Published in final edited form as:

Comput Compos. 2017 September ; 45: 1–20. doi:10.1016/j.compcom.2017.07.001.

How First-year Students Expressed Their Transition to College Experiences Differently Depending on the Affordances of Two Writing Contexts

Philip Kreniske, PhD

Developmental, Psychology, The Graduate Center, The City University of New York (CUNY)

Abstract

Drawing on theory that positions writing as a social process, this study compares how two distinct contexts influenced the linguistic features of college students' writing over time. In one context, students blogged and received comments, while in the other context students word-processed and received no comments. Systematic qualitative and quantitative analyses of these natural language posts and comments indicated the bloggers used greater rates of cognitive and intensifying expressions in their writing over time than students who word-processed. These results suggest that the affordances of the context influenced narrators' expressive writing over time. The current findings have significance for scholars seeking to understand connections between interactive media, writing processes, and audience, and for college programs across the U.S. that provide support for first-year students.

Keywords

writing; digital media; affordance; curriculum; sense-making; evaluative expressions; transition to college

1. Introduction

Youth today are plugged in; they write often and use a myriad of tools such as texting, instant messengers, and social media (Lenhart, 2012; Moore et al, 2016; Purcell, Buchanan, & Friedrich, 2013). Students' enthusiasm for writing with interactive media combined with the technological advancements that have made these writing media more user friendly, presents a great opportunity for practitioners to incorporate interactive writing into curricula. Simultaneously, these developments have spurred researchers to explore the expanded possibilities for and implications of narrator-audience interaction (Baker & Moore, 2008; Fishman, Lunsford, McGregor, & Otuteye, 2005; Manago, Tamara, & Greenfield, 2012). Given the wide array of available tools for writing, and the importance of audience, much

Correspondence should be addressed to Philip Kreniske at The Graduate Center (CUNY), Developmental Psychology, 365 Fifth Avenue, New York, NY, 10065. kreniske@gmail.com.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

work is needed to explore how students use the interactive features of rapidly advancing writing technology. Informed by theory on writing and audience, which indicated audience influences the way narrators write, think, and make sense of their worlds (Bakhtin, 1986; Black, 1989; Cohen & Riel, 1989; Daiute, 2010; Lucic, 2013), the current work presents a quasi-experimental study of how the interactive features of two writing contexts influenced students' expressive writing in their first six months of college.

My experiences as a writing fellow where I supported a college wide blog network inspired me to explore the ways that interactive media influenced first-year students' writing. The college of study was an urban public college with approximately 15,000 undergraduate students, and a first-year class of approximately 1,500 students. Nearly all first-year students were required to write three blog posts in their first semester. When I began my writing fellowship one of the few groups of students who were not participating in the campus wide network were first-year low-income students in an educational opportunity program. In a meeting with the administrators of the educational opportunity program, I learned of the broad factors that had led to the department's abstention from the campus wide blogging activity. The reasons reflected those reported in previous work (Vie, 2008) and ranged from an unfamiliarity with the medium to apprehension with the possibilities for peer commenting. Specifically, there were concerns about student privacy and the potential for inappropriate commenting. Reflecting the broader conversation regarding the wide array of available writing media, one faculty member questioned, *why not just ask students to word process their writing responses?*

Motivated in part by this question I collaborated with administrators and faculty to create two different low-stakes writing contexts for the educational opportunity program's first-year seminar. As noted by Elbow and Sorcinelli (2005) low-stakes writing is often not commented on by college instructors and peers. In contrast, writing comments is one of the key features of blogging (Ellison & Wu, 2008). The aim of the current project was to create two distinct writing contexts, each reflecting the ways that writing media are typically used in college curricula, and particularly at the college of study. Students in one writing context were asked to write using a word processor and they received no comments. In the other context, students wrote on a blog and received comments from peers or undergraduate research assistants. As is often the case with low-stakes writing, the students work was not graded (Bean, 2011; Elbow & Sorcinelli, 2005).

The aim of the study was to explore how students wrote differently about their college transition and how these differences changed over time in the two writing contexts: on a blog where they received comments and on a word processor where they did not. Furthermore, what might these differences in students' writing indicate about the way that the two contexts fostered different ways of making sense of the transition to college?

2. Literature Review

2.1. The Transition to College and Writing as Sense-making

In the United States, the transition from high school or work environments to college is fraught with negotiations (Clark, 2005; Terenzini et al., 1994). While ethnic diversity in the

contemporary college continues to increase, college completion rates for first-generation and low-income students are rising more slowly (NCES, 2013). In fact, despite record enrollment rates in American colleges only 11% of low-income and first-generation students earned a Bachelor's degree within six years, compared to 54% of the general population (Wine, Janson, & Wheelless, 2011).

Transitioning to college requires students to navigate rigorous academic coursework and assume greater independence with increased responsibilities in domains ranging from time management to financial management. This process can be especially challenging for students from low-income families (The Pell Institute, 2015), many of whom are first-generation college students (Hurtrado, Carter, & Spuler, 1996; Hurtado & Carter, 1997; Soria, 2012; Zhang & Smith, 2011). Continuing generation students may be able to gather advice regarding strategies for succeeding in the transition to college from communities of family and friends, while, first-generation students must often figure out how to manage the transition on their own or with the help of institutional resources like counselors and mentors (Lohfink & Paulsen, 2005). Using a social writing network like a blog may provide an additional space for students to share key information regarding the college transition. Perhaps, even more important than any basic information exchange, was the way that students used the writing activity as a tool to make sense of the challenging college transition and how this writing and sense-making differed in the blogging and word-processing contexts.

Writing is a developmental practice in which a narrator transforms amorphous thoughts and emotions into expressions (Daiute, 2014; Polkinghorne, 1998; Merleau-Ponty, 1945/2014; Wertsch, 1991), and it is through this process that a narrator makes meaning of past, present and future (Bruner, 1986). The choice to use the term narrator to describe students writing in this paper reflects a theoretical position that the stories the students expressed were relational; they changed and developed over time and depended on the audience. In the current study, incorporating low-stakes expressive writing into the first-year seminar curriculum encouraged students to use writing to make sense of their transition to college experiences. Sense-making can be especially useful for people who face challenging transitions (Lucic, 2013) and may question *do I belong or am I going to succeed?* Such questions are likely especially pressing for first-generation college students, as they are the first in their family to enter college. Therefore, for first-generation students, engaging in writing for sense-making about the transition to college is particularly important. Given theoretical and empirical work on the importance of audience, how might writing to an interactive audience, on a blog, as opposed to an imagined audience, on a word processor, influence the way that students used writing to make sense of their transition to college experiences?

2.2. Audience Theory and Word-Processing

Literacy theorists in the 1980s singled out the importance of audience (Flower, 1979; Ong, 1975) and argued convincingly that writing is always directed from the writer to an imagined reader and that writers address different others in different ways (Bakhtin, 1986; Black, 1989; Bazerman, 2004; Cohen & Riel, 1989; Ede, 1989; Freedman, 1994). Simultaneously,

a parallel line of research explored the impact of the then new writing medium, the word-processor, on the way that narrators thought and wrote (Collier, 1983; Daiute, 1983, 1985; Daiute & Kruidenier, 1985; Scardamalia, Bereiter, McLean, Swallow, & Woodruff, 1989; Schwartz, 1982). Where previously computers had been the domain of the military and research universities, in the late 1970s and early 1980s there was great excitement surrounding the proliferation of microcomputers and the concurrent introduction of word processing to home and school contexts (Hawisher, Leblanc, Moran, & Selfe 1996; Kidder, 1981/1997). Much as technological innovations have increased the usability of blogs in the contemporary moment, these technical innovations expanded the usability of and access to word processors, and inspired researchers to explore the ways that writing programs influenced narrators to read and reflect on their writing (Burns & Culp, 1980; Daiute, 1985; Flinn, 1987).

2.3. Narrator-audience Interaction and Blogging

Blogs and other social media use word processing software too, however, the fundamental difference between conventional word-processing software and social media – like blogs – is that when using a blog the writing is created on, and then shared via the Internet. It is this Internet based composition that creates the potential for seamless sharing of and commenting on writing, which distinguishes blogs from conventional word-processing software. The concept of affordances, formulated by Gibson (1979), relates to the characteristics of an ecological environment, or object, which allow for certain uses and also have certain constraints (Thanem, 2008). For example, a ladder affords climbing more than it does sleeping, or an open field affords kite flying more than a dense forest. Since its conception the term affordance has been used across disciplines to describe a broad range of relationships including the features of a given media (Graves, 2007). The current study focused on the affordances for narrator-audience interaction in a blogging context that afforded peer commenting and in a word-processing context that did not afford peer commenting. The concept of *imagined* affordances, re-conceptualizes this term and emphasizes users' perceptions and expectations of the affordances of a given media (Nagy & Neff, 2015). While writings produced in either media could be potentially be commented on, when writing on a blog there is a greater expectation of comments as opposed to when writing with a word-processor.

Blogs are one type of interactive Internet based writing media that has proliferated in recent years, increasing in number from approximately 35 million in 2006, to 181 million in 2012, with the three most popular blog providers reporting 80 million unique visitors in a month (Nielsen, 2012). Blogs, compared to other social media, are particularly well suited for college composition because blogs generally privilege writing as opposed to images. Often, but not exclusively, blogs are written from one author's or group of authors' perspective. While blogs take a number of forms, they most often consist of personal opinion pieces organized as dated entries, called *posts*, which are presented in reverse chronological order (Bukvova, 2011; Powell, Jacob, & Chapman, 2012). Posts are generally text-based and often include images and hyperlinks to other websites and blogs. Once an author *publishes* a post readers are then able to view and write comments on the post.

Blogs are typically used to express thoughts and values about particular topics (Gee, 2007). For example, Sosnowy (2013) showed how bloggers wrote about their experience with multiple sclerosis, Dich (2016) focused on the ways that Asian Americans used blogs to share interests and then create and maintain relationships, and Ducate and Lomicka (2008) described the ways students' blogged about shared values in a college language class. Bloggers can use these digital spaces as social exchanges to support each other through comments on specific topics of value. This narrator-audience interaction leads to the formation of connections between bloggers and their audience (Bane, Cornish, Erspamer, & Kampan, 2010; Benkler, 2006; Bolander, 2012; Dich, 2016; Sosnowy, 2013) and thus the interactive capabilities of blogs shift the traditional dynamics of narrator-audience relations. These connections function as implicit and explicit supports that comprise the interactive writing environments, which could not have been developed with previous writing media such as the conventional word processor.

Narrator-audience interactions, and the subsequent development of supportive commenting networks, may be one reason that researchers have found blogging contributes to positive emotional development (Baker & Moore, 2008; Bane, Cornish, Erspamer, & Kampan, 2010; Boniel-Nissim & Barak, 2011; Ko & Kuo, 2009; Schmitt, Davanim, & Matthias, 2008; Sosnowy, 2013) and perhaps cognitive development as well (Davidson, 2011; Ducate & Lomicka, 2008; Fishman et al., 2005). Recent research in composition studies indicates that college students are acutely aware of the possibilities for audience interaction with students' self-reporting that the potential for audience interaction influences the way that they write in digital environments (Nobles & Paganucci, 2015). Using a quasi-experimental design the current paper extends this line of inquiry and compares students' actual writing in two contexts with distinct affordances for narrator-audience interactivity. Specifically, one group of students wrote on a blog, and received peer comments while another group of students wrote on a word processor and received no peer comments.

According to narrative theory (Daiute, 2014; Polkinghorne, 1998; Merleau-Ponty, 1945/2014; Wertsch, 1991), the linguistic characteristics of the participants' narratives and the ways these narratives changed over time could stand as evidence of cognitive and emotional development. Or at the very least differences in the linguistic characteristics of narratives written on the blog as compared to the word processor would show how the interactive affordances of the blog influenced students writing.

2.4. The Current Study

In the current study, the blogging context provided an explicitly social space where an active audience could engage with the narrators using the blog's comment feature, while the students who word-processed could only imagine their audience. Interaction was defined as the ability to read peers' writing and to write comments. The aim was to determine how two writing contexts that allowed for different levels of interactivity influenced the way students wrote about their transition to college experiences over time. Specifically, might the lengths of narratives, referred to as fluency, differ between blogged and word processed narratives? Aside from fluency, there are many possible ways to measure differences in writing. This research was particularly concerned with how the writing contexts might influence the

process of sense-making, and therefore used a narrative analysis to measure the evaluative components of students' writing, such as cognitive expressions and affective expressions, and intensifying language.

3. Methods

3.1. Participants

The study grew out of a two-year collaboration with administrators, faculty, and students at the college of study, and with the New Media Lab at the City University of New York (CUNY) Graduate Center. Participants were recruited from a Percy Ellis Sutton Search for Education Elevation and Knowledge (SEEK) educational opportunity program first-year cohort at a four-year urban college. Educational opportunity programs like SEEK provide funding and support for students from low-income families to attend CUNY colleges. The first-year students in the SEEK program were required to enroll in a summer bridge program consisting of no-credit college level math and humanities courses.

The participants were from diverse backgrounds; 54% reported being born in the United States and 46% reported being born elsewhere. Notably, 56% of the students indicated that English was not their first language and 60% of the students reported being fluent in English and another language, including Spanish, Mandarin, Vietnamese, Uzbek, Urdu, Punjabi, Georgian, Turkish and Tagalog. Nearly all of the students reported being 18–21 years of age, with only three students reporting being younger than 18.¹ The greatest number of students, 55%, reported their ethnicity as Asian, 30% reported Hispanic, 10% reported Black, 3% reported White, and 2% reported Pacific Islander. Finally, there was a near even gender split between men (49) and women (47).

As for their parents' or guardians' highest level of education, 45% reported a high school degree or the equivalent, while 20% reported their parents had only completed 8th grade, and 7% reported that their parents had no formal schooling at all. In addition, 11% of students reported their parents had a bachelor's and 8% reported their parents had an associate's degree. Finally, 2% reported a parent with a masters and 1% – one student – reported a parent with a doctoral degree. Overall 63% of the students were the first in their family to attend college.

All students completed a media use survey in order to assess their levels of familiarity with the blogging medium and other social media. The survey asked participants if and how often they used media such as blogs, Twitter, and Facebook. In addition, participants indicated their ethnicity, gender, and parents' education level(s). The majority of students (78%) reported using some type of social media program on a regular basis, and 76% of students reported having a Facebook account. Instagram was the next most used social media followed by WeChat and Snapchat. However, only 13% of the students reported having used blogs prior to the study.

¹These three students were recruited using a slightly modified consent process as dictated by the CUNY Institutional Review Board (IRB).

3.2. Process

There were a total of six first-year seminars for the cohort of study. During the summer, first-year students ($N = 96$) were randomly assigned at the seminar level to blog ($n = 63$) or word process ($n = 34$) four times during their first six months of college. A chi-square analysis indicated no significant differences between the two groups in terms of English language learners, ethnicity, gender, parental education level or media use. Creating a larger group of bloggers allowed for an examination of differences across the media as well as an exploration of internal differences within the blog group, such as the characteristics of posts that received a high number of comments detailed in previous work (Kreniske, in press).

The first of the four writing sessions began in the 2014 first-year seminar summer bridge program as part of the required humanities course, and continued through the fall semester with the final assignment completed on December 2, 2014. In addition, students completed a brief demographics and media use survey. With the help of undergraduate research assistants, I assisted faculty and students at the college to administer the writing prompts and the survey.

3.2.1. Writing about the Transition to College—During four writing sessions, students in both groups responded to prompts about their transition to college that were adapted from Walton and Cohen (2011). The first prompt asked students to reflect on their first week at college, the second on their first month at college, and so on. At each writing session, I provided a written copy of the prompt to each participant and then read the prompt aloud. I emphasized that students need not worry about perfect spelling and grammar but instead should focus on how best to share their experiences and ideas.

The prompts were designed to create a meaningful writing and thinking activity that would encourage participants to tell a story about their transition to college experience. The prompts situated the participants as people with important experiential knowledge whose audience was other students like them. The only difference between the prompts in the two conditions was that the bloggers were informed that they could read and comment on classmates' stories, while the students assigned to word process neither saw nor commented on their classmates' writing. In contrast to the majority of other content-based writing that first year college students at the college of study were typically assigned, the prompts in the current study were designed to elicit expressive writing focused on students' psychological and emotional development in relation to their transition to college experiences.

3.2.2 The Writing Contexts—Students were assigned to write using either a WordPress blog or Microsoft Word. I purchased the domain name, thiscollegestory.com, and with the assistance of the New Media Lab hosted the site on The CUNY Graduate Center Server. To create user anonymity, I modified the blog appearance so that student email addresses were not visible to other students. I set the blog to display all of the student's hyperlinked pseudonyms in a list at the base of the blog homepage. In addition, when a student wrote a post or comment these were displayed on the blog homepage. The blog was not publicly accessible and the network was password protected using the More Privacy Options plugin (Version 4.0).

To ensure that the blogging activity was more interactive than the word-processing activity I worked with undergraduate research assistants – who also self-selected pseudonyms – to add one comment to all blog posts that had not received at least one peer comment after a week of being posted. The undergraduate research assistants were instructed to select a comment from one of five comment types with each of these comment types including five comment exemplars. The comment exemplars were based on previous studies involving a similar population of SEEK undergraduate students (Kreniske, 2014) and from a review of the blogging literature (Bolander, 2012; Lee, 2010; Mazur & Kozarian, 2010; Stonehouse, Keengwe, & Shabb, 2012). The five comment subtypes were enthusiastic, elaborative, questioning, encouraging, and intuitive. One enthusiastic comment was “nice post!”; an elaborative comment starter was “it’s interesting that... (followed by a detail from the selected post); a questioning exemplar was “I wonder how it might have been different if...”; an encouraging comment exemplar was “I know you’ll make it”; and intuitive comments were based on the research assistant’s intuition or gut feeling about what kind of comment to write.

The word processing group used the 2010 version of Microsoft Word. At the end of each writing session the undergraduate research assistants passed out flash drives and asked each participant to save their work. Once the work was saved the flash drives were collected and all of the writing was transferred to a password-protected computer.

3.3. Narrative Analysis

Throughout the semester I periodically read many of the students’ blogged and word processed narratives. Certain posts, ones that were bursting with capital letters, exclamation points and hyperbole caught my attention and it seemed like that was just what their authors had intended. At times the students who word-processed used these techniques too, but their use of these intensifying techniques appeared less frequent. I wondered if it was the more interactive blogging context that was fostering a writing style marked by higher rates of evaluative expressions, as compared to the less interactive word-processing context? To examine if there were quantifiable differences between the narratives written in the two contexts I applied a narrative analysis.

3.3.1. Narrative Exemplars—To give a sense of the student writing in the two contexts I have included four excerpts below. These excerpts are included verbatim, and as a result the creative uses of grammar and unconventional word spellings remain as written by students. In one, Kcl97, used numerous exclamation points in the first paragraph of a blog post titled “Yes! It’s Almost Over!”:

Man, oh man! I still cant believe I have almost made trough my first semester at X College. It seems like it was yesterday I was worried about how I was going to do in math. Oh, wait, that WAS yesterday! Oh Well, I am glad to tell you that although it has been hard, it still feels like it was a learning experience worth, well, experiencing.

Kcl97 sprinkled exclamation points throughout this post to add intensity to thoughts and emotions related to the end of the first semester in college. Kcl97 also used expressions like

“Man, oh man!” and “Oh” to add emphasis. Another technique for adding intensity that Kcl97 and many bloggers used was a string of capital letters. In this example, Kcl97 wrote “WAS” to emphasize the temporality of an emotion. Another blogger, Lamphor, used a different approach in his final post:

I felt a lot of stress. I was told that perhaps I should schedule my time more flexibly. Pshh! I tried. Didn't help. Even when I finished all the assigned works. There is still a scene of pressure bothering me. Numerous times I attempted to figure where went wrong. Yet, the only answer I found was that I didn't do well and there are always something I felt missing.

While Lamphor did use one exclamation point, intensity was also added with expressions like “a lot”, “only”, “always” and the expression “Pshh”. In contrast, a word processed narrative by Unknown used a more measured tone at the beginning of her word processed narrative:

Since I'm a Seek student, I have to take summer classes, which to help me preparing for the fall. My first few weeks at X College are fine, except my first day in X. I had missed my first class on the first day, it is a calculus prep class. And it turns out I'm running really late for my first day of my first class. I was quite worried about it on my way to X, and I realized that it was lunch time and the first class is already over as I arrived.

Unknown began this narrative by recounting events of her first day in the summer bridge program. She then used intensifiers such as “really”, “quite” and “already” to add emphasis to her thoughts and feelings about being late. Other students who word processed, like Unboxed, used more colloquial language to add intensity:

Now that semester is finally ending I feel the stress that all college students are talking about. Finals and essays, and no time. But all these things really determine if you're a student that can handle things. Throughout this semester I've learned that studying isn't bad and doesn't have to be boring and procrastinating sucks and that college is soon much freaking fun. How do I go to talking about finals then fun idk. It just is.

Unboxed used words like “sucks” and “freaking” to add intensity to the emotions in this final narrative of the semester. Despite this smattering of intensity in the word processed narrative, overall it seemed like the bloggers were using more intensity than the students who word processed. To determine if this was the case and to measure the rates of use for linguistic characteristics like intensity I used a significance analysis (Daiute, 2014; Kreniske, in press; Lucic, 2013).

3.3.2. Significance Analysis—A significance analysis is a type of narrative analysis that measures the evaluative components of language (Labov & Waletzky, 1967/1997) and has been applied to study the development of narrative abilities (Peterson & McCabe, 1983) and to analyze narratives in social science research (Daiute & Griffin, 1993; Daiute, Buteau, & Rawlins, 2001; Kreniske, 2014, in press; Lucic, 2013). For example, Lucic found narrators used more causal connectors, like *because*, *since*, and *therefore*, when addressing one type of

audience and used more affect expressions, such as, *love*, *detest*, *excited*, when addressing a different audience. Lucic used a significance analysis to show how narrators changed their writing when addressing different audiences. Such shifts in relation to audience become particularly important in digital media where the author can use specific language to appeal to a desired audience.

Unlike automated computer coding systems, which are based on frequencies of individual words, a significance analysis requires manual coding as it is concerned with how evaluative expressions are used within the context of a phrase, sentence, or even the entire narrative (Daiute, 2010, 2014; Kreniske, 2014, in press; Lucic, 2013). For example, depending on context, the word *like* could be an expression of affect or it could be used to compare two things. Using a significance analysis enables researchers to identify, and measure, a narrator's intended emphasis as well as the cognitive and emotional energy devoted to creating the narrative (Daiute, 2010, 2014; Kreniske, 2014, in press; Lucic, 2013; Peterson & McCabe, 1983).

3.3.3. Evaluative Expressions—Evaluative expressions communicate thoughts, emotions, and emphasis and these are linguistic markers of a narrator's sense-making process (Daiute & Nelson, 1997; Polkinghorne, 1988). By focusing on evaluative expressions researchers can interpret where a narrator places emphasis, how they explain their thinking, describe emotion, and how they use these elements differently depending on the audience. These evaluative expressions allow researchers to interpret how narrators enact *significance* in their writing (Polkinghorne, 1988). In other words, these evaluative expressions are the linguistic tools that narrators use to mark what is important and meaningful in their stories. These markers of importance and meaning often relate to how a narrator experienced a particular moment, and how they are attempting to communicate this experience to their intended audience.

While there are many types of evaluative expressions, the current study focused on the ways that the students expressed psychological states like cognition and affect, and how students added extra emphasis using intensifying techniques. Psychological state expressions can be cognitive, such as *think*, *consider* and *realize*, or affective, such as *feel*, *happy*, and *frown*. These psychological states bring a narrative to life and help transform a writer's thoughts into communicable images. Narrators express emphasis with intensifiers, such as *very*, and *really*, or with exclamation points, capital letters, or a repetition of words or letters.

Narrative and psychological theory hold that these expressions as written on the page, or screen, are physical manifestations of thoughts and emotions (Daiute, 2014; Polkinghorne, 1988; Merleau-Ponty, 1945/2014; Wertsch, 1991). Therefore, a significance analysis, which focuses on these expressions is in fact one approach for measuring how a narrator thinks and feels. As in the current study, when used over time to analyze multiple narratives from individual participants the approach can illuminate the ways that a narrator's thoughts and emotions changed and how these changes depended on the affordances of the writing context.

3.3.4. Narrative Analysis Reliability—An undergraduate research assistant and I used the qualitative software ATLAS.ti to manually code student narratives. Importing the narratives into ATLAS.ti and thus removing the physical markers of the original medium allowed us to be blind to the writing condition as we coded. Initially we used narratives from a previous study on transfer student bloggers to refine our narrative coding system (Kreniske, 2014). I then randomly selected 20% of the narratives that we both coded to establish inter-rater reliability. Cohen's κ indicated there was a high level of agreement (Landis & Kock, 1977) between the coders, $\kappa = .85$, $p < .0001$. Given the labor intensive nature of the coding process and our respective time commitments, I then proceeded to code 60% of the remaining narratives and the research assistant coded 20%. The following significance analysis of two excerpts, one blogged and one word-processed, illustrates the coding schema. The following 80-word excerpt from the blogger Daydreamer19's first post (bold added) is used here to illustrate the coding schema:

The next class went about smoothly because the professor **seemed** very down to earth and funny so that **always** helps. The next three days went better. I **really** like how diversity is a big thing hear. Its **actually** one of the big things I liked about X. There are **so** many different people that are races and cultures that I've never **even** heard of before. Unlike high school most of these classes aren't boring and they **actually** make you **think**.

Here Daydreamer19, used two cognitive expressions, *seemed* and *think*; one affective expression, *liked*; and five intensifiers, *always*, *really*, *actually*, *even* and *finally*.

To illustrate the type of comparisons that were made across the entire set of narratives here is a 73-word excerpt from Pseudonym's first word-processed narrative:

We **all** need someone to hang out with; college is a **lot** worse when you have to go through it alone. I also **thought** that I wouldn't be smart enough to attend X and that maybe it would be **too** hard and I would eventually drop out. But then I **realized**, if **everyone** was smart enough then they probably wouldn't be at X College and this helped me to stop **worrying so** much.

Pseudonym used two cognitive expressions, *thought* and *realized*, one affect expression, *worrying*, and four intensifiers, *all*, *lot*, *too*, and *so*. In these examples, the writing may seem quite similar. Both students used two cognitive expressions and one affective expression. Further, Daydreamer19 used five intensifiers where Pseudonym used four. Although the difference may seem small, when aggregated over the entire narrative and for many participants, a significance analysis can highlight the ways participants enact thoughts, emotions, and intensity in their writing and how this differs over time and across writing contexts. To determine if the differences in rates of use of cognitive, affective, and intensifying evaluative expressions between contexts and over time were significant I used a series of Hierarchical Linear Models (HLM).

4. Results

In the current study, an analysis of evaluative language allowed for a comparison of how two writing contexts, each with distinct capabilities for audience interaction, had different

influences on the way students wrote and made sense of their college transition. The results are presented in four sections with each section focusing on one linguistic characteristic and the relevant HLM.

HLM was used to statistically analyze how students wrote differently on a blog as compared to a word-processor and how this changed over time. Of particular interest were fluency – defined as total words in a narrative – and linguistic features such as *cognitive*, *affective* and *intensifying* evaluative expressions each of which were level-1 outcome variables for separate HLM equations) and how these features changed in students' writing over time (level-1 predictor variable) and in the two different writing contexts (level-2 predictor variable). HLM² is appropriate for measuring change over time between groups and individuals and has been of use to researchers in a wide range of educational contexts (Garson, 2013; West, 2009; Woltman, Feldstain, MacKay & Rocchi, 2012; Raudenbush, 1993; Raudenbush & Bryk, 2002). Researchers have suggested that HLM is well suited for studies making comparisons between media (McFarland & Ployhart, 2015).

4.1. HLM Equations

Before delving into the HLM models, Table 1 presents the means and standard deviations by Writing Context and Time, for fluency, and for cognitive and intensifying evaluative expressions.

To determine if the observable differences in this table were significant I conducted a series of HLM models. In general, an HLM analysis indicates if the intercepts and slopes for a particular variable are different. In the current study the intercept indicated the level of fluency or the rate of use for a particular linguistic expression (intensifying or cognitive) at a specific time point (Time 1 or Time 4) and for each writing context (blogged or word-processed). Given the labor intensive nature of the narrative coding and the fact that the research questions were concerned with the change in students writing from the beginning to the end of the study and the analysis focused on students first, Time 1, and last, Time 4 writings. The slope indicated the rate of change between the two time points for the selected level 1 outcome variable (fluency or cognitive, affective, and intensifying evaluative expressions). For readers interested in interpreting the details of the HLM models please see Appendix A.

4.1.2. Fluency HLM—First, I explored the results for fluency and how fluency differed for students writing in the blogging as compared to the word-processing context and over time as shown in Table 2.

Results indicated fluency differed for students writing in the blogging as compared to the word-processing context and over time. As illustrated in Figure 1, the students who blogged wrote shorter narratives at both Time 1 and Time 4 than the students who word-processed. Table 2 shows the intercept for fluency for the students who word-processed which was 542.87 words while the intercept for students who blogged was 375.84 words, or in other words the bloggers intercept was 167.03 words less than that of the word-processed

²All analyses were conducted using HLM 7 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011).

intercept. This indicated the writing context (blog or word-processor) influenced the length of student narratives and that the students in the blogging group wrote shorter narratives than students in the word-processing group. In addition, there was a significant effect of writing context on the slope of fluency, which meant the length of narratives that the students in each context changed at different rates over time. The fluency slope for the blogging group was more gradual and the word processing group's slope showed a more dramatic decline from Time 1 to Time 4 ($\gamma_{II} = 114.32$, $t = 3.56$, $p < 0.001$).

4.1.3. Cognitive Expressions HLM—I then explored the results for the rate of cognitive expressions and how they differed for students writing with the blogging as compared to the word-processing context and over time. As shown in Table 3, at Time 1 the intercepts for rates of cognitive expression use for the students in the blogging and word-processing context did not differ significantly ($\gamma_{0I} = -.01$, $t = -0.04$). This meant that at Time 1 the writing context (blog or word-processor) did not influence the rate at which students used cognitive expressions. By Time 4 the blogging and word-processing groups' rates of cognitive expressions did differ significantly ($\gamma_{0I} = 0.72$, $t = 2.50$, $p = 0.014$).

As displayed in Figure 2, the writing context did influence the rate at which students used cognitive expressions at Time 4, with the bloggers using cognitive expressions at a mean rate of 3.4 and the word processing group using cognitive expressions at a mean rate of 2.7. Although students in the blogging context increased the use of cognitive expressions at a greater rate over time as compared to the word processing group, the difference in slopes was not significant.

4.1.3. Affective Expressions HLM—While differences in the rates of affective word use was predicted, there were no significant differences between the affective use slopes and intercepts at Time 1 or Time 4 for students in the different writing contexts (Appendix E).

4.1.4. Intensifying Language HLM—Finally, I examined the rate of intensifying language (*INTENSE*) for students writing in the blogging as compared to the word-processing context over time. As displayed in Table 4, at Time 1 the blogging and word-processing groups' intercepts did not differ significantly ($\gamma_{0I} = .18$, $t = .21$) indicating that at Time 1 the writing context (blog or word-processor) did not influence the rate at which students used intensifying language.

At Time 4 the blogging and word-processing groups' rates of intensifiers did differ significantly ($\gamma_{0I} = 3.39$, $t = 2.49$, $p = 0.015$). This indicated that writing context did influence the rate that students used intensifying language at Time 4 with the blogging group using intensifiers at a mean rate of 9.33 and the word processing group using intensifiers at a rate of 5.94; the blogging medium was positively related to a higher rate of intensifier use. A slightly different HLM equation was used to generate Time 1 intercepts. The full equation and tables are not included in the body of the text but are included in Appendix A.

In addition, there was a significant effect of writing context on the slope of intensifier use with the blogging group's rate of intensifier use increasing over time as compared the word-processing group – whose rate of intensifier use decreased over time ($\gamma_{II} = 3.213875$, $t =$

2.228, $p = 0.028$). As displayed in Figure 3 the writing context influenced the rate of intensifier use over time where the students who blogged increased their use of intensifiers from Time 1 to Time 4 and the students who word-processed decreased their use of intensifiers.

Discussion

The current work shows how three linguistic characteristics of student writing changed over time depending on the writing context. The main difference between the writing contexts was that the blog afforded audience interactivity, while the word-processor did not. Drawing on narrative and psychological theory and interpreting these evaluative expressions as a measure of students thinking and feeling, these findings suggest that students were actually experiencing the transition to college in different ways depending on the interactive affordances of the writing context. The differences in the ways students wrote about, and experienced the transition to college depending on the context have implications for researchers who study narrator-audience interactions and practitioners who use expressive writing in first-year curricula.

5.1. Discussion of Differences in Fluency

Previous studies have found that students write longer texts when using a word-processor as compared to pencil and paper (MacArthur, 2009). The current work suggests that different writing contexts may have distinct influences on fluency. The bloggers wrote less at both Time 1 and Time 4 than students in the word-processing group. One explanation for this difference is that students may be accustomed to reading and also writing relatively short narratives in interactive Internet based media. For the great majority of students (87%) blogging was a new activity. However, as noted in the methods, 76% of students reported using Facebook where the average Facebook post is only 122 words (Cvijikj & Michahelles, 2011). Recent work in composition studies draws on activity systems theory (Tuomi-Gröhn & Engeström, 2003) and considers how writers transfer their prior knowledge and practices across contexts and tasks (Moore & Anson, 2016; Yancey, Robertson, and Taczak, 2014). In the current study it seems likely that the student bloggers were calling on their prior knowledge of Internet texts and purposefully composing shorter narratives compared to their counterparts who wrote with a word-processor. Similarly, students who used the word-processor may have called upon their prior knowledge and experiences with word-processors that likely involved longer academic texts.

Another possible explanation for the difference in fluency in the two writing contexts could be that the students writing with the word-processor felt less inhibited than the bloggers. Perhaps, the peer audience and potential peer feedback served to constrain the bloggers writing. In contrast, the students who word-processed may have felt more comfortable sharing their ideas about the transition to college with an imagined peer audience that offered no potential for feedback.

It is also possible that the writing context had some other effect on writing that the current analysis did not capture. For example, while the bloggers wrote shorter narratives they may have used richer vocabulary, or more words per sentence, or used more condensed

expressions. To determine if there were differences in these and other types of narrative expression future analyses and studies are needed.

While the word-processing group consistently wrote longer narratives, the bloggers narrative mean lengths declined less dramatically from Time 1 to Time 4. This may indicate that the word-processing group's motivation to write decreased more rapidly over time. In contrast, the bloggers more gradual decline in fluency may indicate that the interactive audience continued to motivate the bloggers to share their emotions and ideas about the transition to college over time. This explanation is bolstered by the results from the analyses of cognitive, and intensifying expressions.

5.2. Discussion of Differences in Cognitive Expressions

At Time 1 cognitive word use did not differ between the blogged and word-processed narratives. However, by Time 4 the bloggers used a significantly greater rate of cognitive expressions. The prompt was designed to encourage students to use writing as a tool to make-sense of their transition to college. In this context sense-making involved figuring out how to think about, reflect on, and write about their first semester in college experience. The higher rates of cognitive expressions used by the bloggers suggest that the interactive blogging medium encouraged the bloggers to engage in more cognitive related sense-making than their peers who word-processed.

5.3. Discussion of Affective Expressions

Contrary to the initial hypothesis the rate of affect expressions did not differ between the two writing contexts. Although affect did not differ, the rate of intensifying expressions did. Other researchers have found that intensifying expressions often co-occur with affect and in many cases may be used to modify and amplify affect (Daiute & Griffin, 1993).

5.4. Discussion of Changes in Intensifying Expressions

While the use of intensifying expressions for the bloggers and the students who word-processed did not differ at Time 1, by Time 4 the bloggers used significantly more intensifiers. In addition, the two group's slopes differed significantly with the bloggers using more intensifiers at Time 4 than they used at Time 1 and the word-processing group using fewer intensifiers at Time 4 than they used at Time 1. This indicated that the blog context influenced students to increase their rate of intensifier use. In previous work I found that posts with high levels of intensity were the most likely to receive peer comments (Kreniske, in press). Intensifiers in general, and exclamation points and strings of capital letters in particular are interactive linguistic expressions that narrators use to add emphasis and call attention to their thoughts and emotions. Perhaps, the more interactive blogging context encouraged the bloggers to use higher rates of intensifiers in an attempt to attract peer readers and peer comments.

Another, not mutually exclusive explanation, is that the interactive features of the blog fostered intense writing because the bloggers were actually feeling and thinking more intensely than the students who word processed. Intensifying and cognitive expressions are linguistic markers of sense-making. The higher rates of intense and cognitive expressions are

evidence that the interactive blogging context, as compared to the word-processing context, was better suited to foster reflective writing about the transition to college.

5.5 Discussion of Evaluative Expressions in Transition to College Writing

As noted previously, it is well established that writing is a powerful tool for making-sense of and figuring out challenges (Daiute, 2010; Lucic, 2013). Writing is an important activity that may help all first-year students make sense of their transition to college experiences. Research shows that this transition is particularly challenging for low-income, first-generation, college students, and therefore, for these students writing about the transition may be particularly important (Hurtado & Carter, 1997; The Pell Institute, 2015; Wine, Janson, & Wheelless, 2011; Zhang & Smith, 2011). The current study adds to the field by demonstrating that the affordances of the writing context matter for the way that students write, think and experience the transition to college. Over time it was the blogging context that fostered the development of student writing that was more focused on figuring out this transition. As the blogger Kcl97 wrote:

To any up coming college student, trying to figure out how things are going to work out in those first weeks of college is one of the hardest parts of the experience. Getting to make friends, meet teachers, and getting your way around campus can be very difficult.

While both the bloggers and the students who word processed were told that future students would read their narratives, the current findings suggest that the affordances of the context, encouraged bloggers like Kcl97 to be more aware of and thus more explicitly address their narratives to current peers and future students. Further, perhaps due to this interactive audience, the bloggers actually used the writing activity to *figure out* and make sense their transition to college experiences more frequently than the students who word processed.

5. Conclusions and Implications

The importance of audience has been well documented by literacy scholars (Bakhtin, 1986; Bazerman, 2004; Ede, 1989; Flower, 1979; McLane, 1992; Ong, 1975). Recent researchers have shown that narrators write differently when addressing different audiences. (Daiute, 2010; Daiute, Todorova & Kovacs-Cerovic, 2016; Lucic, 2013). The current work presents one of the first quasi-experimental studies to explore the ways that contemporary writing media, like blogs, which afford narrator-audience interaction, influence students' writing differently than conventional writing media, such as the word-processor.

It is critical to highlight that aside from fluency the linguistic characteristics of student narratives in the two conditions did not differ at Time 1. It was over time that the bloggers developed a style marked by high rates of cognitive expressions and intensifying language. One interpretation of these findings is that over time students were in fact experiencing the transition to college in different ways depending on the writing context. Another perspective on this change was that the students in the two groups were developing their writing skills differently depending on the affordances of the writing context, with the bloggers transferring approaches from other social media and from their peers on the first-year blog in an attempt to attract peer readers and comments (Moore & Anson, 2016; Yancey, Robertson,

& Taczak, 2014). In fact, in a separate analysis that draws on the same corpus, I showed that over time the blog posts with the highest rates of cognitive, emotional and intensifying expressions did receive the most peer comments (Kreniske, in press). In contrast, the students who word-processed may have been more influenced by their previous experiences with academic writing.

The diverse characteristics of the current college and program of study are worth noting: this was a majority minority college, and a specific program in which the majority of students reported that English was not their first language. The linguistic diversity of the student population is an important factor to consider in terms of how students writing developed over time. Previous work has suggested that the blogs are well suited for supporting ELLs writing development (Arslan & ahin-Kızıl, 2010; Golonka et al., 2012; Vurdien, 2011). A future study could explore if students whose first and only language was English would use the blog and word-processing contexts in ways that were distinct from the current linguistically diverse population.

Not only were students in the current study linguistically diverse, they were also as previously noted, all from low-income families and the majority were the first their family to attend college. While continuing generation students may be able to seek guidance regarding their transition to college from family members; first-generation college students do not have access to such resources as they are by definition the first in their family to face the challenges associated with entering and succeeding in college. The blog network provided a space for these students to make-sense of this transition as well as to read and interact with their peers who were facing similar challenges. Further, the higher rates of cognitive and intensifying expressions, both markers of sense-making, indicate that the blog as compared to the word-processing context fostered a fundamentally different kind of writing and thinking about this transition process.

As in the excerpt from kcl97, the students used this space to work through both their individual challenges and offer advice to current and future students like them. While the students who word processed did not have the benefit of interacting with their peers and sharing common experiences, they too used the writing activity to make-sense of their transition as demonstrated earlier by Pseudonym's excerpt. Future work might explore if writing about the transition to college is beneficial for all students, or is this activity best suited for and best addresses the unique challenges faced by first-generation students?

One limitation of the current work is that in creating two archetypical low-stakes writing contexts, the media and the commenting features were conflated and in some sense exaggerated. Given the current design it is not possible to completely disentangle the influence of the media, such as the format of the blog post or word-processed document, from the influence of audience interactivity. However, if the formatting or some other technical aspect of the media was the cause of the difference in students' writing, we would expect to see differences in the use of evaluative expressions at all time points, including Time 1. As previously noted, at Time 1 there were no differences in the use of evaluative expressions between the two contexts. Therefore, as has been stated throughout this paper, peer commenting – which occurred after students wrote their Time 1 and subsequent

narratives – was likely the main cause for the changes in the evaluative expressions across the two contexts over time.

A strength of the current design was that these two contexts do in fact reflect writing contexts as they actually and often occur in college classrooms. The contexts also reflect the imagined affordances of each media: there is a general expectation of audience comments on a blog, and while possible, peer commenting – especially by multiple peers – is less widely used in word-processing contexts. To continue this line of study, and examine if the differences in writing were due to the media, future researchers might compare writing from two blogging contexts: one that allowed for comments, and one that did not.

6.1 Practice Implications

While researchers may be intent on studying the dynamics of narrator-audience relations, it is practitioners who have the skills needed to design and implement meaningful writing activities. Findings from the current work illuminate the ways that an interactive audience influenced students' writing over time and the ways that this development was related to making sense of the transition to college. The more sustained, and intense student writing on the blog over time as compared to the word-processing context, suggests that the students found the blogging activity more meaningful and this may be related to the unique experience of transitioning to college as a first-generation and low-income student.

As compared to traditional college students, first-generation and low-income students must negotiate the transition to college with fewer resources. Considering this disparity, the first-year seminar blog might have been particularly useful because it fostered more intense reflective writing and simultaneously functioned as an additional resource for gathering information, sharing experiences, and garnering peer support. However, the word-processing context may be better suited for one time writing activities as it inspired greater fluency, and in the case of a single writing assignment it did not appear to differ from blogging in any other linguistic measure. While the new college context can be stressful, it also presents a great opportunity for students to use reflective writing as a tool for making sense of their transition experiences. The current work shows that over time the affordances of the context influenced the way students used writing to make sense of this transition.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

References

- Arslan, Recep ., ahin-Kızıl, Aysel. How can the use of blog software facilitate the writing process of English language learners? *Computer Assisted Language Learning*. 2010; 23(10):183–197.
- Baker, James R., Moore, Susan. Blogging as a social tool: A psychosocial examination of the effects of blogging. *Cyberpsychology*. 2008; 11(6):747–749.
- Bakhtin, Mikhail. *Speech genres and other late essays*. McGee, Vern W., translator. Austin, TX: University of Texas Press; 1986. p. 60-102.
- Bane, Cynthia M., Cornish, Marilyn, Erspamer, Nicole, Kampman, Lia. Self-disclosure through weblogs and perceptions of online and 'real-life' friendships among female bloggers. *Cyberpsychology, Behavior, & Social Networking*. 2012; 13:131–9.

- Bazerman, Charles. Intertextualities: Volosinov, Bakhtin, literacy theory, and literacy studies. Ball, Arnetta F., Freedman, Sarah W., editors. Cambridge, United Kingdom: Cambridge University Press; 2004. p. 53-66.
- Bean, John C. Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom. San Francisco: Jossey-Bass; 2011.
- Benkler, Yochai. The wealth of networks. 2006. Retrieved from http://www.benkler.org/Benkler_Wealth_Of_Networks.pdf
- Black, Kathleen. Audience analysis and persuasive writing at the college level. *Research in the Teaching of English*. 1989; 23(3):231-253.
- Bolander, Brook. Disagreements and agreements in personal/diary blogs: A closer look at responsiveness. *Journal of Pragmatics*. 2012; 44:1607-1622.
- Boniell-Nissim, Meyran, Barak, Azy. The therapeutic value of adolescents' blogging about social-emotional difficulties. *Psychological Services*. 2011; Advance online publication. doi: 10.1037/a0026664
- Bruner, Jerome. *Actual Minds, Possible Worlds*. Cambridge, MA: Harvard University Press; 1986.
- Burns, Hugh L., Culp, George H. Stimulating invention in English composition through computer-assisted instruction. *Educational Technology*. 1980; 20(5):5-10.
- Bukvova, Helena. Taking new routes: Blogs, web sites, and scientific publishing. *ScieComInfo*. 2011; 2(2):2-7.
- Clark, Marcia R. Negotiating the freshman year: Challenges and strategies among first-year college students. *Journal of College Development*. 2005; 46(3):296-316.
- Cohen, Moshe, Riel, Margaret. The effect of distant audiences on students' writing. *American Educational Research Journal*. 1989; 26(2):143-159.
- Collier, Richard M. The word processor and revision strategies. *College Composition and Communication*. 1983; 34(2):149-155.
- Cvijikj, Irena P., Michahelles, Florian. Understanding the User Generated Content and Interactions on a Facebook Brand Page. *International Journal of Social and Humanistic Computing (IJS HC)* Special Issue "Contemporary Social Media Topics in Business and Public Organizations". 2012
- Daiute, Colette. The computer as stylus and audience. *College Composition and Communication*. 1983; 34(2):134-145.
- Daiute, Colette. *Writing & computers*. Reading, MA: Addison-Wesley Publishing Company; 1985.
- Daiute, Colette. Human development and political violence. NY: Cambridge University Press; 2010. p. 77-112. p. 185-220.
- Daiute, Colette. *Narrative inquiry: A dynamic approach*. Thousand Oaks, CA: SAGE Publications; 2014. p. 150-189.
- Daiute, Colette, Buteau, Ellie, Rawlins, Caren. Social-relational wisdom: Developmental diversity in children's written narratives about social conflict. *Narrative Inquiry*. 2001; 11(2):1-30.
- Daiute, Colette, Griffin, Terri M. The social construction of written narrative. In: Daiute, C., editor. *The development of literacy through social interaction*. San Francisco: Jossey-Bass; 1993. p. 191-210.
- Daiute, Colette, Kruidenier, John. A self-questioning strategy to increase young writers' revising processes. *Applied Psycholinguistics*. 1985; 6:307-318.
30. Davidson, Cathy N. Collaborative learning for the digital age. *The Chronicle of Higher Education*. 2011 Aug 26. Retrieved from <http://www.chronicle.com>
- Dich, Linh. Community enclaves and public imaginaries: Formations of Asian American online identities. *Computers and Composition*. 2016; 40:87-102.
- Ducate, Lara C., Lomicka, Lara L. Adventures in the blogosphere: From blog readers to blog writers. *Computer Assisted Language Learning*. 2008; 21(1):9-28.
- Ede, Lisa. Writing as a social process: A theoretical foundation for writing centers? *Writing Center Journal*. 1989; 9(2):3-13.
- Elbow, Peter, Sorcinelli, Mary D. How to enhance learning by using high-stakes and low-stakes writing. In: McKeachie, WJ.Svinicki, M., Hofer, BK., editors. *McKeachie's Teaching Tips:*

- Strategies, Research, and Theory for College and University Teachers. 12. Boston, MA: Houghton Mifflin; 2005. p. 192-212.
- Ellison, Nicole B., Wu, Yuehua. Blogging in the classroom: a preliminary exploration of student attitudes and impact on comprehension. *Journal of Educational Multimedia and Hypermedia*. 2008; 17(1):99–122.
- Fishman, Jenn, Lunsford, Andrea, McGregor, Beth, Otuteye, Mark. Performing writing, performing literacy. *College Composition and Communication*. 2005; 57(2):224–252.
- Flinn, Jane Z. Case studies of revision aided by keystroke recording and replaying software. *Computers and Composition*. 1987; 5(1):31–44.
- Flower, Linda. Writer-based prose: A cognitive basis for problems in writing. *College English*. 1979; 41:19–37.
- Freedman, Sarah W. Exchanging writing, exchanging cultures: Lessons in school reform from the United States and Great Britain. Cambridge, MA: Harvard University Press; 1994.
- Garson, G David. A random intercept regression model using HLM: Cohort analysis of a mathematics curriculum for mathematically promising students. In: Garson, GD., editor. *Hierarchical linear modeling: Guide and applications*. Thousand Oaks, CA: SAGE Publications; 2013. p. 167-182.
- Gibson, James J. *The ecological approach to visual perception*. Boston, MA: Houghton Mifflin; 1979.
- Golonka, Ewa M., Bowles, Anita R., Frank, Victor M., Richardson, Dorna L., Freynik, Suzanne. Technologies for foreign language learning: a review of technology types and their effectiveness. *Computer Assisted Language Learning*. 2012; 27(1):70–105.
- Graves, Lucas. The Affordances of Blogging. *Journal of Communication Inquiry*. 2007; 31(4):331–346.
- Hawisher, Gail, LeBlanc, Paul, Moran, Charles, Selfe, Cynthia L. *Computers and the history of writing in American Higher Education, 1979–1994: A History*. Norwood, NJ: Ablex Publishing; 1996. p. 17-123.
- Hurtado, Sylva, Carter, Deborah F. Effects of college transition and perceptions of the campus racial climate on Latino college students' sense of belonging. *Sociology Of Education*. 1997; 70(4):324–345. DOI: 10.2307/2673270
- Hurtado, Sylva, Carter, Deborah F., Spuler, Albert. Latino student transition to college: Assessing difficulties and factors in successful college adjustment. *Research in Higher Education*. 1996; 37(2):135–157.
- Kidder, Tracy. *The soul of the new machine*. New York, NY: Little, Brown and Co; 1981/1997.
- Ko, Hsiu-Chia, Kuo, Feng-Yang. Can blogging enhance subjective well-being through self-disclosure? *CyberPsychology, Behavior, and Social Networking*. 2009; 12:75–9.
- Kreniske, Philip. Writing beyond the psych course. In: Kreniske (Chair), P., editor. *Two Dynamic Approaches for Supporting Writing in and Beyond Psychology*; Paper presented at the annual conference on the Teaching of Psychology; Atlanta, GA. 2014.
- Kreniske P. Developing a culture of commenting in a first-year seminar. *Computers in Human Behavior*. (in press).
- Labov, William, Waletzky, Joshua. Narrative analysis: Oral versions of personal experience. *Journal of Narrative and Life History*. 1967/1997; 7(1–4):3–38.
- Landis, Richard J., Koch, Gary G. The measurement of observer agreement for categorical data. *Biometrics*. 1977; 33:159–174. [PubMed: 843571]
- Lee, Lina. Fostering reflective writing and interactive exchange through blogging in an advanced language course. *ReCALL : The Journal of EUROCALL*. 2010; 22(2):212–227. doi:<http://dx.doi.org/10.1017/S095834401000008X>.
- Lohfink, Mandy M., Paulsen, Michael B. Comparing the determinants of persistence for first-generation and continuing-generation students. *Journal of College Student Development*. 2005; 46(4):409–428.
- Lucic, Luka. Use of evaluative expressions by youth for sense-making of culturally diverse interpersonal interactions. *International Journal of Intercultural Relations*. 2013
- MacArthur, Charles A. Reflections on research and technology for struggling writers. *Learning Disabilities Research & Practice*. 2009; 24:93–103.

- Mazur, Elizabeth, Kozarian, Lauri. Self-Presentation and interaction in blogs of adolescents and young emerging adults. *Journal Of Adolescent Research*. 2010; 25(1):124–144.
- McLane, Joan B. Writing as a social process. In: Moll, Luis C., editor. *Vygotsky and education: Instructional implications and applications of sociohistorical psychology*. New York, NY: Cambridge University Press; 1992. p. 304-319.
- Merleau-Ponty, Maurice. *Phenomenology of Perception*. Landes, Donald A., translator. New York, NY: Routledge; 1945/2014.
- Moore, Jessie L., Rosinski, Paula, Peeples, Tim, Pigg, Stacey, Rife, Martine C., Brunk-Chavez, Beth, Lackey, Dundee, Rumsey, Suzanne K., Tasaka, Robyn, Curran, Paul, Grabill, Jeffrey T. Revisualizing composition: How first-year writers use composing technologies. *Computers and Composition*. 2016; 39:1–13.
- Moore, Jesse L., Anson, Chris M. Introduction. In: Anson, Chris M., Moore, Jessie L., editors. *Critical Transitions: Writing and the Question of Transfer. Perspectives on Writing*. Fort Collins, Colorado: The WAC Clearinghouse and University Press of Colorado; 2016. p. 2-11.
- Nagy, Peter, Gina, Neff. Imagined affordance: Reconstructing a keyword for communication theory. *Social Media + Society*. 2015; 1(2):1–9.
- National Center for Education Statistics. Washington, DC: U.S. Department of Education; 2013. Digest of education statistics 2012. <http://nces.ed.gov/programs/digest>
- Nielsen. [Retrieved April 5, 2013] Buzz in the Blogosphere: Millions More Bloggers and Blog Readers. Newswire. 2012 Mar 8. from <http://www.nielsen.com/us/en/newswire/2012/buzz-in-the-blogosphere-millions-morebloggers-and-blog-readers.html>
- Ong, Walter J. The writer's audience is always a fiction. *Publications of the Modern Language Association of America*. 1975; 90(1):9–21.
- Peterson, Carole, McCabe, Allyssa. *Developmental psycholinguistics: Three ways of looking at a child's narrative*. New York: Plenum; 1983. 1983.
- Polkinghorne, Donald E. *Narrative Knowing and the Human Sciences*. Albany, NY: State University of New York Press; 1988.
- Powell, Douglas A., Jacob, Casey J., Chapman, Benjamin J. Using blogs and new media in academic practice: Potential roles in research, teaching, learning, and extension. *Innovative Higher Education*. 2012; 37:271–282.
- Purcell, Kristin, Buchanan, Judy, Friedrich, Linda. The impact of digital tools on student writing and how writing is taught in schools. Pew Research Center; Washington D.C.: 2013. Retrieved from <http://pewinternet.org/Reports/2013/Teachers-technology-and-writing>
- Raudenbush, Stephen W. Hierarchical linear models and experimental design. In: Edwards, Lynne K., editor. *Applied analysis of variance in behavioral science*. New York: Marcel Dekker; 1993. p. 459-496.
- Raudenbush, Stephen W., Bryk, Anthony S. *Hierarchical linear models: Applications and data analysis methods*. 2. Newbury Park, CA: Sage; 2002.
- Raudenbush, Stephen W., Bryk, Anthony S., Cheong, Yuk F., Congdon, Richard T., du Toit, Mathilda. *HLM 7: Hierarchical linear and nonlinear modeling*. Chicago, IL: Scientific Software International; 2011.
- Scardamalia, Marlene, Bereiter, Carl, McLean, Robert S., Swallow, Jonathan, Woodruff, Earl. Computer supported intentional learning environments. *Journal of Educational Computing*. 1989; 5(1):51–68.
- Schwartz, Helen J. Monsters and mentors: Computer applications for humanistic education. *College English*. 1982; 44(2):141–152.
- Schmitt, Kelly L., Davanim, Shoshana, Matthias, Stacey. Personal homepage construction as an expression of social development. *Developmental Psychology*. 2008; 44:496–506. [PubMed: 18331139]
- Soria, Krista M. Creating a successful transition for working-class first-year students. *The Journal of College Orientation and Transition*. 2012; 20(1):44–55.
- Sosnowy, Collette. Unpublished doctoral dissertation. The Graduate Center (CUNY); New York, NY: 2013. Blogging chronic illness and negotiating patient-hood: Online narratives of women with MS.

- Stonehouse, Pauline, Keengwe, Jared, Shabb, Cynthia. Using blogs as a technology tool to promote teaching goals in education. *International Journal of Information and Communication Technology Education*. 2012; 8(1):44–52.
- Terenzini, Patrick T., Rendon, Laura I., Upcraft, Lee M., Millar, Susan B., Allison, Kevin W., Gregg, Patricia L., Jalomo, Romero. The transition to college: Diverse students, diverse stories. *Research in Higher Education*. 1994; 35(1):57–73.
- Thanem, Torkild. Affordances. In: Thorpe, R., Holt, R., editors. *The SAGE dictionary of qualitative methods research*. Thousand Oaks, CA: SAGE Publications Inc.; 2008. p. 26-28.
- The Pell Institute. Indicators of higher education equity in the United States: 45 Year trend report. 2015. Retrieved from http://www.pellinstitute.org/downloads/publications-Indicators_of_Higher_Education_Equity_in_the_US_45_Year_Trend_Report.pdf
- Tuomi-Gröhn, Terttu, Engeström, Yrjö. Conceptualizing transfer: From standard notions to developmental perspectives. In: Tuomi-Gröhn, T., Engeström, Y., editors. *Between school and work: New perspectives on transfer and boundary-crossing*. Bingley, UK: Emerald Group Publishing; 2003. p. 19-38.
- Vie, Stephanie. Digital divide 2.0: “Generation M” and online social networking sites in the composition classroom. *Computers and Composition*. 2008; 25(1):9–23.
- Vurdien, Ruby. Enhancing writing skills through blogging in an advanced English as a Foreign Language class in Spain. *Computer Assisted Language Learning*. 2011; 26(2):126–143.
- Walton, Gregory M., Cohen, Geoffrey L. A brief social-belonging intervention Improves academic and health outcomes of minority students. *Science*. 2011; 331(6023):1447–1451. DOI: 10.1126/science.1198364 [PubMed: 21415354]
101. Wertsch, James V. *Voices of the mind: A sociocultural approach to mediated action*. Cambridge, MA: Harvard University Press; 1991.
102. West, Brady T. Analyzing longitudinal data with the linear mixed models procedure in SPSS. *Evaluation and the Health Professions*. 2009; 32(3):207–228. [PubMed: 19679634]
103. Wine, J., Janson, N., Wheelless, S. National Center for Education Statistics, Institute of Education Sciences. U.S. Department of Education; Washington, DC: 2011. 2004/09 Beginning Postsecondary Students Longitudinal Study (BPS:04/09) Full-scale Methodology Report on graduation rates (NCES 2012-246). Retrieved from <http://nces.ed.gov/pubsearch>
104. Woltman, Heather, Feldstain, Andrea, MacKay, Christine, Rocchi, Meredith. An Introduction to hierarchical linear modeling. *Tutorials in Quantitative Methods for Psychology*. 2012; 8(1):52–69.
106. Yancey, Kathleen B., Robertson, Liane, Taczak, Kara. *Writing across contexts: Transfer, composition, and sites of writing*. Logan, UT: Utah State University Press; 2014.
108. Zhang, Pidi, Smith, William. From high school to college: The transition experiences of Black and White students. *Journal of Black Studies*. 2011; 42(5):828–845.

Appendix A

Note: For all of the following equations Time 1 was coded as –1, and Time 4 was coded as 0 to generate the Time 4 intercepts and Time 1 was coded as 0, and Time 4 was coded as 1 to generate the Time 4 intercepts. The results have been combined in the following tables. For writing context, word processing was coded as 0 and blogging was coded as 1.

Level- 1 Model

$$\text{FLUENCY}_{ij} = \beta_{0j} + \beta_{1j} * (\text{TIME}_{ij}) + r_{ij}$$

$$\text{var}(r_{ij}) = \sigma^2$$
Level- 2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * (\text{CONTEXT}_j) + u_{0j}$$

$$\text{var}(u_{0j}) = \tau_{00}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} * (\text{CONTEXT}_j) + u_{1j}$$

$$\text{var}(u_{1j}) = \tau_{11}$$
Mixed Model

$$\text{FLUENCY}_{ij} = \gamma_{00} + \gamma_{01} * \text{CONTEXT}_j + \gamma_{10} * \text{TIME}_{ij} + \gamma_{11} * \text{CONTEXT}_j * \text{TIME}_{ij} + u_{0j} + u_{1j} * \text{TIME}_{ij} + r_{ij}$$

(1)

Fluency Final Estimation of Variance Components

Random Effect	Standard Deviation	Variance Component	df	χ^2	p-value
Time 1: INTRCPT1, u_0	124.68	15545.63	81	288.79	<0.001
Time 1: TIME slope, u_1	91.03488	8287.35	81	136.38	<0.001
Time 1: level-1, r	78.39	6145.63			
Time 4: INTRCPT1, u_0	50.32	2532.11	81	117.72	0.005
Time 4: TIME slope, u_1	88.23	7785.14	81	131.41	<0.001
Time 4: level-1, r	79.86	6378.18			

Level- 1 Model

$$\text{COGNITIVE}_{ij} = \beta_{0j} + \beta_{1j} * (\text{TIME}_{ij}) + r_{ij}$$

$$\text{var}(r_{ij}) = \sigma^2$$
Level- 2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * (\text{CONTEXT}_j) + u_{0j}$$

$$\text{var}(u_{0j}) = \tau_{00}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} * (\text{CONTEXT}_j) + u_{1j}$$

$$\text{var}(u_{1j}) = \tau_{11}$$
Mixed Model

$$\text{COGNITIVE}_{ij} = \gamma_{00} + \gamma_{01} * \text{CONTEXT}_j + \gamma_{10} * \text{TIME}_{ij} + \gamma_{11} * \text{CONTEXT}_j * \text{TIME}_{ij} + u_{0j} + u_{1j} * \text{TIME}_{ij} + r_{ij}$$

(2)

Cognitive Final Estimation of Variance Components

Random Effect	Standard Deviation	Variance Component	df.	χ^2	p-value
Time 1: INTRCPT1, u_0	0.44	0.19	83	86.40	0.38
Time 1:TIME slope, u_1	0.85	0.71	83	102.05	0.07
Time 1:level-1, r	1.15	1.31			
Time 4: INTRCPT1, u_0	0.56	0.31	83	103.56	0.063
Time 4:TIME slope, u_1	0.77	0.60	83	97.56	0.131
Time 4:level-1, r	1.17	1.37			

Level- 1 Model

$$\text{INTENSE}_{ij} = \beta_{0j} + \beta_{1j} * (\text{TIME}_{ij}) + r_{ij}$$

$$\text{var}(r_{ij}) = \sigma^2$$

Level- 2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * (\text{CONTEXT}_j) + u_{0j}$$

$$\text{var}(u_{0j}) = \tau_{00}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} * (\text{CONTEXT}_j) + u_{1j}$$

$$\text{var}(u_{1j}) = \tau_{11}$$

Mixed Model

$$\text{INTENSE}_{ij} = \gamma_{00} + \gamma_{01} * \text{CONTEXT}_j + \gamma_{10} * \text{TIME}_{ij} + \gamma_{11} * \text{CONTEXT}_j * \text{TIME}_{ij} + u_{0j} + u_{1j} * \text{TIME}_{ij} + r_{ij}$$

(3)

Table 3.7

Intensifier Final Estimation of Variance Components

Random Effect	Standard Deviation	Variance Component	df.	χ^2	p-value
Time 1: INTRCPT1, u_0	1.67	2.80	83	104.39	0.056
Time 1: TIME slope, u_1	4.1	17.08	83	143.18	<0.001
Time 1: level-1, r	3.54	12.52			
Time 4: INTRCPT1, u_0	5.10	26.05	83	276.39	<0.001
Time 4: TIME slope, u_1	4.33	18.73	83	152.95	<0.001
level-1, r	3.42	11.72

Figure 1.
Fluency at Time 1 and 4 for blogged and word-processed narratives

Figure 2.
Rate of cognitive word use at Time 1 and 4 for blogged and word-processed narratives.

Figure 3.
Rate of intensifier use at Time 1 and 4 for blogged and word-processed narratives.

Table 1

Descriptive Statistics by Writing Context and Time for Evaluative Expressions

Writing Context	Time	<i>n</i>	Fluency <i>M (SD)</i>	Cognitive rate <i>M (SD)</i>	Affective rate <i>M (SD)</i>	Intensifying rate <i>M (SD)</i>
Word Processing	1	32	544.59 (199.54)	2.75 (1.34)	4.82 (1.49)	7.21 (2.95)
Word Processing	4	32	388.03 (108.43)	2.71 (1.29)	5.18 (1.72)	5.98 (2.48)
Blogging	1	56	374.63 (107.84)	2.84 (1.05)	5.40 (1.86)	7.66 (4.19)
Blogging	4	56	338.43 (85.44)	3.42 (1.30)	5.02 (1.69)	9.41 (7.46)

Note. In the above table *n* refers to the number of narratives written by participants at each time point. No participant wrote more than one narrative per time point, though some participants missed either Time 1 or Time 4. To account for variation in narrative length a usage rate was calculated for each linguistic code by dividing the number of coded expressions by the total number of words in a specific narrative and then multiplying by 100.

Table 2

Fluency Final Estimation of Fixed Effects

Fixed Effect	Coefficient	Standard error	t-ratio	Approx. <i>df.</i>	<i>p</i>
Time 1: INTRCPT, γ_{00}	542.87	25.98	20.89	91	<0.001
Time 1: CONTEXT, γ_{01}	-167.03	32.55	-5.13	91	<0.001
Time 4: INTRCPT, γ_{00}	389.09	16.65	23.36	91	<0.001
Time 4: CONTEXT, γ_{01}	-52.70	20.86	-2.53	91	0.01
TIME, γ_{10}	-153.78	25.45	-6.04	91	<0.001
TIME $\times$ CONTEXT, γ_{11}	114.32	31.98	3.56	91	<0.001

Table 3

Cognitive Final Estimation of Fixed Effects

Fixed Effect	Coefficient	Standard error	t-ratio	Approx. <i>df.</i>	<i>p</i>
Time 1: INTRCPT, γ_{00}	2.75	0.22	12.69	91	<0.001
Time 1: CONTEXT, γ_{01}	-0.01	0.27	-0.04	91	.97
Time 4: INTRCPT, γ_{00}	2.70	0.22	11.79	91	<0.001
Time 4: CONTEXT, γ_{01}	0.72	0.29	2.50	91	0.01
TIME, γ_{10}	-0.05	0.32	-0.15	91	0.88
TIME $\times$ CONTEXT, γ_{11}	0.73	0.40	1.81	91	0.07

Table 4

Intensifier Final Estimation of Fixed Effects

Fixed Effect	Coefficient	Standard error	t-ratio	Approx. $d.f.$	p-value
Time 1: INTRCPT, γ_{00}	7.21	0.69	10.43	91	<0.001
Time 1: CONTEXT, γ_{01}	0.18	0.86	0.21	91	0.838
Time 4: INTRCPT, γ_{00}	5.94	1.09	5.47	91	<0.001
Time 4: CONTEXT, γ_{01}	3.39	1.36	2.49	91	0.015
TIME, γ_{10}	-1.27	1.15	-1.10	91	0.273
TIME $\times$ CONTEXT, γ_{11}	3.21	1.44	2.23	91	0.028