reset" phenomenon that we believe will bear much further attention. A "reset" is a facet that appears at the beginning of a course, grows statistically significantly from the start to the end of the course, and then "resets" at the start of the second course, only to increase again across the second course, as if students became "repeating newcomers" in the second term. Occasionally this effect occurs in reverse—a facet shows up frequently at the beginning of the course, decreases across the course, and then occurs frequently again at the start of the second course, to then decrease again across the course.

So, for example, in terms of evidence types, in Cohorts 1 and 3, use of data as evidence began as less frequent, increased statistically significantly across the first

course, dropped back in frequency at the start of the second course, and then increased again. In all three cohorts, this phenomenon occurred for the facet *external source as authority*. In terms of the overall essay purpose feature, in Cohort 1, the facet *argue a viewpoint* started low and ended statistically significantly higher in the FYW course, then "reset" to low and rose again in the FYS course. The facet *analyze an object* did the reverse in Cohort 1, starting at a higher frequency and occurring statistically significantly less by the end of the FYW course, only to occur frequently again at the start of the FYS course and then drop significantly by the end. There were several such patterns that will be reported further in future publications.

Discussion

We set out to examine whether a large number of first-year US college student texts show any reuse and adaptation of writing knowledge, and if so, what they show: What stability or change in textual variables, in the transition from the initial experience with writing generally (FYW) into the discipline-inspired writing experience (FYS), can be empirically documented? Given the interest—in both writing research and writing pedagogy—in whether student writers reuse and adapt their writing knowledge across transitional contexts, we hoped the study results would identify detailed possibilities for understanding students' texts and raise some key new questions in the ongoing discussion about student learning. Emphasis on empirical evidence has indeed suggested research directions. It does indeed appear that liminality provides a sound conceptual basis for the study of change, and while reuse and adaptation across contexts has been the object of this study, there is reason to believe that language transition may be equally amenable to empirical studies of the kind described here.

A thesis, an introduction, evidence provided, and the way a paper is structured are all textual variables that will appear in assignments throughout a student's education, changing in nature and in complexity as the student moves through college years and different courses and disciplines. There is a reasonable expectation that they *should* reappear, especially when we realize the extent to which well-defined learning objectives construct responses of students within the curriculum. When we study text features, then, we are indeed looking for traces of reuse, reprise, and adaptation in new assignments and contexts, although in this kind of study we will not know why students are making the choices they do.

Overall, the writers' transition from FYW to FYS in this study was marked, in their texts, by both reuse/adaptation and nonreuse, at different points and for different possible reasons. The reuse could only be identified as reuse through reappearance, but the fact that reuse occurred across contexts and types of work suggests that the reuse is always already some form of adaptation.

Similarly, the initial descriptions of the text variables most prevalent in each course's papers suggest a fair degree of stability in what students were producing across their first-year writing courses. Indeed, we find it interesting that the two predominant types of papers appeared in close to equal numbers across the three

types of courses, which suggests that the zone of proximal development across these first-year courses was fairly overlapping. Thesis statements were explicit and appeared early in the texts; overall text purposes and types of introductions and conclusions fell into two or three dominant categories; multiple types of evidence were provided to support claims, but the most common tended to be the same two (drawing on other sources for authority, and drawing on the student's interpretation of assigned texts for support). These commonalities are quite important, given the broad range of courses students take in the first-year sequence, and again support the idea that, on the whole, the texts produced in FYW and FYS in this institution are, with regard to several variables, more similar than different.

Our purpose here was intentionally limited to "what the texts tell us" as a perspective infrequently considered in writing studies research about liminality and transition. But, of course, that decision simultaneously allowed us to highlight things not always seen and constrained us. We cannot know for sure why the patterns we saw were occurring, but plausible explanations can be imagined, consistent with other scholarly work on the topic; this conclusion will offer some of these and suggest possible future studies.

One explanation is that, in fact, more stays consistent across contexts than we might readily acknowledge. McCarthy (1987) notes that scholars have established that "though these studies suggest that an individual student is likely to encounter a number of quite different classroom writing situations, there is also evidence that individual student writers may employ consistent patterns across tasks as they interpret assignments, reason, and organize their knowledge" (p. 235). We see now that our particular course sequence—relatively unusual—afforded an in-between phase in students' trajectories (neither traditional US-style first-year writing nor US-style writing in the disciplines) that could be better exploited in both research and teaching.

Another explanation is that some new contexts, for whatever reason, make reuse and adaptation difficult or do not immediately afford reuse (different types of assignments, different faculty ways of talking about writing, new complex subject matter that is garnering all the cognitive work), which itself could point to the nature of writing knowledge adaptation as nonlinear. The study results indicate that, in fact, the text types on the whole do *not* tend to be all that different, and the zone of proximal development is relatively overlapped. So perhaps the change in subject matter across courses is a stronger explanation for the variations. As we noted earlier, students' reuse choices change, for reasons that could include different knowledge demands, different assignments, students' need to focus first on new contexts. Another possible explanation is that student writers are not perceiving that reuse might be appropriate, or do not know how to adapt the writing knowledge they develop. These are all rich terrain for future studies growing out of this preliminary work.

We recognized in the process of this study that any apparent adaptations of writing knowledge we would identify would bear further detailed study for clues about the source of the need to adapt; our anonymized data do not allow for such

follow-up, but we imagine a future study that will design for this. We have already begun work on reanalyzing the data of this study to follow individual students across the courses they took, and can imagine a future version in which the student texts remain linked to student identifiers, allowing for follow-up interviews with the analysis results in hand, for example.

In terms of future research directions, scholars might consider studying whether students are being offered opportunities for different kinds of reuse that foster or do not foster adaptation. Are they only afforded what some scholars have called "low road" adaptation of writing knowledge (processes that are "the automatic triggering of well-practiced routines," Perkins & Salomon, 1988, p. 29), or "high road" adaptation ("deliberate mindful abstraction of skill or knowledge from one context for application in another" that leads to metacognitive knowledge transformation (p. 25) as well? The cases in which each context is similar to the previous one by text type or by student choice (students who seek out similar topics and objects of analysis) appear to provoke less adaptation but also a more steady movement across contexts. We might surmise that a "liminal moment" can be more like a long liminal corridor.

Another possible future direction is to explore whether low-road transfer is connected productively to writing knowledge becoming "automatic" (knowledge that kicks in without intention or reflection). Do students reusing features do so automatically or purposefully? Is each of these features working well for them? Is writing knowledge "adaptation" provoked by the more significant disruptions in habit that demand adaptation for success? As the student work shifts and changes, so does the context; the faculty teaching FYW have different writing knowledge profiles from those, in other disciplines, teaching FYS. We need to study what it is about the courses and assignments that might be affording the positive increases or preventing the decreases we're finding puzzling, for example.

How might we more fully understand, through students' texts, some of their adaptive moves and ways of working across this liminal space of first-year writing? Where are the margins, the overlaps, the shared pools of rhetorical choice and the sharp differences? One site of future study could be the assumptions institutions make about "generic" first-year writing courses and "disciplinary" first-year seminar courses. After all, most US institutions require one, the other, or sometimes both. The results both complicate and complement Adler-Kassner's 2014 point about liberal arts general education in relation to disciplinary work (even as, in this case, the disciplinary work is quite introductory and married to teaching writing), suggesting the boundaries we imagine are fuzzy. We can clearly see the potential value in reanalyzing the data by paper type or primary aim for further insight into relationships between aim and text features.

While these questions are not new, here they are grounded in data pointing directly to them—and thus suggesting a way to capture the elusive nature of adaptation and reuse of writing knowledge through attention to textual features. In some ways, this is a reminder of the value of corpus analysis and its variants, analyses that US writing studies has let languish for some time now, even as other

fields and writing scholars in other countries have stayed quite productively focused on them. Current US attention to "big data" and corpus analytics help to see some of the possibilities in new light, especially with the rise of attention in writing studies to corpus analytic techniques and conceptualizations (Brown & Aull, 2017). While the research undertaken here was labor-intensive, innovative new platforms such as RAND-Lex hold the promise to both extend the capability to code through automated processes and allow large corpora of data to be uploaded and analyzed rapidly under principled categories of analysis using lexicogrammatical and topic-modeling methods (Marcellino et al., 2017). If gathering evidence of student learning is the object of assessment, we would be remiss not to observe that current assessment methods—those behemoths yielding scores obtained from standardized tests, whether purchased or locally developed—are crude in their construct representation and antiquated in the information they provide when compared with what is now possible to document student writing ability.

The nature of writing knowledge adaptation and the relationship between the topic knowledge and the evolution of a student's know-how in terms of the textual knowledge in play (knowing, for example, when to use data vs. interpretive evidence) suggests the need for a new program of research such as that described here. The results of this study suggest that student writers are moving knowledge forward while also retreating, adapting, in constant motion as they work through the liminal spaces of the first-year sequence. As we note above, while recursiveness is a mainstay of writing pedagogy, we now have a way to talk about it at a textual level. How students make rhetorical moves, and why, is a next stage to pursue, grounded in what these texts have suggested and in dialogue with other studies exploring students' experiences and reflective understandings.

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