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EVALUATING & IMPROVING STUDENT WRITING

CASE STUDIES AND DATA TRENDS



OUR MISSION

It is our mission at Peregrine Global Services to make a difference in the world by fostering innovation, growing and developing leaders who can solve the world's complex problems, and improving the quality of higher education. Turning data into knowledge; knowledge into wisdom; and wisdom into action.

At Peregrine Global Services, we embrace the power of education. We provide online assessment services, blended learning programs, online instructional solutions, and academic programs to higher education and business partners located throughout the world. Our objective is to impact the quality of education in both higher education and business and industry. For this reason, we offer comprehensive and flexible education solutions that unlock each learner's full potential and build your capacity to serve those around you better.

Together with our clients and partners, we believe that we can change the world.



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INTRODUCTION



Olin O. Oedekoven, Ph.D.
Founder
Peregrine Global Services Corporation

Dr. Olin O. Oedekoven, our founder, passed away on October 4, 2022. Olin left behind a company he built from the ground up, and his spirit and values will forever be the foundation of Peregrine. The Peregrine team continues to honor his memory by dedicating ourselves to actualizing his vision.

This whitepaper, *Evaluating and Improving Student Writing: Case Studies and Data Trends*, was initially led by Olin before his passing. The following whitepaper illustrates the value that Write & Cite®: Academic Writing Readiness provides to students, faculty, and school administrators.

Since 2017, Peregrine Global Services has provided the online instructional module Write & Cite®: Academic Writing Readiness to improve student writing and ease the burden on faculty struggling to teach both discipline-specific content and fundamental concepts of writing.

Write & Cite® is an online, 8-section module with a pre-test, instructional content, and a post-test. It teaches core concepts in academic writing and provides students an opportunity to demonstrate their proficiency in APA, MLA, or Chicago style documentation. Many faculty members use the Write & Cite® module as an introductory assignment in their courses, giving students the foundation for crafting academic papers and citing other published work.

It's important to note that Write & Cite® is not just used to teach technical requirements – it was created to spark students' critical thinking about their writing. We want students to ask themselves questions like these:

"What are the requirements for my assignment, and what type of evidence would best support my argument?"

"Am I sure my sources are credible?"

"How can I synthesize information and build upon others' work in a way that is respectful and thought-provoking?"

"How can I make sure my message is clear, concise, and compelling?"

Write & Cite® pushes learners to think about the purpose behind their writing, and provides skills that can make them better written communicators beyond their academic careers. In this paper, we review the effects of Write & Cite® on learners' understanding of academic writing concepts. Does the early introduction of the expectations and requirements for academic writing, combined with retrieval practice (or quizzing), positively impact student understanding of techniques used to produce quality written assignments? This whitepaper aims to understand trends and relationships based on the aggregated data associated with client schools using the Write & Cite® module to improve student academic writing. This whitepaper also includes case studies from schools using Write & Cite®, demonstrating the module's effect on student success.



CONSIDERATIONS FOR IMPROVING STUDENT WRITING



Christina Perry, MS
Director of Organizational Learning
Peregrine Global Services

As we approached this whitepaper on evaluating student writing, we reflected on years of interaction with faculty members teaching across disciplines in universities throughout the world. One of the most common desires shared by instructors was to improve their students' academic writing.

A student who is a strong writer, capable of reviewing scholarly work with a critical eye and communicating unexplored facets, is a student who will succeed in both their studies and their professional endeavors. Yet many instructors voiced their frustration at not having the time or resources in their classes to give students that foundation in academic writing needed to excel in the coursework.

These views are certainly more than anecdotal, as studies show that faculty often view writing as a critically important communication tool but feel that instruction in writing falls outside the purview of their discipline-specific courses (Zhu, 2004). In trying to understand what professors really say about college writing, a qualitative study of faculty focus groups across disciplines revealed that the most common writing assignments involve critical analysis and research-based writing, but that those assignments often require a complexity of thought that few first-year college students possess (Brockman et al., 2011). In this study, faculty participants felt that students believe in their ability to conduct research but, in practice, that research involves collecting stuff from various online sources and throwing it together. One of the key findings was that improving student reading, just being able to find, understand, and synthesize information from scholarly sources, improves the quality of writing.

Another common complaint is students' failure to attribute ideas to their sources. Plagiarism is a word tainted with stigma, but its presence is often the result of ignorance rather than malicious intent. While some cases of plagiarism are flagrant violations, many are inadvertent. Some students are simply unfamiliar with documentation requirements, having been incorrectly taught that as long as they change the source's wording and use a reference list, they are citing their sources appropriately. One article (written in the 1990s before access to online sources exacerbated the situation) points out the problem with the emotional reaction to plagiarism, which sometimes includes accusations of cheating, theft, or dishonesty:

Even though there always will be dishonest students, most cases of plagiarism result from honest confusion over the standards of academic discourse and proper citation. We might more successfully combat the problem by spending more time [...] helping students learn how to avoid it. (Wilhoit, 1994, p. 161)



Methods shown to reduce instances of plagiarism include open discussions on what it is and how it can be avoided, student participation in a discussion of hypothetical examples, and regular review of documentation requirements for quoted, paraphrased, or summarized ideas.

In the focus group study previously mentioned, faculty participants were asked their opinions on learning to write. The consensus was that writing is a developmental process, and students gain proficiency over their course of studies. However, there are tools faculty employ to set students up for success. Providing example papers and rubrics with expectations gives students a roadmap. Continual practice and feedback let students improve their craft. One professor shared, “I wish there was a way of monitoring students over time, for their own benefit” (Brockman et al., 2011, p. 79). With that desire in mind, we turn to the data from the Write & Cite®: Academic Writing Readiness module.

Schools that use Write & Cite® as an assignment in their courses can view students’ baseline knowledge of academic writing concepts from a pre-test given at the beginning of the module. Students are offered resources, activities, and retrieval practice on expectations for academic writing and proper citation, on finding and using credible sources, on artfully crafting a persuasive paper, and on understanding documentation style(s). Those resources are available to the student throughout their academic program. Finally, schools can measure academic writing competency through a post-test that demonstrates improved capability in academic writing.

Considering the importance of student writing and the challenges faculty face when trying to teach content and writing simultaneously, we ask three questions:

Can use of Write & Cite®:

- Improve student knowledge of APA documentation and requirements for in-text citation and reference lists?
- Improve students’ ability to select credible sources for research papers?
- Increase awareness of the different forms of plagiarism and how to avoid them?

The following data trends and case studies will show that, yes, the use of formative assessment and instructional content results in a higher understanding of the requirements and tools for producing scholarly written content.

About the Author

Christina Perry is the Director of Organizational Learning at Peregrine Global Services, where she has worked for the past 6 years to promote continuous improvement in higher education and industry by identifying gaps in achievement and implementing technology-based services to improve performance and meet outcomes. A Wyoming native, Christina earned her Bachelor of Arts in International Studies from the University of Wyoming, and later earned her M.S. in Operations and Project Management at Southern New Hampshire University. She is currently pursuing her Ed.D. in Leadership and Learning in Organization through Vanderbilt University, to better lead improvement efforts and change initiatives.



DEFINITION OF KEY TERMS

Academic Year

An academic year is defined as July 1 through June 30.

Percentage Change

The percentage change between two scores. For pre-test/post-test evaluation, the percentage change is calculated using the following formula: $(\text{Post-test Score} / \text{Pre-test Score}) - 1 * 100$. For example, the percentage change between a pre-test score of 35% and a post-test score of 85% is $(0.85 / .35) - 1 * 100 = 2.43 - 1 * 100 = 1.43$, or 143%. Percentage change represents the knowledge gained by completing the module as expressed by the change between the learner's pre-test score and the learner's post-test score.

Pre-Test

A 20-question exam administered at the start of the module to evaluate the learner's baseline knowledge levels before instruction. The questions are randomly selected from a test bank of questions based on the instructional content.

Post-Test

A 50-question competency exam administered at the end of the module to assess the learner's knowledge level following instruction. The questions are randomly selected from a test bank of questions based on the instructional content.

Write & Cite® Module

An online learning module designed to improve students' academic writing ability. The module begins with a 20-question pre-test, followed by 8 sections of instructional content covering APA, MLA, or Chicago style documentation, as well as instruction regarding proper word choices, tone, paper organization, literature-based research, and techniques to avoid plagiarism. The module concludes with a 50-question post-test.

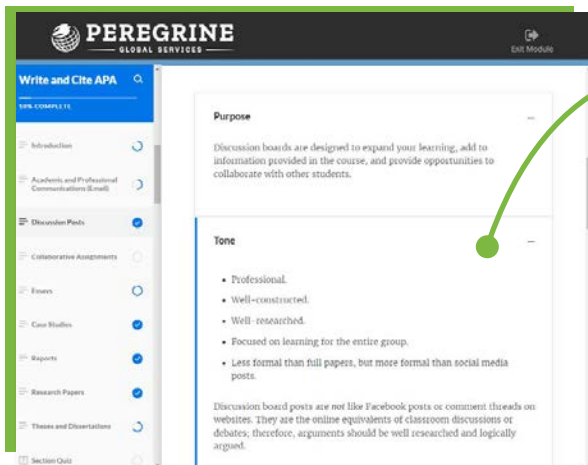


THE WRITE & CITE[®] MODULE

THE WRITE & CITE® MODULE

This report includes an analysis of data from the APA Style version of the Write & Cite® module, first launched in 2017 using the 6th edition, edited in late 2019 to fit the 7th edition of the APA Publication Manual. The data include results from pre-test and post-test scores across all undergraduate and graduate programs using the service. Results are further analyzed by examining differences in pre-test and post-test scores across eight knowledge areas:

- (APA) - In-Text Citation
- (APA) - Reference List
- (APA) - The Body of the Paper
- Finalizing Your Paper
- Literature Sources in Academic Writing
- Types of Academic Writing
- What is Academic Writing?
- Writing the Paper



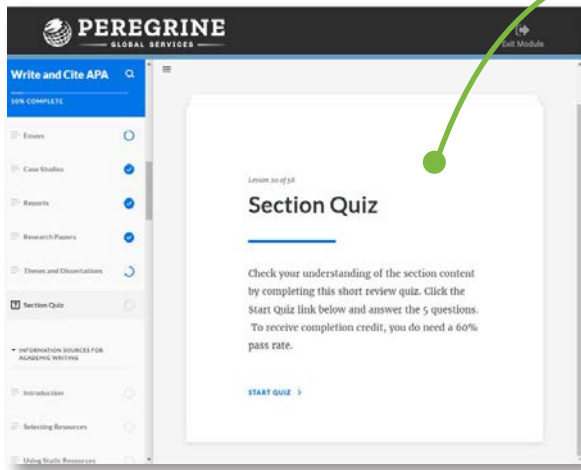
What is Write & Cite®?

Write & Cite® provides learners the skills and knowledge needed not only to write, format, and properly cite papers, but also to think critically to define their research problem, find credible sources, and craft theses or dissertations worthy of publication. The 8-section module can be customized to teach APA, MLA, or CMS documentation styles, along with instruction regarding proper word choices, tone, paper organization, literature-based research, and techniques to avoid plagiarism.

Engaging and Dynamic

Write & Cite®: Academic Readiness Module uses best practices in curriculum design to give your learners confidence and the knowledge needed to write with integrity. Learners will enjoy a mix of multimedia content and activities that keep them engaged. Our solutions are easy to adopt with flexible purchase options, integrations into your LMS, and the ability to create a school branded microsite – just for you.





Competency-Based

Write & Cite® includes a 20-question pre-test that helps learners understand their current levels of writing knowledge. Schools can allow students who pass the pre-test at a designated acceptable minimum score to test out of the module.

The module covers eight sections, as noted in the list above. At the end of each module section, learners must complete and pass a short quiz before moving on. Learners are required to go through the entirety of the module before reaching a 50-question competency exam (unless they have previously tested out in the pre-test). Once they come to the competency exam, they will have two attempts to pass it at the acceptable minimum score determined by the institution.

WRITE & CITE® LEARNING OUTCOMES

Write & Cite® helps your learners achieve the following learning outcomes:

- Identify the structure and formatting of academic papers following APA (American Psychological Association) style, MLA (Modern Language Association) style, or CMOS (Chicago Manual of Style) guidelines.
- Recognize and apply appropriate methods for developing and expressing ideas.
- Identify a research problem and choose appropriate questions to develop and assess the problem.
- Select credible sources to address research questions and support analysis.
- Describe plagiarism and its consequences and identify techniques for appropriately crediting the ideas of others.
- Differentiate purpose, tone, format, and structure used in common types of academic writing.
- Choose words that convey meaning and nuance appropriate to a paper's purpose.
- Enforce proper grammar and syntax through uniform verb tense, subject-verb agreement, parallel construction, and consistent phrasing.
- Use feedback to correct errors in style, structure, and content.

Easy to Adopt

Peregrine has provided flexible solutions to higher education institutions for more than ten years to ensure ease of adoption. For example, schools can place the module into their program through LTI integration with their LMS or a school-branded microsite. Additionally, Peregrine offers various purchase options, including bookstore purchases, monthly invoice for modules used, and student self-purchase at the time of module registration. By providing these options, many schools have quickly adopted Write & Cite® as an academic writing readiness solution.



DATA & REPORTS

School officials have 24/7 access to student results and reports through the Client Admin Site. The site includes student registration management, access to completion certificates, individual scores, and summary results to track student progress. Download the raw exam scores or generate an easy-to-read report that allows you to compare pre-test and post-test scores by subject.



Certificate of Completion

When a learner completes Write & Cite®, including passing the competency exam with an acceptable minimum score, they can download a certificate of completion.

The certificate of completion includes an in-depth breakdown of the pre-test and post-test scores. For each topic within Write & Cite®, students will be provided the number of correct questions, score, and difference in pre-test versus post-test score.

A higher education institution can use the completion certificate for academic accountability, whereas students must submit the certificate as proof of completion. Additionally, by providing learners with the report, they can see their growth in knowledge and quickly identify growth opportunities.





CASE STUDIES

CASE STUDY: PENNWEST CALIFORNIA



Elizabeth H. Jones, PhD
Associate Professor of Integrated Management
at PennWest California



Stephanie J. Adam, DBA
Associate Professor of Management &
MBA Program Coordinator
at PennWest California

Promoting a Culture of Quality within the MBA Program at PennWest California

In our MBA program at PennWest California, we assess student-learning outcomes so that we can continue to improve upon essential program elements: course design, instructor proficiency, student experience, and applicability to professional practice. Through the incoming and outbound data, we obtain, we can better track student success and identify “pain points” for our student body. As a result, we can re-evaluate our courses using data and student feedback as indicators of need versus intuition or personal preference. General research on pedagogy and/or course design best practices can only take us so far. This information provides us with real-time insight into the needs and experiences of our student body. It is an invaluable tool for quality improvements and checks/balances.

One of our MBA program objectives is for graduates to craft and present evidence, processes, and decisions through effective oral, visual, and written communications. Clear, cogent writing distinguishes highly successful people—students and managers alike—from their peers. It is genuinely exciting to watch our students as their thinking processes and writing abilities grow so quickly from their Foundations course where we introduce writing and research, through the program, and into the capstone course, where their communications skills are challenged and assessed.

Using Modules and Assessment to Reimagine Pre-Requisites

We have implemented several resources from Peregrine Global Services into the program, including the Write & Cite Academic Writing Readiness course, other online modules used for academic leveling (ALCs), and a program-level outbound exam to capture student retained knowledge. These modules and exams track the progress of our students as they move through the MBA program.

Our MBA Foundations course is required of every student as one of their first two courses in the program. Initially, students utilize a bundle of ALCs and Write & Cite to ensure they are at a desired level of proficiency at the outset of the program. Using the Write & Cite module as a foundational activity, we can quickly assess the level of student familiarity with formal writing and research as part of a course-wide writing sequence developed with our librarians. In every unit, students address an important business topic, engage in library or internet research, and practice writing in a discussion, short essay, or activity where the mechanics of writing, integration of sources, and APA formatting are graded as separate rubric elements.

This has revolutionized how we view pre-requisites and has also provided a gateway for students from all academic backgrounds into the rigor of MBA-level learning. From personal experience teaching in the program before and after we implemented this strategy, I witnessed each semester the significant learning and reflection that occurs when we combine the online modules with reflection and discussion on how learning can and will improve.

“

The Write & Cite on its own is likely the best investment our students make when they begin our program.

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The Write & Cite on its own is likely the best investment our students make when they begin our program. Finding ways to meet the individual needs of our diverse student body has been challenging as our MBA learners come from many disciplines (mostly non-business) and have vastly different familiarity with formal writing. Students struggle with the basics of APA-formatting and research, and this provides them with an easily accessible tool for reference and improvement. Some learners enter immediately after completing undergraduate programs, many come with existing advanced degrees outside of business, and still others have not been in a classroom for many years. Many have never studied online.

Therefore, it is hardly surprising that the Write & Cite section on writing good discussion posts is among the most impactful. Unlike supplemental materials that many students do not bother with, we are confident that every MBA learner will understand what we are looking for in discussions because their understanding has been assessed within the Write & Cite module. Faculty teaching electives concurrently with the Foundations course, notably remark they can tell when the concepts from Write & Cite click in: Discussion boards flow better, and APA formatting becomes apparent. These faculty also gently refer students back to the Write & Cite module at the beginning of term when students still struggle with academic writing basics.

As MBA program director, I witness significant growth in most students in the first class and then get to see the fruits of their knowledge as they take further concentration/core classes throughout the program. Although there is still wide variation in writing ability upon degree completion, each student has progressed in this important skill. On the MBA exit survey, student enthusiastically agree that they are better able to communicate their ideas as a result of the program.

Connect Content to Purpose

Write & Cite® allows faculty to spend more time grading for form rather than content. Write & Cite® is strong enough to stand on its own with valuable content and two years of module access so learners can continue to review content. However, pairing the module with an in-class assignment to promote the application of concepts is the best way to help students get the most out of this resource. Because students have access to the content for 2 years, they can continue to review the resource as needed.

As seen in this case study by PennWest California, by making the module a required part of learning and connecting it to a series of activities developed in collaboration with their library.



Leveraging Data to Improve Student Outcomes

The use of the Peregrine Write & Cite and ALC bundle creates a wonderful dataset that we compare with the outbound exam as well as our internal assessment results. In so doing, we have seen areas where students grow in their knowledge and areas where gaps remain. For example, we have used Write & Cite in two ways. Initially, we merely required that the writing module be taken before graduation. Unfortunately, students tended to take it too late in the program to be of much use. Once we embedded Write & Cite along with other ALC modules into the Foundations course, we began to see nearly immediate results.

Additionally, by carefully monitoring achievement during core courses as well as in the program capstone, we can fine-tune our approach to integrating the ALCs within the program. For example, faculty teaching quantitative reasoning and capstone courses noted that students struggled with describing their findings, so we embedded the Business Communications module at the beginning of the quantitative course. More recently, capstone internal assessment and outbound exam results suggested students needed more structured exposure to business ethics and business strategy, so the ethics ALC module is now included in the Foundations course and the strategy module is integrated into the capstone course.

Comparing Program-Level Results with Institutional Assessment Data

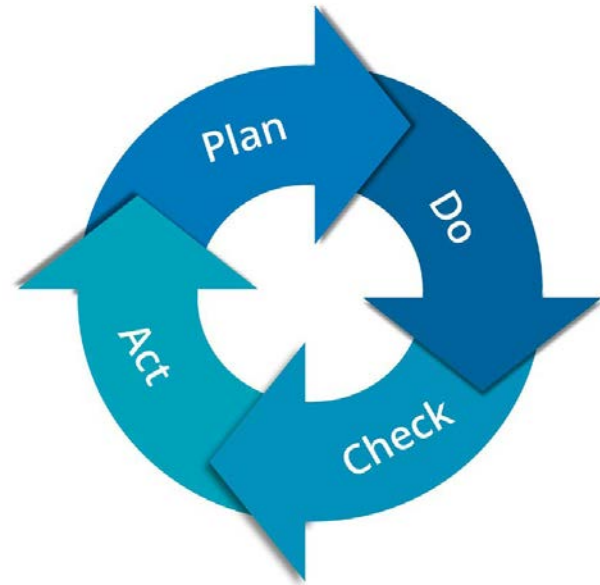
The Peregrine suite of solutions is foundational to our assessment and quality assurance processes in the MBA program through both leveling assessment at the beginning and benchmarked assessment at the end. Among the most useful features of the MBA, the outbound exam, is the ability to add customized survey questions at no additional cost. We use the survey to collect demographic data, program satisfaction data, and indirect measures of student achievement for each of our MBA program objectives. Because the Peregrine administrative platform gives such flexibility for using the data from each of its solutions, we have built customized software that allows us to match survey data with internal assessment data generated through our learning management system and correlate results with discreet components of the outbound exam. Our ability to envision complex data in this way has been particularly helpful during our transition to proctoring our outbound exams and the inevitable, expected drop in outbound exam averages. Without such a deep data set and tools to envision the data, it would be difficult to interpret the changes we have made to our program and our assessment processes.



Promoting a Culture of Quality

As we work to address the needs of a continuously changing student body, we use data, experience, research and student input to help guide us on our quality journey. Our goal is not simply to get students the degree they seek but to ensure they receive critical knowledge that will help them be leading practitioners in their field. This requires that we use all available information to make the best quality decisions regarding the areas mentioned above: course design, instructor proficiency, student experience, and applicability to professional practice. It also asks us, as instructors/designers, to continuously “check in” and make updates to courses continuously.

We have a specific curriculum committee dedicated to the MBA program so that we can evaluate progress, improvements, and necessary curriculum changes to grow as a leader in this space. In addition, the data we collect from Write & Cite, the ALCs, and the outbound exam are used to guide our decision-making as we examine the structure, format, and components of each of our required courses within the MBA.



The Plan-Do-Check-Act Cycle

About the Authors

Dr. Elizabeth H. Jones is an Associate Professor of Integrated Management at PennWest California, where she focuses on MBA and undergraduate capstone experiences and coordinates the university undergraduate online Integrated Business program. She earned her Master of Science and Doctor of Philosophy degrees in Organization and Management from Capella University. After many years in an adjunct capacity in Maryland, Dr. Jones began full-time university teaching in 2010 after she retired from 31 years of Federal service. She came to Cal U in 2018 to assume her fully online position with an emphasis on online course design and program assessment. Her research interests include women's leadership, leadership pathologies, adult learning, learning assessment, and online pedagogies.

Dr. Stephanie J. Adam is an Associate Professor of Management, focusing on Human Resource Management, and the MBA Program Coordinator for PennWest California. She earned her Bachelor's degree in Hospitality Management from Mercyhurst University, her Master of Science degree in Human Resource Management from La Roche University, and her Doctorate in Business Administration – Human Resource Management emphasis from Northcentral University. Prior to joining the full-time faculty at Cal U in the fall of 2016, Dr. Adam taught for several universities online and in person as an adjunct faculty member. In addition, she worked for seven years in Human Resources for a small manufacturing company in Western PA while attending graduate school prior to that. Her research interests include innovation in MBA design, online learning best practices, service learning, and small business-education alliances in the classroom.

CASE STUDY: FRESNO PACIFIC UNIVERSITY



Michelle Bradford, PsyD
MBA Program Director and Assistant Professor
at Fresno Pacific University



Katie Fleener, PhD
Dean of the School of Business
at Fresno Pacific University



Empowering leaders. Transforming lives.

Implementation of Peregrine's Write & Cite within the School of Business at Fresno Pacific University

At Fresno Pacific University, we have implemented the use of the Peregrine Write & Cite training to better support students' understanding of APA 7th edition formatting. Within the School of Business, we serve three different student populations – undergraduate, accelerated degree completion, and graduate students – taking courses in multiple modalities, including onsite, blended, and fully online. When students begin taking courses in the School of Business, they have varying experiences regarding academic writing. Some students know MLA or other formatting from high school, and others have not written an academic paper in years. By implementing the Write & Cite program, students learn consistency in formatting and gain improved writing skills. Additionally, as we begin to transition out of the current pandemic, we anticipate that the opportunities that were once available to develop writing skills have looked very different over the last two years. By implementing Write & Cite into our curriculum, we are confident that students will begin their educational pursuit with us with a solid understanding of the expectations for academic writing.

Another incredibly important goal of using Write & Cite has to do with the avoidance of plagiarism which is becoming far too common of an issue for all universities. Suppose students can properly understand how to paraphrase, use in-text citations, format papers, and create reference lists. In that case, it will ultimately help to alleviate concerns that might come up - even if accidentally - as students learn how to research and develop their own thoughts while completing assignments. And though it might take years for students to understand all of the intricacies within APA formatting fully, Peregrine's Write & Cite supports our students in developing effective written communication skills. The use of Write & Cite also supports regional and programmatic accreditation goals to ensure student communication development.



To ensure that all of our students complete the Write & Cite training, we have added the activity to the first class of many of the available business degree programs. This might mean that undergraduate students have already taken lower-division general education courses with different formatting requirements, highlighting the need to establish writing expectations within business courses. Ensuring that students complete Write & Cite early in their academic careers during their business courses sets the expectation utilizing APA 7th edition throughout their major coursework. Additionally, this supports students as they continue onto graduate programs and potentially doctoral programs knowing the proper formatting used in business academic writing. As an assignment, we give students credit for the completion of the training instead of the actual points they earned to encourage their engagement in the learning process.

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By implementing Write & Cite into our curriculum, we are confident that students will begin their educational pursuit with us with a solid understanding of the expectations for academic writing.

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Beyond the School of Business, Peregrine's Write & Cite supports the University's overarching Student Learning Outcome of written communication. Through the Write & Cite activities, the broader institutional quality assurance objectives are nicely met.

A key benefit of Write & Cite is that students continuously have access to the information reviewed simply by maintaining their login credentials.

This is helpful because, along with faculty feedback and the university's additional academic support resources, this tool empowers students to work on fine-tuning their writing skills whenever they need the support.

Fresno Pacific University is a Hispanic Serving Institution in the Central Valley of California. We support students at 5 on-site campuses and online. Values, ethics, and character development are a cornerstone of our curriculum. Peregrine's Write & Cite training supports our high academic standards by contributing to the foundational expectations of academic writing within the School of Business.

About the Authors

Dr. Michelle Bradford has over 20 years of experience in the field of higher education, team building, and training in corporate, military, and nonprofit settings. Dr. Bradford's strong work ethic, enthusiasm, and positive attitude provide a foundation for motivating individuals in and out of the classroom. Dr. Bradford has served as a National Faculty Chair, an onsite and online professor, and has presented at several national conferences, including ACBSP Region 7. Dr. Bradford now serves as the MBA Program Director and Assistant Professor at Fresno Pacific University. She holds a BBA in Marketing from the InterAmerican University of Puerto Rico, an MBA from the University of Phoenix, and a PsyD in Organization Development from Alliant International University-California School of Professional Psychology.

Katie Fleener, PhD, is the dean of the school of business at Fresno Pacific University. She has held various roles in higher education focused on teaching and administration since 2005. Her experience from student to administrator spans the public and private, for-profit and nonprofit, and secular and faith-based sectors. Dr. Fleener is passionate about ensuring the education sector remains connected to the business sector. Additionally, by pairing her education in psychology with her business experience, her interests focus on the intersection of business and psychology.

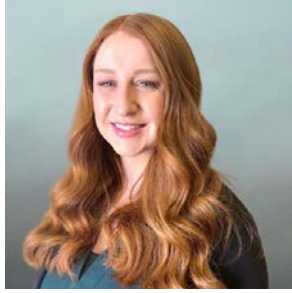
Dr. Fleener holds an AGS from Mesa Community College; a BA in Psychology from CA State University, Fresno; an MA in Counseling Psychology from National University; and a PhD in General Psychology from Capella University.



DATA ANALYSIS



ACADEMIC WRITING DATA ANALYSIS



Rebecca Hurley
Client Solutions Advisor
Peregrine Global Services

Throughout the introduction and case studies presented here, we focused on faculty efforts to improve student writing and address specific challenges. Consider this sample of statements from faculty in the case studies:

“Students struggle with the basics of APA-formatting and research, and this provides them with an easily accessible tool for reference and improvement.”

“The Write & Cite section on writing good discussion posts is among the most impactful.”

“By implementing Write & Cite into our curriculum, we are confident that students will begin their educational pursuit with us with a solid understanding of the expectations for academic writing.”

“Another incredibly important goal of using Write & Cite has to do with the avoidance of plagiarism which is becoming far too common of an issue for all universities.”

In this section, we focus on evidence to support these statements. Peregrine Global Services has been providing Write & Cite® to higher education institutions since 2017, so there is five years of data to consider. Our sample for this study includes 9,131 Write & Cite modules completed through 52 client institutions at the masters level, as well as 664 modules completed across 15 institutions at the undergraduate level. The following research questions prompted by the case studies guided the data analysis processes:

1. Are learners improving their academic writing competencies by completing the Write & Cite® module as expressed by the difference between the paired pre-test and post-test scores?
2. How effective is the use of the Write & Cite® module in increasing knowledge of APA documentation style and requirements for both in-text citation and reference lists?
3. Do learners who complete the Write & Cite® module improve their ability to select credible sources and appropriately credit the ideas of others in written assignments?

To answer these questions, we exported the module data from the database into Excel for subsequent data analysis. Sample means were compared using the student's t-Test (Welch's t-Test adaptation) to compare the samples having the possibility of unequal variances (Delacre, Lakens, & Leys, 2017). A t-Critical threshold of .050 ($t=1.960$) was used for the investigation to determine the significance of the modality comparisons.

A t-Test can produce a significant ($p < .05$) value even when the differences between the two means is relatively small because of the high sample sizes involved in the analysis of the module results (Algina, Keselman, & Penfield, 2006). We, therefore, also calculated the Cohen's d value with the t-Test as an indication of effect size.

Cohen (1993) suggested that $d = 0.2$ be considered a "small" effect size, 0.5 represents a "medium" effect size, and 0.8 a "large" effect size. This means that if the two groups' means do not differ by 0.2 standard deviations or more, the difference may be trivial, even if the difference is statistically significant.

About the Author

Becca Hurley came to Peregrine with a background in customer service, banking, and data analytics. She utilizes her specialized education and experience to help current and potential clients learn how they can leverage data to inform decision-making and continue to impact quality in education and leadership.

Becca earned a Master of Business Administration and Data Analytics from the University of Louisiana - Shreveport. She also obtained a BS in Finance and Business Economics from the University of Wyoming. Unsurprisingly, Becca has an immense propensity for solving problems with the information derived from data analysis.



PRE-TEST/POST-TEST ANALYSIS

The guiding research question for the first portion of the analysis is:

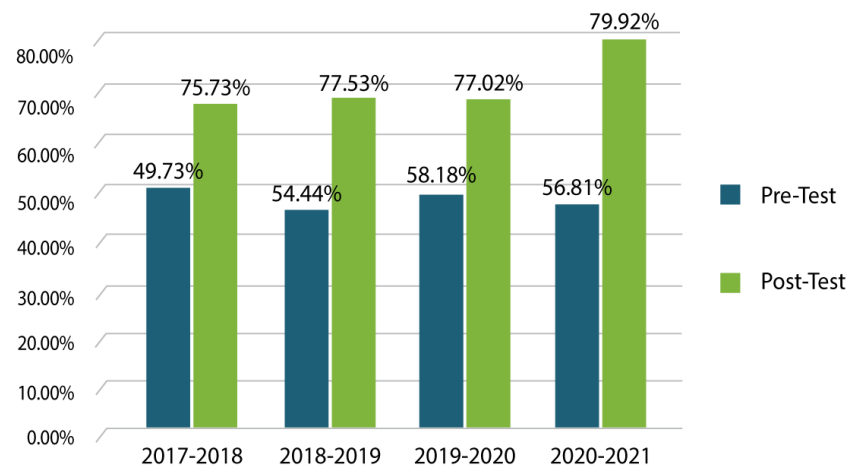
Are learners improving their academic writing competencies by completing the Write & Cite® module as expressed by the difference between the paired pre-test and post-test scores?

This question seeks to understand the difference the use of the Write & Cite® module makes in student understanding of academic writing. What knowledge do students have at the start of the module? Do they understand how to select credible sources and incorporate others' work into their writing? Are they familiar with APA documentation requirements? We can look at students' pre-test and post-test scores to determine their knowledge levels as they start the module and whether using the module raises their overall level of academic writing readiness.

The Write & Cite module pre-test and post-test scores for academic years 2017-2018, 2018-2019, 2019-2020, and 2020-2021 are shown in Figure 3 for bachelor programs and Figure 4 for master's programs. These data include all pre-test and post-test scores, without matching individual learner scores. The average difference between the pre-test and post-test scores for the past four years was 22.76% for undergraduate students and 23.04% for graduate students. Based on the differences between the pre-test and post-test module scores, learners experienced an average percentage change (knowledge gain) of 41.95% at the undergraduate level and 39.22% at the graduate level.

These data point to the fact that learners are consistently improving their knowledge of academic writing competencies, year after year, within both smaller samples of undergraduate learners and larger samples of graduate learners.

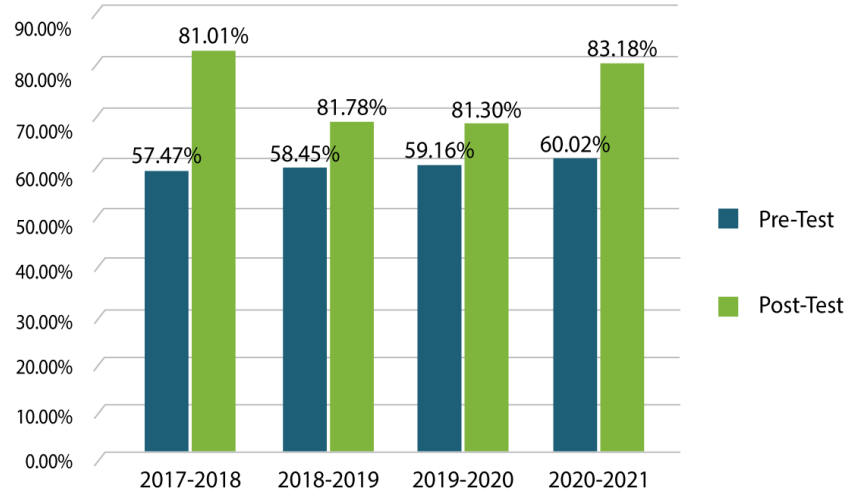
Write & Cite® Pre- and Post-Test Mean Scores
Bachelors Level



Year	Pre-Test	Post-Test	Difference	Percent Gain
2017-2018; n = 88	49.72%	75.73%	26.01%	52.32%
2018-2019; n = 187	54.44%	77.53%	23.09%	42.42%
2019-2020; n = 151	58.18%	77.02%	18.84%	32.38%
2020-2021; n = 559	56.81%	79.92%	23.11%	40.68%

Figure 3. Average Write & Cite® Module Pre-test and Post-test Scores (undergraduate level) from 2017-2018 through 2020-2021 Academic Years.

Write & Cite® Pre- and Post-Test Mean Scores Master's Level



Year	Pre-Test	Post-Test	Difference	Percent Gain
2017-2018; n = 88	57.47%	81.01%	23.54%	40.96%
2018-2019; n = 187	58.45%	81.78%	23.33%	39.91%
2019-2020; n = 151	59.16%	81.30%	22.14%	37.42%
2020-2021; n = 559	60.02%	83.18%	23.17%	38.60%

Figure 4. Average Write & Cite® Module Pre-test and Post-test Scores (graduate level) from 2017-2018 through 2020-2021 Academic Years.

For the past four academic years, students using the Write & Cite® module have improved their academic writing competencies, with an average of 42% gain in knowledge for undergraduate students and a 39% gain for graduate students. These results show that, as students begin the module, they have room to grow in their understanding of academic writing and that Write & Cite® improves their overall writing competencies. In the next section, we look at the impact on specific areas of concern for faculty: adherence to APA documentation requirements and avoidance of plagiarism.



PRE-TEST/POST-TEST TOPIC ANALYSIS

The second portion of the analysis seeks to answer the second and third research questions, related to specific academic writing competencies:

How effective is use of the Write & Cite® module in increasing knowledge of APA documentation style and requirements for both in-text citation and reference lists?

Do learners that complete the Write & Cite® module improve their ability to select credible sources and appropriately credit the ideas of others in written assignments?

To answer these questions, we examine the data for scores for scores across each topic within Write & Cite on both pre-test and post-tests over a 5-year period from 2017 to 2022. The topics covered include:

- APA In-Text Citation
- APA Reference Lists
- APA Body of the Paper
- Finalizing the Paper
- Literature Sources in Academic Writing
- Types of Academic Writing
- What is Academic Writing
- Writing the Paper

Before diving into the statistical significance, we can get an overall picture of improvement in specific areas by looking at the difference between pre-test and post-test scores for master's level students by topic from July 1, 2017, to June 30, 2022. The graph in Figure 5 shows the different topics within the Write & Cite® module, with the pre-test mean score in green and the post-test mean score in blue.

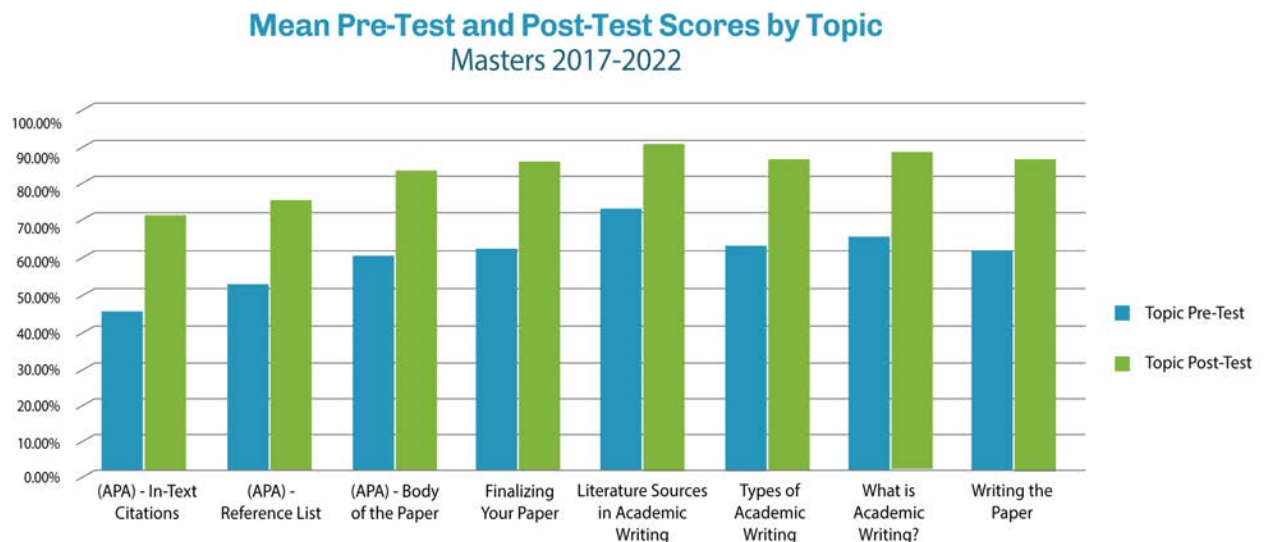


Figure 5. Mean pre-test and post-test scores at the masters level for the 8 topics within the Write & Cite® module for the 2017-2018, 2018-2019, 2019-2020, 2020-2021, and 2021-2022 academic years (July 1 – June 30), $n = 9,131$.

We can better understand student performance in key areas by looking at the graph. Question 2 maps to student performance in APA In-Text Citation, APA Reference Lists, and APA Body of the Paper. Question 3 maps to content in What is Academic Writing (which describes plagiarism and its consequences and identifies techniques for crediting the ideas of others) and Literature Sources in Academic Writing (which covers selection of credible sources to address research questions).

There is obvious improvement in each topic area, and this graph shows that students find APA in-text citations and reference lists particularly difficult on the pre-tests compared to other topic areas. The lower scores in these areas on pre-tests align with statements that students often struggle with basic APA formatting.

For a deeper analysis, we can examine the mean scores and standard deviation for our sample at the topic level to test the null hypothesis that the use of the Write & Cite module had no effect on student understanding of writing competencies or the alternative hypothesis that use of the module affected student understanding of writing competencies. Table 1 presents the pooled pre-test and post-test scores by topic for master's students during the 5 years from July 1, 2017 to June 30, 2022.

Over this period, more than 9,000 graduate students took the pre-test and post-test in the Write & Cite® module. The topics that are directly relevant to our research questions are shaded green: those that assess APA competencies, selection of credible sources, and plagiarism mitigation. The p -value was extremely low in each topic area, and we can reject the null hypothesis. Further, we can use Cohen's d to measure the effect size that the use of the Write & Cite module had on student understanding of writing competencies. An effect is considered "large" at 0.8 standard deviations between groups.

**Between July 1, 2017 and
June 30, 2022, more than
9,000
graduate students took the
Write & Cite® pre-test and post-test.**

Our data show a significant impact and go up from there: the results on literature sources in academic writing have a Cohen's d of 0.80, and the effect on APA requirements for the body of the paper is at 0.93. The use of the Write & Cite module has a significant impact on how students understand selection of credible sources, techniques to avoid plagiarism, and requirements for APA-style documentation.

Pooled Pre-Test and Post-Test for Write & Cite® Topics - Masters 2017-2022												
Topic	Pooled Pre-Test Scores					Pooled Post-Test Scores					Evaluation	
	Mean	SD	Variance	n	Client Count	Mean	SD	Variance	n	Client Count	t -value	Cohen's d
(APA) - In-Text Citation	43.99%	30.60%	9.36%	9145	52	68.64%	22.02%	4.85%	9145	52	62.53	0.92
(APA) - Reference List	50.77%	30.10%	9.06%	9145	52	73.88%	20.56%	4.23%	9145	52	60.63	0.90
(APA) - The Body of the Paper	58.13%	29.87%	8.92%	9131	52	81.07%	17.94%	3.22%	9131	52	63.16	0.93
Finalizing Your Paper	61.35%	30.50%	9.30%	9131	52	84.30%	17.94%	3.22%	9131	52	61.99	0.92
Literature Sources in Academic Writing	70.89%	29.01%	8.42%	9145	52	89.43%	15.43%	2.38%	9145	52	64.72	0.96
Types of Academic Writing	60.81%	30.71%	9.43%	9131	52	84.99%	18.23%	3.32%	9131	52	64.72	0.96
What is Academic Writing?	63.95%	30.91%	9.55%	9145	52	86.86%	17.73%	3.14%	9145	52	61.50	0.91
Writing the Paper	59.92%	30.87%	9.53%	9131	52	84.65%	17.80%	3.17%	9131	52	66.30	0.98

Table 1. Analysis of pre-test and post-test data for the 8 Write & Cite topics. All t -values were significant ($p < .000$) and all Cohen's Effect Size d values were high (>0.80).

CONCLUSIONS

Are learners improving their academic writing competencies by completing the Write & Cite® module as expressed by the difference between the paired pre-test and post-test scores?

- For each of the past four academic years, students using the Write & Cite® module have improved their academic writing competencies, with an average of 42% gain in knowledge for undergraduate students and a 39% gain for graduate students. These results show that, overall, as students begin the module, they have room to grow in their understanding of academic writing and that Write & Cite® improves their overall writing competencies.

How effective is use of the Write & Cite® module in increasing knowledge of APA documentation style and requirements for both in-text citation and reference lists?

- Results from pre-test and post-test scores over the past five years show that for the topics APA In-Text Citation, APA Reference Lists, and APA Body of the Paper, use of the Write & Cite® module had a large effect on student scores. The mean score of graduate students for APA Body of the Paper increased from 58% to 81%; the mean score for In-Text Citation increased from 44% to 69%, and the mean score for Reference Lists increased from 51% to 74%.

Do learners that complete the Write & Cite® module improve their ability to select credible sources and appropriately credit the ideas of others in written assignments?

- To answer this question, we must examine the specific sections of the Write & Cite® module that provide instruction and assessment on selection of credible sources and on techniques to properly credit the ideas of others. Those sections are Literature Sources in Academic Writing, which covers selection of primary and secondary sources for answering research questions, and What is Academic Writing, which defines plagiarism and its consequences and identifies techniques for citing quoted, paraphrased, or summarized ideas. Results from these two sections show that use of the Write & Cite® module had a large effect on student responses related to selection of credible sources and recognition of plagiarism. The mean score of graduate students for Literature Sources in Academic Writing increased from 71 % to 89%; the mean score for What is Academic Writing increased from 64% to 87%.

RECOMMENDATIONS: THE WAY FORWARD



Desiree Moore, MH
Director of Marketing
Peregrine Global Services

When I entered the classroom for the first time as a college English instructor, I was surprised by the number of learners who had yet to retain the basic foundational concepts necessary for academic writing. What I thought would be foundational knowledge already acquired became an area of required remediation.

Remediation was critical to their long-term academic success because learners must be able to write well to participate in coursework fully. Although remediation is often needed, we have learned that remedial courses are not always in the best interest of our learners. It is estimated that remedial college courses cost students and their families about 1.3 billion in the United States each year, according to the Center for American Progress. Also, by adding courses that do not count towards a degree, we are prolonging the time to complete degrees and decreasing the likelihood of completion.

As seen in this whitepaper, Write & Cite® is a highly effective way to develop the foundational concepts for academic writing in a cost and time-effective manner. So much so, learners improve by 39%-42% (variation based on program-level) based on a comparison of pre-test/post-test analysis. The module has helped institutions reimagine prerequisites as it makes taking a competency-based approach to teaching and learning possible. The competency-based approach has helped institutions, including the PennWest California and Fresno Pacific University, better serve a diverse student body – meeting the individual learning needs of each learner. Additionally, as noted by Fresno Pacific University, the module provides a long-term solution as learners receive ongoing access to their content for two years.

Our hope for future research is to be able to demonstrate the impact of Write & Cite® implementation on student performance in written assignments at their universities. We would like to collect data on student writing scores in key program deliverables, both before and after implementation of Write & Cite®. While this paper provides data that demonstrate student learning of concepts, along with qualitative evidence of improved writing skills, we would be interested to see how providing a solid foundation in academic writing improves program learning outcomes.

Over the last five years of partnering with higher education institutions to integrate Write & Cite®, we have supported schools as they implement the module in various ways. The following is a list of implementation strategies and best practices that can be used to support learners' development of academic writing competencies.

“

Writing is a skill, not a talent, and this difference is important because a skill can be improved by practice.

~ Robert Stacy McCain

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Over the last five years of partnering with higher education institutions to integrate Write & Cite®, we have supported schools as they implement the module in various ways. The following is a list of implementation strategies and best practices that can be used to support learners' development of academic writing competencies.

- Use Write & Cite® within the first course of a program. A common method for integrating the module is to add it as a required assignment within a course at the beginning of a program of study. This was seen in the case study presented by Fresno Pacific University, where they made the module an assignment and gave students credit to incentivize completing the full module.
- Connect the Write & Cite® module to activities and assignments within a writing course. In the PennWest California case study, they used the module as a foundational activity to assess learners but then connected the modules' sections back to an application activity. Therefore, making online learning is relevant for learners.
- Use as necessary for remediation. Although making Write & Cite® a requirement for all students would be ideal, institutions often use the module on an as-needed basis. Therefore, when a learner is struggling to write academically or commits plagiarism inadvertently, the school has a tool they can offer to the student to help with remediation.
- Use Write & Cite® as an assignment for masters and doctoral programs in a Research Methods course. Often, students within a doctoral program are returning students who may have been out of the classroom for some time. Therefore, they may need a refresher in scholarly writing and even more instruction on thesis and dissertation writing. Write & Cite® provides both to doctoral-level learners.

As illustrated by data analysis and the included case studies, Write & Cite® is a highly effective tools for preparing learners to write for the classroom. The module allows institutions to assess their learners, provide practical and succinct instruction, and measure the results - all without having to add additional prerequisite/corequisite courses. Also, the module uses best practices in curriculum design, making the online, asynchronous experience engaging and dynamic. Furthermore, Write & Cite® gives students easy access to a resource they can continue to use to refresh their knowledge for up to two years. Finally, it gives them an invaluable tool that supports lifelong learning and helps students stay engaged in their learning.

About the Author

Desiree Moore is the Director of Marketing for Peregrine Global Services, a globally recognized Ed Tech company specializing in assessment and online instructional solutions. In this role, she collaborates daily with leadership and faculty in higher education to deliver customized and practical solutions. Prior to being hired at Peregrine in 2020, Desiree worked in K-12 education, higher education, and nonprofit. Her experience includes teaching at the secondary and post-secondary level, workforce development, college admissions, curriculum development, grant writing, storytelling, and leadership. Desiree has a Masters of Humanities from Tiffin University and a Bachelor of Liberal Arts from Colorado State University. Throughout her 15-year career, Desiree has partnered with schools to develop programs, grow their credit and noncredit enrollments, procure funding, improve teaching and learning, build a culture of quality, and foster lifelong learning.

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