

ERDC Internal Writing Guide

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ABOUT THE ERDC

The Education Research and Data Center (ERDC) is located within the Washington Office of Financial Management (OFM), and works with partner agencies to conduct powerful analyses of learning that can help inform the decision-making of Washington legislators, parents, and education providers. ERDC's data system is a statewide longitudinal data system that includes de-identified data about people's preschool, educational, and workforce experiences. The views expressed here are those of the author(s) and do not necessarily represent those of the OFM or other data contributors. Any errors are attributable to the author(s).

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Introduction

The ERDC tagline is, “Trusted. Accurate. Objective.” The purpose of this document is to help us become more than excellent analysts, but also excellent *communicators*. Some of us may have heard of Grice’s Maxims for effective conversation:

The Maxim of Relevance: Make contributions relevant to the discussion.

The Maxim of Quantity: Give as much information as needed, and no more.

The Maxim of Quality: Be truthful and support claims with evidence.

The Maxim of Manner: Be clear, organized, and avoid obscure language.

Most of us intuitively follow these maxims, even if we have never heard of them. These maxims are useful when writing as well. If our writing is relevant, brief and clear, it will be more likely to impact policy decisions.

Our primary readers are policy and decision makers

Academic writers tend to document every design decision and include every detail of their findings, no matter how uninteresting. Otherwise, their work may be challenged by their peers. This is why academic writing is sometimes hard to read. We often skip over pages of procedures and statistics to get to the results of a study.

At ERDC, we are not (usually) writing for an academic audience. Our readers are legislators, agency leaders, and other decision makers who are more interested in our findings than our methods. We do not need to “show our work,” as we typically do in academia. When we are familiar with the academic literature, our study design will show it – but we do not need to include extensive literature reviews in ERDC papers.

For our primary readers, our goal is to keep research briefs to 15 pages or less (except for appendices and references, etc.).

Draft the narrative before you start

Early in the design of the research, draft an “elevator pitch” or “executive summary” for the research. In less than 250 words, include a brief introduction and the (anticipated) key findings of the study. This executive summary can serve as a series of hypotheses. The hypotheses can be drawn from the literature, prior research, or intuitions. Example 1 shows what this might look like.

Example 1. A pre-study draft of an executive summary.

This study explores the differences between post-graduation earnings of STEM and non-STEM bachelor's degree graduates by gender, by specific college major, and by general race category. We use Propensity Score Matching to correct for selection bias where possible. We find a ___ percent female gender deficit in earnings among all STEM majors.

After selection bias correction, males are found to have a higher STEM premium than females. During the third year after graduation, the gender deficit is ___ percent. This implies that females lose out on ___ percent of the benefit from a STEM degree that males enjoy). Majors with more females have lower post-graduation earnings. STEM majors in which males have the highest post-graduation earnings are also associated with higher earnings for females, though females select these majors much less frequently than males. Race was also included as a factor, and we found that _____.

← We can be reasonably sure from prior research and the literature that we will find this. We just don't know what the precise values will be.

← We might not be certain of this. But we might include it here as a hypothesis.

← We might have no idea what this analysis will show.

This executive summary can guide decisions about what variables to include, what cross-tabs to conduct, what figures to create, etc. Let *economy of information* be a guiding value. While a research brief will include more information than is presented in an executive summary, extra information should “flesh out” the findings presented in the executive summary, rather than be extraneous to those findings.

For example, we may be thinking about including family status (married, single, etc.) as a variable in the study above. But what added value does it bring to the policy questions at hand? What actionable conclusions might it lead to? Not all cross-tabs tell an interesting story, nor do all statistically significant findings need to be included in a research brief. If a variable clutters the analysis without adding value, leave it out. While making these decisions, think less like an academic and more like a policymaker.

If the anticipated key findings or hypotheses cannot be spelled out in less than 250 words, the study may include too many variables, cross-tabs, etc. One option may be to simplify the study, and another option may be to conduct multiple studies with different questions.

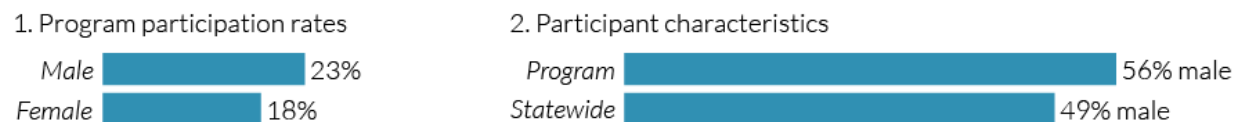
Think about how readers will benchmark the data

Consider how readers will benchmark the information. If we have no comparison or peer group to benchmark numbers against, there may be no way to interpret or draw conclusions from the data. In that case, information we provide may be superfluous. For our purposes, less but more useful information is preferable to more information that is less useful.

Consider the following hypothetical claim in an imaginary study about a state program: “Fifty six percent of program participants were male, while 44 percent were female.” In other words, more participants were male than female. However, if the entire student population that year was *also* 56 percent male, then this is neither surprising nor interesting. If so, then the above statement may violate the Maxim of Relevance (since it reveals little about the program), the Maxim of Quantity (since the information is superfluous), and the Maxim of Manner (since it could mislead).

In this case, we might just leave it out of the study altogether, or just something like, “The demographics of program participants were similar in relevant respects to their peers.” If the demographics *do* differ, an alternative might be to present participation *rates* instead, or to provide a benchmark (see Figure 1). Both options involve decisions at the *beginning* of the study.

Figure 1. Presenting demographics as rates or with a benchmark.



Writing the first draft

When drafting the research brief, use the outline below as a guide. This outline is flexible and can be adjusted to suit the needs of the study. Do not worry too much about the page count on the first draft.

Executive summary

The executive summary should be less than a page (<250 words). It should include one or two sentences about why the study was conducted, the research questions, one or two sentences on the cohort used in the study, one or two paragraphs that include the most interesting findings and potential policy implications, and a charts that presents key findings.

Introduction

Describe why the study was conducted. Was this a legislatively mandated study? Was this a grant-funded study? Keep this to 1-2 paragraphs. What is the problem this study is attempting to address? Include the research questions here. In this section, you might also summarize related research in 1-2 paragraphs. Focus on literature that provides vital context for your findings.

Research design / methods

Here, describe how the study was conducted in 1-2 paragraphs.

Cohort / sample

Here, describe the cohort or sample used for the study in 1-2 paragraphs. Where possible, choose a cohort that has a good comparison group. Present any *anomalous* characteristics. For ERDC purposes, it is not necessary to detail *non-anomalous* characteristics. Detailed tables can be included in the appendix.

Findings

Here, present your most interesting findings. This section is what stakeholders are most interested in, so try to get to it within 2-3 pages. It can be as long as it needs to be, but remember the Maxim of Quantity. Do not detail findings that show “no difference” unless that is surprising in some way. Instead, focus on findings that may have useful policy implications.

Conclusion / Limitations

In 1-2 paragraphs, summarize your most interesting findings, possible policy implications, and future research that could be conducted.

Appendices

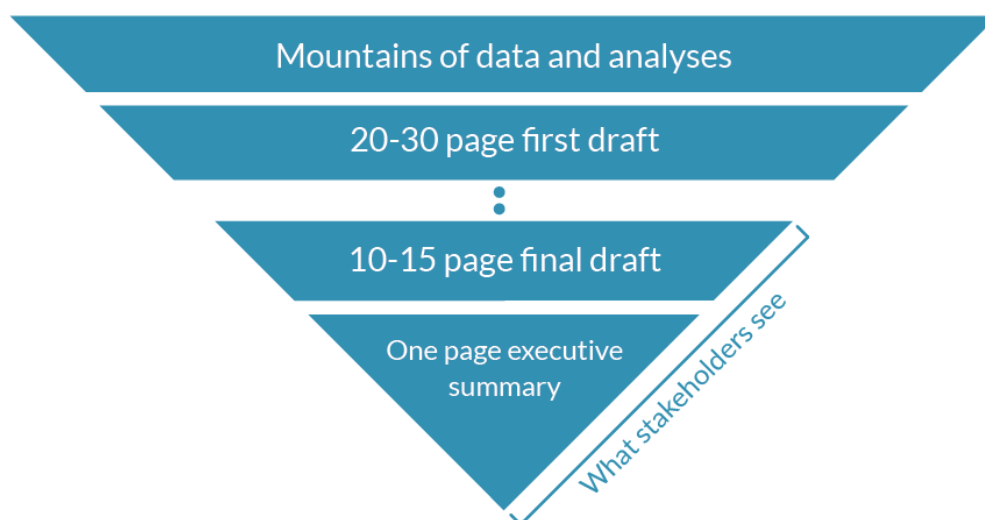
- Terms and definitions
- Data sources
- Text of legislation
- ADA-accessible tables
- Detailed cohort characteristics
- Extensive cross-tabs

Leave time for revisions

When we finish our first draft, we may not see how we could possibly shorten it. *But it is almost always possible.* And the result is usually a superior product, from a stakeholder's point of view. Our task is to "mine the mountain" so that others do not have to. Our products can be the gold we have separated from ore that is less valuable to our target audience. For our purposes, less is almost always more.

Leave time for multiple revisions when creating your project plan. This is not wasted effort or inefficiency. Blaise Pascal once quipped at the end of a letter, "I have made this longer than usual because I have not had time to make it shorter."

Figure 2. The writing and revision process.



What follows are a series of tips that will help trim our writing and simplify our reports. Use these as guides when revising. Do not hesitate to revise and trim *aggressively*. Stakeholders can contact the ERDC if they have questions about our methods that were not answered in the text.

Tip #1: Don't turn verbs into nouns

In [this Calvin and Hobbes comic](#),¹ Calvin jokes about *verbing* nouns. This can abbreviate our writing! After all, “verbing nouns” is two words, while “turning nouns into verbs” is four. All joking aside, we should avoid this most of the time.

However, we often do the opposite without thinking about it. When we turn verbs into nouns, the result is called a “nominalization.” Nominalizations can make our writing longer and less clear. Below are a couple of examples (taken from Joseph Williams’s *Style: The Basics of Clarity and Grace*).

Example 2. Turning nouns back into verbs.

The agency conducted an investigation into the matter. —————> The agency investigated the matter.

In this case, the true subject (the agency) is also the grammatical subject, but the true verb (investigate) has been turned into a noun (an investigation). The new sentence is 37 percent shorter, and also easier to read.

Example 3. Turning nouns back into verbs.

The intention of the committee is to audit the records. —————> The committee intends to audit the records.

The true subject (the committee) was not the *grammatical* subject (the intention of the committee), and the true verb (intend) had been turned into a noun. The new sentence is 30 percent shorter, and much easier to read.

Example 4. Turning nouns back into verbs.

Recognition of the fact that systems [of grammar] differ from one language to another can serve as the basis for serious consideration of the problems confronting translators of the great works of world literature originally in a language other than English. —————> When we recognize that languages have different grammars, we can consider the problems of those who translate great works of literature into English.

Here, the grammatical subject of the sentence is, “Recognition of the fact that systems [of grammar] differ from one language to another.” That is 14 words long! Also, the verbs “recognize” and “consider” have been turned into nouns (“recognition” and “consideration”). The new sentence is 44 percent shorter and 100 percent more clear.

Example 5. Turning nouns back into verbs.

Eliminating this requires that we put ourselves in the head-space of the readers. —————> To eliminate this, put yourself in the head-space of a reader.

This example is from an earlier draft of this document. “Eliminating this” is a verb that’s been turned into a noun. I rewrote the sentence so that it is a verb again.

.....
 1 <http://www.gocomics.com/calvinandhobbes/1993/01/25>

Tip #2: Avoid wordy sentences

Sometimes sentences are just wordy, nominalizations or not. Eliminate filler words and clauses, and simplify the message. Precision is important, yes! But not at the cost of clarity. Joseph Williams, in his book, *Style: The Basics of Clarity and Grace*, offers some tips on how to do this:

Example 6. Delete words that mean little or nothing.

Productivity **actually** depends on **certain** factors that **basically** involve psychology more than **any particular** technology. → Productivity depends on psychology more than technology.

Example 7. Delete words that are implied by other words.

Do not try to **predict** those **future** events that will **completely revolutionize** society, because **past history** shows that it is the **final outcome** of minor events that **unexpectedly surprises** us more. → Do not try to predict revolutionary events, because history shows us that the outcome of minor events surprise us more.

Example 8. Replace a phrase with a word.

As you **carefully read what you have written to improve wording and catch errors of spelling and punctuation, the thing to do before anything else** is to see whether you could **use sequences of subjects and verbs instead of the same ideas expressed in nouns**. → As you **edit**, **first replace nominalizations with clauses**.

Example 9. Reducing wordiness.

PSM separates these two components of the treatment effect and reveals the impacts attributable to the treatment, assuming the matching process matched treatment group members to similar comparison group members, eliminating the portion of the treatment effect attributable to personal characteristics. → PSM isolates the effect of treatment from personal characteristics by matching and comparing individuals with similar backgrounds.

Example 10. Reducing wordiness.

These findings are consistent with evidence presented in the literature review regarding the nature and direction of the relationship between these variables and the outcomes of interest. → These findings are consistent with prior research.

Tip #3: Eliminate excess material

Some material is less relevant to our readers. In social media parlance, ask, “What is the ‘tl;dr’ of this paragraph or section?” Sometimes we include lengthy descriptions of descriptive statistics that are uninteresting. This is where a picture can be *literally* worth a thousand words. We can shorten our reports by including only the most interesting findings. The rest can be shown in a chart, or in a table at the end of the document. For ERDC purposes, it may be unnecessary to include all of the statistical information we might include in an academic publication (e.g., p values, chi squared analyses, etc.). Where necessary, that information can be included in a table in the appendix.

Example 11. Simplifying content.

In math, 71 percent of the non-FRPL students met the WASL standard while 47 percent of the FRPL students did. In the reading and writing assessments, 91 percent of the non-FRPL students met the standards and 83 percent of the FRPL students met the standards in these two assessments. For the science WASL, less than half (46 percent) of the non-FRPL students met the standard and less than a quarter (23 percent) of the FRPL students met the standard. Some 42 percent of the non-FRPL students did not meet the science assessment standard and 58 percent of the FRPL students did not.

→ FRPL graduates outperformed non-FRPL graduates on each dimension of the WASL assessment, especially in math and science (see Figure 3).

Example 12. Simplifying content.

Table A2. Ninth Grade Cohorts: Free and Reduced Meal Service (Most Recent Status) by Cohort Year. This information is also presented in Figure 2.

FRMS Program	2006	2007	2008	2009	2010	2011	Total
No	70.9%	67.1%	63.2%	60.3%	59.6%	57.9%	63.3%
Yes	29.1%	32.9%	36.8%	39.7%	40.4%	42.1%	36.7%

Table A3. Ninth Grade Cohorts: Bilingual Program (Most Recent Status) by Cohort Year. This information is also presented in Figure 2.

Bilingual Program	2006	2007	2008	2009	2010	2011	Total
No	97.9%	98.0%	97.9%	97.9%	97.9%	97.9%	97.9%
Yes	2.1%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%

Table A4. Ninth Grade Cohorts: Special Education Program (Most Recent Status) by Cohort Year. This information is also presented in Figure 2.

Special Education Program	2006	2007	2008	2009	2010	2011	Total
No	97.9%	98.0%	97.9%	97.9%	97.9%	97.9%	97.9%
Yes	2.1%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%

Table A2. Ninth Grade Cohorts: Program Participation by Cohort Year. This information is also presented in Figure 2.

	2006	2007	2008	2009	2010	2011	Total
FRMS Program	29.1%	32.9%	36.8%	39.7%	40.4%	42.1%	36.7%
Bilingual Program	2.1%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%
Special Education Program	9.7%	9.2%	9.5%	9.8%	9.6%	10.2%	9.7%

The Editing Process

Revising and editing are different processes. When we revise, we focus on the *stakeholders*, not grammar rules or style guides. This includes rewriting text and rethinking visuals. When we edit, we focus on reviewing a manuscript for spelling, punctuation, capitalization, and other style conventions. The OFM communications team has developed an [OFM style guide](#) that is useful when editing. Reference this guide as you edit your paper, and be sure to follow its guidelines.

When talking about students in a cohort, it is best to use the past tense. This is because we are not talking about students *generally*, but students in the past (e.g., “51 percent of students in this 2008 cohort *were* male, and they *had* an average GPA of 3.2”). Use the present tense when discussing findings that *continue* to be true or that are generalizable in some way, or when talking about statistical properties of the data (significance tests or chi-squared analyses, for example).

Privacy and Suppression

State and federal law requires us to take measures to protect the privacy of students. This means that we cannot present data that could conceivably be used to determine the outcomes of individual students. [Technical Brief #3](#) from the Privacy Technical Assistance Center from the Department of Education provides helpful guidelines on how to prevent inadvertent disclosure. Be familiar with these guidelines and apply them as necessary.

ADA Compliance

Federal law requires that ERDC products be ADA compliant. When we present a figure or a chart, we need to include alternate text. One way is to include the same information in a table in an appendix, and include a hyperlink to the table in your chart title or description. If a visualization includes more information than can be expressed in numbers, include it in a neighboring paragraph or in the appendix. This ensures that all stakeholders have access to the same information.

Example 13. Providing ADA accessible tables.

Figure 4. Gender and final enrollment status by cohort Year. This information is also presented in [Table A5](#) in Appendix A.

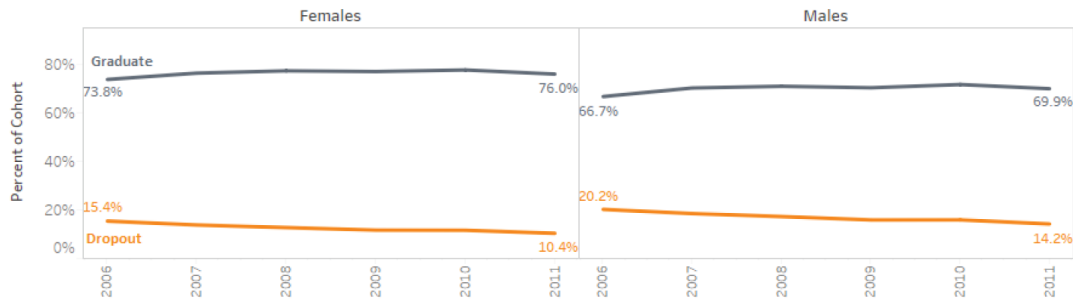


Table A5. Gender and last enrollment status by cohort year. This information is also presented in Figure 4.

	Enrollment Status	2006	2007	2008	2009	2010	2011	Total
Female	Deceased	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%
	Dropped Out	15.4%	13.8%	12.7%	11.7%	11.6%	10.4%	12.6%
	Enrolled	0.5%	0.4%	0.9%	2.0%	0.7%	1.0%	0.9%
	Graduated	73.8%	76.4%	77.3%	77.0%	77.7%	76.0%	76.3%
	Transferred	10.3%	9.4%	9.0%	9.2%	10.0%	12.7%	10.1%
Male	Deceased	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.2%
	Dropped Out	20.2%	18.5%	17.3%	15.9%	15.9%	14.2%	17.0%
	Enrolled	0.7%	0.6%	1.3%	2.7%	0.9%	1.3%	1.2%
	Graduated	66.7%	70.2%	70.9%	70.3%	71.7%	69.9%	69.9%
	Transferred	12.3%	10.5%	10.3%	11.0%	11.4%	14.5%	11.6%



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