

 THE RESEARCH AGENDA

Linguistics as Lemonade: Summer Melt and the Readability of Admissions and Financial Aid Materials

By Z. W. Taylor and Catherine Hartman

This study analyzes the length and readability of admissions and financial aid application instructions at a random sample of 341 four-year higher education institutions in the United States. Linguistic analyses indicate that financial aid application instructions are longer and more difficult to read than are admissions materials at the same institution. Paired t-tests indicate that the length ($p=0.05$) and readability level ($p=0.000$) of financial aid application instructions compared to those of admissions materials are statistically significant. Implications for research and practice are addressed.

Millions of students across the United States graduate from high school with plans to immediately enroll in college. Yet a significant proportion of college-intending students do not actually make it to campus and instead contribute to “summer melt.” This is a phenomenon in which students who have been admitted to colleges or universities intend to enroll and take the steps necessary to do so but ultimately do not. In some cases, “melted” students have gone as far as to submit enrollment deposits, but they still do not enroll in fall courses. Instead, these students “melt” during the summer months (the period between high school graduation and the start of the fall semester).

The U.S. Department of Education (Ceja 2013) reports that between 10 and 20 percent of students un-

dergo summer melt; many of these are low-income and/or students of color. A large proportion of melting students also planned to enroll at community colleges: In 2011, 19 percent of students admitted and planning to attend four-year schools experienced summer melt while 37 percent of those planning to attend community college melted (Ceja 2013).

Summer melt symptoms often start as colleges and universities assign students bureaucratic enrollment steps that are necessary to complete before arriving on campus. It is often during this time that students and their families learn about the tuition and fees associated with attendance and realize they may not be able to pay for college, even with financial aid awards already in hand. Low-income students are more likely to melt

because they may lack the support, resources, and social and cultural capital that high-income students possess and that are needed to successfully navigate institutional requirements (Arnold, Fleming, DeAnda, Castleman and Wartman 2009). For example, many low-income students need to complete the Free Application for Federal Student Aid (FAFSA) in order to pay for college. Yet research has shown that the application and steps necessary to receive aid are often too complex for students and their families to understand (Bettinger, Long, Oreopoulos and Sanbonmatsu 2012; Dynarski and Scott-Clayton 2006). As a result, many students may not receive funds they need to attend the postsecondary institutions of their choice. First-generation students are also at greater risk of melting because their families lack knowledge about college, including information about living arrangement costs, placement test requirements, and many other factors (Dynarski and Scott-Clayton 2006).

One factor that exacerbates melt is the time period when colleges and universities assign such requirements: summer. According to Page (Gordon 2014), during this period, students have graduated from high school, meaning that they are no longer receiving the support of high school staff. Yet students often are neither aware of nor contacted by staff at their college or university, leaving them between the two schools and having to interpret and navigate enrollment requirements on their own. And, as research indicates (Castleman and Page 2014; Castleman, Page and Schooley 2014), preparing for college is often too daunting a task and enough to thwart up to 40 percent of students who intend to go to college.

Given the rise of statewide college completion agendas (*e.g.*, The State of Texas' 60x30 Plan), it is important to understand why students do not enroll in college after being admitted. More important, summer melt has implications for equity. Increasing access to college for more low-income, first-generation, and racially minoritized students will provide more of these students the opportunity to earn degrees, resulting in greater socioeconomic mobility and a diversified workforce. In response, significant research exploring interventions has been designed to help decrease summer melt. Some

colleges and universities have created summer bridge initiatives in an attempt to mitigate enrollment attrition. Yet as Castleman and Page (2014) note, small-scale programs like these are not impactful enough to help a great proportion of low-income, college-going students at risk of melting. Additional examples of interventions include using text messages to communicate with students and remind them of college or university deadlines and procedures (Castleman and Page 2015, 2016). Targeted outreach has been shown to increase student persistence into college by upwards of 20 percent and likelihood of returning to college if the support is continued beyond students' first year (Castleman *et al.* 2014). Several high schools have begun to take notice of students at risk of summer melt; the Fort Worth Independent School District (ISD) piloted Summer Link, a program that offered more than 1,400 students in-person and virtual counseling over a five-week period following high school graduation. Teachers, counselors, and other Fort Worth ISD staff provided emotional support for students and help navigating bureaucratic requirements such as submitting financial aid forms and transcripts (Center for Education Policy Research 2018). Students and staff reported positive outcomes from the outreach.

While research has investigated how advising and other interventions can aid students at risk of melting and has demonstrated that these methods are successful, there is scant research on the effects of institutional messaging and language use on summer melt. Specifically, research has not rigorously investigated the length and readability of admissions and financial aid processes. Taylor's (2018a, 2018b) studies have found that four-year institutions' admissions materials published on their websites are rarely translated and often are written above the 13th-grade English reading comprehension level, rendering it difficult for even native speakers of English to understand how to apply for admission. No study has compared the length and reading difficulty of admissions and financial aid application materials to better understand summer melt.

Ultimately, completing the admissions and financial aid processes is critical if students are to attend the

postsecondary institutions of their choice. Yet many more students successfully apply to a postsecondary institution than apply for aid (Castleman and Page 2014, 2015). This begs the following question: Linguistically, is it easier to apply for admission than for financial aid? This study investigates both the admissions and financial aid application instructions at a random sample of 341 four-year U.S. higher education institutions to answer the following questions related to summer melt:

- Are admissions materials shorter than financial aid application materials?
- Are admissions materials easier to read than financial aid application instructions?

By answering these questions, educational researchers will gain a better understanding of the linguistic difficulty of applying for admission and financial aid, potentially helping explain more about the summer melt phenomenon.

Methods

Population and Sample

The research team identified the sample by first utilizing the Integrated Postsecondary Education Database (IPEDS) and isolating all four-year U.S. higher education institutions. Once the team determined the population, it performed a power analysis with a 95 percent confidence interval to arrive at 341 total U.S. four-year higher education institutions. Once the team identified 341 institutions as a sample, it utilized a random-number generator to assign 341 institutions to the study. (See Table 1.)

Data Collection

After identifying the sample, the team navigated to each institution's .edu domain to locate undergraduate or first-year student admissions and financial aid application instructions. The team used the institution's embedded search tool to locate these documents, removing any researcher bias from using personal web browsers, which are subject to unique search histories and website cookies. Using the institutional search tool on each

website, the team was able to locate admissions and financial aid application instructions for all 341 institutions without issue.

Linguistic Analysis

The team then employed Readability Studio (a computational linguistics tool) to extract the text from the website and analyze the length (word count), lexical diversity (type/token ratio), and readability level of each text. The team employed four commonly used and widely researched readability measures and then averaged the measures to arrive at a quadrangulated grade-level readability level estimate. A detailed description of each readability measure can be found in DuBay's (2004) report as well as Taylor's (2018a, 2018b) studies. (Descriptive statistics of the linguistic analysis can be found in Table 2, on page 38.)

Statistical Analysis

Once the research team gathered and linguistically analyzed all 341 admissions texts and financial aid texts (642 texts in total), the team conducted statistical analyses.

TABLE 1 ► Description of Sample, by Institution Type

Institution Type	n	%
Public	114	33.3
Private, non-profit	179	52.3
Private, for-profit	48	14.4
Total	341	100.0

(Results of the linguistic analysis can be found in Table 2.) The team used a paired t-testing strategy to learn whether the differences in length and readability between admissions and financial aid application instructions were statistically significant. Such significance may help explain why so many more aspiring postsecondary students successfully complete institutional applications than do the federal financial aid application process (Castleman and Page 2014, 2015). (See Tables 3 and 4 [on page 39] for the results of these paired t-tests.)

TABLE 2 ► Linguistic Analysis of Admissions and Financial Aid Application Instructions Using the Automated Readability Index, Gunning-Fog Index, Flesch-Kincaid Grade Level Test, and the Simple Measure of Gobbledygook, by Institution Type

Institution Type		Word Count	Type/Token Ratio (TTR)	Automated Readability Index (ARI)	Flesch-Kincaid Grade Level Test (FK)	Gunning-Fog Index (GFI)	Simple Measure of Gobbledygook (SMOG)	AVG ¹
Public (n=114)								
Admissions	Mean	280.4	58.1	10.0	7.6	9.4	11.2	9.5
	SD	212.2	11.7	2.1	1.3	1.8	1.4	1.5
Financial Aid	Mean	339.2	52.2	12.3	10.8	12.0	14.3	12.9
	SD	326.4	12.2	2.8	2.8	2.4	2.1	2.3
Private, Non-Profit (n=179)								
Admissions	Mean	293.3	58.2	10.4	7.8	9.8	11.5	9.9
	SD	214.3	12	2.1	1.5	2.0	1.6	1.6
Financial Aid	Mean	305.8	53.8	13.4	13.1	12.8	15.2	13.8
	SD	235.6	10.1	2.7	2.7	2.3	1.7	2.0
Private, for-Profit (n=48)								
Admissions	Mean	312.9	57.9	10.8	8.2	10.6	11.9	10.4
	SD	274.7	13.2	2.7	1.7	2.1	2.0	2.0
Financial Aid	Mean	389.3	51.4	14.6	14.7	14.0	15.9	14.8
	SD	336.6	11.7	2.6	2.4	2.6	1.8	2.1
Total (n=341)								
Admissions	Mean	291.8	58.2	10.3	7.8	9.8	11.5	9.8
	SD	222.6	12	2.2	1.5	2.0	1.6	1.6
Financial Aid	Mean	328.7	53	13.2	12.6	12.7	15.0	13.6
	SD	284.6	11	2.7	3.0	2.5	1.9	2.2

¹ Average readability of ARI, GFI, FK, and SMOG scores

Findings

Data suggest that financial aid application instructions are longer than admissions instructions across all institution types, yet admissions instructions are more linguistically diverse per type/token ratios (TTR). In addition, financial aid application instructions are more difficult to read on average (13.6th-grade level) than are admissions instructions (9.8th-grade level) at the same institution.

Data suggest that differences in mean lengths (word counts) of admissions and financial aid application instructions are statistically significant at the 0.05 level ($t=-2.0852$, $p=0.0378$). This indicates that financial aid application instructions are longer than admissions instructions, possibly contributing to the difficulty

students experience procuring financial aid for postsecondary attendance.

Data suggest that differences in the mean readability of admissions and financial aid application instructions are statistically significant at the 0.000 level ($t=-28.1299$, $p=0.000$). This indicates that financial aid application instructions are more difficult to read than are admissions instructions, possibly contributing to the difficulty students experience procuring financial aid for postsecondary attendance.

Discussion and Conclusion

Findings of this study indicate that at four-year U.S. higher education institutions, financial aid application instructions are longer and more difficult to read than

TABLE 3 ► Results of Paired T-Test Comparing Word Count Means of Admissions and Financial Aid Application Instructions (obs=341)

Variable	Mean	SE	SD	95% CI		df	t
Admissions Word Count	291.7	12.054	222.6	268.064	315.484	340	-2.0852 ^a
Financial Aid Word Count	328.7	15.410	284.6	298.414	359.035		
Diff	-36.9	17.720	327.2	-71.806	-2.095	–	–

^a < 0.05**TABLE 4 ► Results of Paired T-Test Comparing Readability Means of Admissions and Financial Aid Application Instructions (obs=341)**

Variable	Mean	SE	SD	95% CI		df	t
Admissions Read	9.8	0.088	1.6	9.662	10.013	340	-28.1299 ^a
Financial Aid Read	13.6	0.119	2.2	13.404	13.871		
Diff	-3.8	0.135	2.5	-4.064	-3.533	–	–

^a < 0.000

are admissions application materials at the same institution. Although extant research has addressed summer melt in a variety of ways (Arnold *et al.* 2009; Castleman and Page 2014, 2015; Gordon 2014), this study suggests that the linguistics of the admissions and financial aid processes may play a role in summer melt. More specifically, students may not experience much difficulty reading and comprehending admissions application instructions; yet when these same students attempt to read and comprehend financial aid application instructions, the length and difficulty of these instructions may hinder their ability to successfully complete the process.

It is important to understand that the average U.S. adult reads at the seventh-grade level (Clear Language Group 2018), and 63 percent of graduating high school seniors read below the eleventh-grade level (National Assessment Governing Board 2017). And although more than 40 million Spanish speakers live in the United

States, admissions materials are rarely translated into Spanish (Taylor 2018a, 2018b). Enrollment management (EM) professionals working in both admissions and financial aid should collaborate to learn how their application instructions can be shortened, simplified, and native-translated into languages other than English. As U.S. higher education continues to diversify, EM professionals should explore methods of streamlined communication between admissions and financial aid staffs in an effort to simplify the enrollment process.

Summer melt is a well-known phenomenon in higher education with multiple implications for equity (Castleman and Page 2014, 2015). Improving the readability of financial aid and admissions materials could prove to be metaphorical lemonade that could help curb summer melt and facilitate access to U.S. higher education by all students.

References

- Arnold, K., S. Fleming, M. DeAnda, B. L. Castleman, and K. L. Wartman. 2009. The summer flood: The invisible gap among low-income students. *Thought & Action*. 25: 23–34.
- Bettinger, E., B. T. Long, P. Oreopoulos, and L. Sanbonmatsu. 2012. The role of application assistance and information in college decisions: Results from the H&R Block FAFSA experiment. *The Quarterly Journal of Economics*. 127(3): 1205–1242. Available at: <doi.org/10.1093/qje/qjs017>.
- Castleman, B. L., and L. C. Page. 2014. A trickle or a torrent? Understanding the extent of summer “melt” among college-intending high school graduates. *Social*

- Science Quarterly*. 95(1): 202–220. Available at: <doi.org/10.1111/ssqu.12032>.
- . 2015. Summer nudging: Can personalized text messages and peer mentor outreach increase college going among low-income high school graduates? *Journal of Economic Behavior & Organization*. 115: 144–60. Available at: <doi.org/10.1016/j.jebo.2014.12.008>.
- . 2016. Freshman year financial aid nudges: An experiment to increase FAFSA renewal and college persistence. *The Journal of Human Resources*, 51(2): 389–415. Available at: <doi.org/10.3368/jhr.51.2.0614-6458R>.
- Castleman, B. L., L. C. Page, and K. Schooley. 2014. The forgotten summer: Does the offer of college counseling after high school mitigate summer melt among college-intending, low-income high school graduates? *Journal of Policy Analysis and Management*. 33(2): 320–344. Available at: <doi.org/10.1002/pam.21743>.
- Ceja, A. 2013. *Summer Melt*. Washington, D.C.: U.S. Department of Education. Retrieved from: <ed.gov/content/summer-melt>.
- Center for Education Policy Research at Harvard University. 2018. *Summer Melt*. Cambridge, MA: Author. Retrieved from: <sdp.cepr.harvard.edu/summer-melt>.
- Clear Language Group. 2018. *Readability: What is Readability?* Retrieved from: <clearlanguagegroup.com/readability>.
- DuBay, W. H. 2004. *The Principles of Readability*. Costa Mesa, CA: Impact Information. Retrieved from: <files.eric.ed.gov/fulltext/ED490073.pdf>.
- Dynarski, S. M., and J. E. Scott-Clayton. 2006. The cost of complexity in federal student aid: Lessons from optimal tax theory and behavioral economics. *National Tax Journal*. 59(2): 319–356.
- Gordon, L. 2014. Advisors work to free 'summer melt,' get students to college. *Los Angeles Times*. October 14. Retrieved from: <latimes.com/
- local/education/la-me-college-melt-20141020-story.html>.
- National Assessment Governing Board. 2017. *The Nation's Report Card*. Washington, D.C.: Author. Retrieved from: <nationsreportcard.gov>.
- Taylor, Z. W. 2018a. ¿Comprenderán mis amigos y la familia? Analyzing Spanish translations of admission materials for Latina/o students applying to four-year institutions in the United States. *Journal of Hispanic Higher Education*. 1–15. Available at: <doi.org/10.1177/1538192718775478>.
- Taylor, Z. W. 2018b. Intelligibility is equity: Can international students read undergraduate admissions materials? *Higher Education Quarterly*. 72(2): 160–169. Available at: <doi.org/10.1111/hequ.12155>.

About the Authors



Z.W. (Zach) Taylor

Z.W. (Zach) Taylor is a Ph.D. candidate at The University of Texas at Austin. His research interests include linguistics in higher education,

particularly pre-college information targeting first-generation college students and English-language learners. His work has been published by the Community College Journal of Research and

Practice, Journal of College Student Development, and Higher Education Quarterly, among others.



Catherine Hartman

Catherine Hartman holds a Ph.D. from The University of Texas at Austin. Her research interests include community college student

success and student transfer.

success and student transfer.