

Chapter 5

Research and career

Alessandro N. Vargas



Abstract: This chapter explores key aspects of academic careers, emphasizing the prestige associated with certain journals and productivity strategies. This chapter examines the impact of the “publish or perish” culture on researchers, along with a critical evaluation of the impact factor and its influence on publication choices. In addition, the chapter offers insights into how to boost productivity, enriched by contributions from Bing-ChatGPT.

1 Advancing your scientific career

Every researcher’s dream is to join a prestigious institution. However, passing the hiring process sets only the first step in building an academic career. The second step involves advancing through the academic ranks. For instance, researchers employed by universities often begin their careers as ‘*Assistant Professors*’ (e.g., [60, p. 77]). Over time, they work to develop their careers, seek promotions, and eventually get *tenure*, a term denoting a permanent faculty position that provides lifelong job security.

Once tenured, a researcher (or professor) cannot be fired except under rare and exceptional circumstances. While some succeed in earning tenure and securing their positions, others face rejection, particularly when competing for tenure-track roles at leading research institutions [55]. For example, data from 2018 reveal that only 25% of professorship positions in the United States were tenured [55, p. 526]. Furthermore, 2015 statistics in science and engineering indicate that for every seven

Alessandro N. Vargas • UTFPR Brazil • UC Berkeley USA
e-mail: avargas@utfpr.edu.br

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The Struggle for Tenure: A Story of a Temporary Lecturer

Mark hurried through the corridors, on his way to deliver the final lecture of the term. As he entered the classroom, a sudden, chilling thought paralyzed him. He realized this could be his last class at the prestigious, top-ranked university. *"My future is in other people's hands"*, he recalls. Mark, a temporary lecturer, dreams of securing a permanent position, but his future at this university is at risk.

Mark spent much of his youth pursuing scientific knowledge. Science has always been Mark's passion since childhood. As a graduate student, his groundbreaking achievements earned the admiration of his colleagues and mentors. His supervisor saw him as a potential leader in his discipline but also worried about Mark's lack of social skills. Mark is most of a shy temperament. However, Mark has grown more confident over time. As a temporary lecturer, Mark worked hard to teach and mentor his students. Believing he has taken all the right steps, Mark remains focused on achieving his ultimate goal: securing tenure.

Mark faced a final challenge: applying for promotion to tenure. The tenure review process required a committee of experts, including members from his own and other universities, to evaluate his work and determine whether he deserved tenure—a distinction that would grant him a permanent position and academic freedom. As part of this process, Mark was required to submit a comprehensive portfolio, including his publications, grants, awards, teaching evaluations, and letters of support. Also, he had to deliver a public speech on his research and address questions from committee members.

Mark was proud of his skills and accomplishments, but he was also overwhelmed by nervousness and anxiety. He spent months waiting for the committee's decision—hoping for the best while bracing himself for the worst. He tried to control his mind, keeping himself busy with work and hobbies. Yet he could not stop thinking about his future. What would his colleagues, students, friends, and family think of him? What path would he take if his tenure application were denied? These questions weighed heavily on his mind. What colleagues, students, friends, and family would say about him? What could he do next if the tenure becomes denied? He knew the committee's result could make or break his career. Many researchers before him had faced the same critical moment—some had triumphed, while others had not.

The long-awaited decision day finally arrived. Mark received a letter from the committee chair with the message: *"Dear Dr. Mark, We are pleased to inform you that you have been awarded tenure at our university. Congratulations. We are happy to have you on our team."* Mark smiled. He felt a mix of joy and relief. He got emotional. Finally, he made it. His dream had come true. *"It is done,"* he thought. He celebrated this achievement with his loved ones, expressing his deep gratitude to everyone who had supported him throughout the journey. Gratitude.

Soon after, Mark realized that tenure was not the end of his journey but the beginning of a new chapter. With a renewed sense of purpose, he embraced the opportunity to continue his quest for knowledge and more discoveries.

Mark's story was not an isolated one. Across the globe, countless others have faced similar journeys. Different names and different faces: all sharing the same hopes and fears.

individuals awarded a Ph.D., only one tenure-track position was available [53, p. 403]. This intense competition for tenure creates significant stress on researchers.

In contemporary academia, success hinges on two critical factors: the number of publications and the prestige of the journals in which these works are published [55, 123, 165]. Therefore, mastering clear communication and logical organization

becomes essential for researchers wishing to achieve academic success, as discussed next.

2 Publish or perish: how the pressure to publish affects researchers

Among all academic responsibilities, publishing in prestigious journals is considered as the most significant [55, 123, 165]. Sean Carroll, a theoretical physicist at Caltech, echoes this perspective, stating, “*What major research universities care about is research. Nothing else,*” as quoted in [55]. Interestingly, Carroll himself was denied tenure at the University of Chicago in 2006, partly due to his focus on a book outside his primary area of research [55, p. 526].

In academia, researchers often evaluate one another based on the number of publications in high-impact journals [119]. Academic success is strongly correlated with publication history, as past achievements are viewed as reliable indicators of future achievements. Hiring committees, comprised of experienced scholars, frequently rely on candidates’ publication lists to assess their capabilities. A robust publication record, particularly in prestigious journals, demonstrates that the candidate’s work has been repeatedly validated by skilled editors and reviewers.

Now more than ever, the adage “*publish or perish*” emphasizes the importance of publishing regularly in academia. Failure to maintain a steady output often results in professional stagnation and difficulties in securing tenure or employment [27, 34, 55]. This reality emphasizes the role of publications as *the currency* of academia [134], [146, p. 1256]. Researchers with a large number of publications unlock numerous opportunities, including invitations to collaborate, participation in conferences, and easier access to funding.

In summary, a robust publication record opens the doors to professional growth and academic advancement. By publishing in prestigious journals, researchers strengthen their careers.

3 Prestige and impact factor

Certain journals are regarded as more prestigious than others. But how is prestige determined?

Two primary approaches exist: one subjective and the other objective. The subjective approach relies on the opinions and perceptions of researchers and peers, who exchange experiences and insights about which journals are considered reputable and worth publishing in.

The objective approach, on the other hand, uses a numerical metric to rank journals based on their influence within the academic community. This metric, known as the *impact factor*, was introduced by Eugene Garfield in 1961 [50]. The impact

factor calculates how frequently articles published in a journal are cited by other researchers [50]. Journals with high impact factors are regarded as prestigious, operating on the assumption that a greater number of citations reflects the quality and significance of the research they publish [3]. In general, the higher a journal's impact factor, the greater its perceived prestige [3].

Despite its extensive use, the impact factor has faced substantial criticism [37, 151]. One major issue is that it only accounts for citations from journals included in the private-owned database 'Web of Science,' which may exclude relevant publications. Moreover, the impact factor introduces biases. For instance, researchers may prioritize publishing in high-impact-factor journals, even when the work has a weaker alignment with the journal's scope. It also favors rapidly evolving fields, such as biomedicine and data sciences, over more specialized or enduring disciplines like mathematics and sociology [151].

These limitations have led the academic community to advocate for alternative evaluation methods. One notable example is the Declaration on Research Assessment (DORA), drafted in San Francisco in 2012. DORA emphasizes moving away from an overreliance on journal-based metrics, such as the impact factor, and advocates for evaluating research based on its intrinsic quality and impact, rather than the prestige of the journals in which it appears.

While the impact factor ranks journals by influence, it does not assess the quality of individual papers [37]. Additionally, citations—and consequently, impact factors—can be manipulated [130]. For example, journals that prioritize review articles often inflate their impact factors, as reviews generally attract more citations than original research papers [151]. Moreover, the impact factor does not account for qualitative aspects, such as a journal's scope, size, age, or editorial reputation.

Although experienced researchers recognize the problems associated with the impact factor, it remains widely used; many institutions use the impact factor as a measure for distributing funds and grants [3]. However, journal prestige should not be reduced to a single metric. Prestige is a multifaceted concept that encompasses additional elements beyond impact factors.

When evaluating journals, we must consider factors such as the publisher's history, the editorial board, and editorial standards. DORA reminds us to adopt a more holistic approach to research assessment, emphasizing the importance of moving beyond numerical metrics to evaluate the true value of contributions.

4 How to Become Productive

Productivity in academic writing is a multifaceted and individualized concept, embracing diverse approaches and methods tailored to personal circumstances. For example, Robert Boice suggests a daily routine of writing [21]; he says this strategy combats self-doubt and procrastination [21, Sec. E]

While Boice's perspective requires daily consistency, others thrive by writing in bursts of inspiration. Writing environments also vary widely. Some find their most

Answer 2: (from Prompt 5.1)

Answer:
 Leveraging ChatGPT ethically to enhance your academic productivity requires integrating it thoughtfully into your writing workflow. Begin by utilizing ChatGPT as a tool to refine your research ideas and generate outlines that organize your thoughts effectively. You can rely on it to suggest alternative structures, clarify complex concepts, or propose ways to strengthen your arguments. During the drafting stage, ChatGPT can assist with generating initial versions of non-critical sections, such as introductions or summaries, always ensuring that the intellectual core of your work remains your own. Use it to explore different expressions and enhance readability while carefully verifying the accuracy and originality of all generated content to avoid ethical concerns. Additionally, ChatGPT can support peripheral tasks, like polishing abstracts, composing cover letters for journal submissions, or suggesting revisions for clearer communication. To maintain ethical integrity, you should disclose your use of AI tools when appropriate and ensure they serve to complement, not replace, your expertise and effort. By remaining the intellectual driver of your work and critically reviewing all outputs, ChatGPT can become a valuable asset for boosting your productivity while upholding the standards of scientific research.

productive moments in the tranquility of their homes, while others prefer the square of an office; others feel inspired by the movement of trains or airplanes. Distraction-free spaces are often considered essential, but some writers succeed in environments filled with ambient noise, like public spaces and coffee shops.

The tools used for writing also reflect this diversity. Word processors, notebooks, tablets, and even voice-recognition software—all contribute to the creative process.

Time management plays a critical role in productivity. Some writers find moments during a busy working day to make incremental progress; others can block chunks of time, often for writing non-stop for hours. These distinct approaches highlight an essential truth: there is no universal formula for productivity. Instead, identifying an approach that resonates with one's circumstances is key.

Curiously, we can resort to Bing-ChatGPT's tips on how to become more productive; see Prompt 5.1. Bing-ChatGPT's answer is quite reasonable, as it can help us increase our productivity by expediting some routine tasks ethically.

Prompt 5.1: Bing-ChatGPT

>> *Give me tips on how to become more productive using ChatGPT in ethical ways, I wish to boost my output of papers to be published in scientific journals. Write your answer in a simple academic tone, and avoid bullets; write a one-shot summary text.*

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