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Influence Without Authority: Leadership Lessons for Statistical Programmers

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ABSTRACT

In today's pharmaceutical development landscape, statistical programmers are expected to deliver far more than datasets and tables. This paper explores the concept of 'influence without authority'—the ability to lead cross-functional teams, foster collaboration, and elevate the role of programming without holding a formal management title. Drawing from personal experiences, academic research, and industry best practices, I present practical frameworks for developing leadership presence, building trust with stakeholders, and communicating insights in ways that resonate with both technical and non-technical audiences. Through analysis of the Four Pillars of Influence (Credibility, Confidence, Communication, and Collaboration), real-world case studies, and evidence-based strategies from Harvard Business Review and leading organizational research, this paper demonstrates how statistical programmers can evolve from technical contributors to strategic partners who shape organizational direction and contribute not just code, but clarity and confidence to critical decision-making in an increasingly complex industry.

INTRODUCTION

The modern pharmaceutical industry is undergoing a profound shift in its value approach to technical expertise. Traditionally, statistical programmers are viewed as frontline technicians, who receive ideas and transform them into products and value. Nowadays, the same programmers are increasingly being valued as strategic experts with more and more influence in the conference room. This industry-wide transformation signifies a general recognition that those who are closest to the data and numbers can bring critical insights to decision making, which was previously viewed as exclusive to the executives.

However, this novel approach presents a unique clash with the traditional corporate hierarchy: how can those without formal authority influence organizational decisions and even lead cross-functional teams? In other words, how can the footsoldiers influence the battleplans of the generals?

This paper investigates this question by exploring “influence without authority” in the context of statistical programming. Building off of personal experience, theoretical leadership frameworks, and current industry research, this paper presents practical strategies for statistical programmers who aspire to create greater impact beyond their technical deliverables.

WHY INFLUENCE MATTERS FOR STATISTICAL PROGRAMMERS

The traditional perception of statistical programming as merely in serve of a technical capacity largely underappreciates the value of programmers to broader organizational success. In reality, statistical programmers are at the heart of each technical problem, giving them the ability to generate unique insights and value through first-hand experience. But why does influence even matter in the first place?

Influence Moves Ideas Forward

Every day, good ideas often die off in meeting rooms or get lost in backlog tickets. It is less so about the quality of the ideas themselves, but rather the effectiveness of one's advocacy to see it through for adoption. And fundamentally, it circles back to the topic of influence: both the fear to present ideas and the inability to stand steadfast behind good ideas stem from a lack of influence and authority in the meeting room. In fact, the research

shows that 34% of U.S. employees hold back on speaking up their ideas out of fear of negative feedback and retribution.¹

For statistical programmer, this challenge occurs commonly. A programmer may identify a technical solution to clean up code structures that could save hundreds of hours; but without the ability to influence executive decision-making to adopt the proposal, the insight remains unrealized.

Influence Amplifies Your Impact

There exists a limit to how much code any single programmer can write alone. This ceiling on individual productivity means that the individual impact is constrained to literally how fast one's fingers move across the keyboard. However, influence can break these limitations and significantly scale one's impacts.

When a good idea is pushed through to adoption, its effect can affect every organization level, causing a positive cascade. For example, when a programmer develops a list of best practices and uses influence to see it through as the new standardized protocol, the positive impact affects every person who implements these improvements, allowing the impacts to rapidly multiply. Apart from solely technical practices, individuals can also influence the broader problem-solving approach, teamwork dynamics, and decision-making at the firm.

Influence Gives You a Voice in Decisions

High-impact individual contributors often act as “thought partners” to leadership without ever managing anyone. Too often, leadership makes strategic decisions without consulting technical perspectives. For example, a business executive would not know much about the specifics of using SDTM (Study Data Tabulation Model) and therefore would make ill-advised decisions without any input from technical personnel. For corporate, this translates to ill-advised decisions. In that regard, it is important for leadership to gain critical advice from individual contributors who is at the heart of the technical problem and has domain expertise.

Strategically, leadership and high-impact programmers maintain a symbiotic relationship: leadership lays out the grand project blueprints, but rely on key insights from top contributors. The more “influence” a programmer has, the more their advice will be valued and implemented in leadership's decision-making. In that sense, influence gives voice to individuals in decisions without the necessity of holding any formal managerial titles.

THE FOUR PILLARS OF INFLUENCE WITHOUT AUTHORITY

In understanding the concept of “influence without authority,” there are four fundamental pillars: credibility, confidence, communication, and collaboration. These four pillars mutually-reinforcing: strength in one pillar amplifies the others, while weakness in any one pillar can undermine the foundation of influence. For example, credibility can support collaboration; while the lack of confidence can deteriorate communication.

Pillar 1: Credibility

Trust is the principal bedrock of influence. It is the basis for one's ethos and credibility and can fundamentally affect whether a collaborative relationship results in mutual gains. Without trust, even the most insightful suggestions would be met with skepticism and resistance. For statistical programmers, credibility is established primarily through consistent, high-quality technical work. The daily work life could refer to ensuring that every program runs smoothly; every dataset is validated correctly; and timelines are met. The keyword is consistency: it is pivotal that the performance is stable, with very few ups and downs, demonstrating high productivity and success no matter the task. Performing every assignment with both consistency and high-quality accuracy build credibility. Conversely, errors and missed deadlines erode trust. This means that trust is an earned recognition, not a given.

At the same time, trust should be bilateral. It is commonly perceived that trust is a top-down perspective, where only employees expected to make themselves credible in the view of management. Currently, there is a significant gap in the bidirectional levels of trust in the employee-employer relationship. A 2024 PwC report finds that while 86% of

executives place high trust in their employees, only 60% of the latter reciprocate the same sentiment.² This gap is critical to acknowledge the ability of employees to deliver consistent, high-quality work frequently depends on their trust in their superiors: good trust inspires positive reinforcement and high output, while poor trust promotes negative sentiments and low productivity. The same PwC survey discovers that 61% of workers believe that the lack of trust negatively affects their productivity and quality of work.

For a programmer to have influence, trust is a necessary element. Only when one has experience and a proven track record of consistency and high-quality products would an executive place trust and listen to their advice. Value must be proven to gain influence.

Pillar 2: Confidence

Confidence is often a deciding factor for influence. The psychology of confidence implies that one believes that they are of substance. Even when that is not reality, the perception of confidence can still help amplify one's influence by making one look knowledgeable and credible, inviting others to adopt their ideas. In fact, the research finds that confidence and social dominance, which can be directly translated to influence, are correlated.³ In professional contexts for statistical programming, confidence might indicate a programmer's expertise and ambition, making them more valued by higher-up executives, thus helping them gain influence in the meeting room.

More specifically, confidence can involve two key components: first, it is dependent on one's presence and demeanor. Anything from upright posture and tone of voice to body language and eye contact can affect one's subjective perception of confidence or the lack thereof. Psychologically, these details can both make one feel confident and therefore act confidently, creating a positive feedback loop, and also make others perceive them as confident. For instance, falling vocal intonation is an indicator of speaker confidence and an persuasion amplifier.⁴ Conversely, slouching, lacking eye contact, and stuttering can negatively affect confidence, projecting a lack of faith in what one has to say and creates a negative feedback loop. More significantly, one's personality often predicts confidence: the level of extraversion and confidence are highly and positively correlated.⁵ In the professional world, extraversion could indicate an easy partner and employee with whom to collaborate.

Second, confidence requires humility without arrogance, the ability to speak authoritatively about technical subjects while remaining open and flexible to other perspectives. As counterintuitive as it sounds, confidence frequently means that one should be open to feedback, even critical ones. For confident people, alternative perspectives are seen as additional suggestions that could be incorporated into their own ideas. Oppositely, for unconfident people, others' feedback and comments are perceived as a direct attack on their ideas, since their lack of confidence in themselves can make them fragile and defensive of their ideas. A University of Georgia research confirms this idea by showing a clear association between psychological insecurity and verbal defensiveness when challenged.⁶

From a more forward-looking perspective, confidence means a process of continuous learning and curiosity. Coining the key term "confident humility," a Wharton Business School article lays out the immediate steps to help one build that necessary confidence: the first and most important step is to establish a learning culture. That means to acknowledge one's flaws and challenge established practices. Then, when challenged in the learning process, one should give themselves the benefit of the doubt to fuel motivation. And lastly, it is important to identify a conflicting opinion, find out what is that the core of that opposing perspective, and see whether it correctly stands against one's beliefs or vice versa.⁷

Pillar 3: Communication

Effective communication stands as a crucially undervalued competency in statistical programming. While technical expertise is the basis of domain ethos, the ability to communicate complex technical details into actionable insights is what ultimately generates organizational value. For programmers to gain influence, they must be able to bridge the gap between creating sophisticated technical elements and translating them to key insights that drive practical business strategies. Without communication, even the best technical expertise can go to waste in a programmer's IDE (Integrated Development Environment) if it creates close to no business value.

Despite the fundamental necessity to close this gap, the ability to break down technical insights represents the most challenging component of communication. It requires programmers to have substantial technical expertise in the subject matter, while being able to simplify complex jargon into succinct messages that the non-tech savvy decision-makers can interpret. As an example, an individual contributor may know every detail of how to implement a Cox

proportional hazards model, but that knowledge would be functionally useless if they did not have the adequate communication skills to be able to convince management to adopt their proposal. Ultimately, the programmers who have mastered this important translational communication step are able to position themselves as valuable, strategic assets between technical implementation and grand strategy.

On the side of ethics, honesty and transparency are must-haves in communication. As tempting as it is to oversimplify and even exaggerate ideas, progress, and findings to the point of misrepresentation to gain “influence,” statistical programmers must remain honest in their communication. This means being transparent and reporting accurate progress and acknowledging limitations to what data and models can and cannot do. Keeping true to these best practices are not only an ethical matter, but also one that dictates one’s credibility and ethos. Decision-makers are less inclined to listen to those who are known for their lack of ethics and transparency in disclosing their true data and progress, especially when it comes to make-or-break projects.

Pillar 4: Collaboration

Success in collaboration relies on effective teamwork. Specifically, for statistical programming, projects are usually never a lone-wolf effort but operate on a multi-member basis. While there are no published statistics for the average industry biostatistics team size, a relative comparison can be drawn to the median size of 14 individuals for BERD (Biostatistics, Epidemiology, and Research Design) units in academia.⁸ Given the large team sizes in statistical programming, which can often be scaled exponentially from small biotech firms to large pharmaceutical corporations, the ability to work with others is essential.

Effective collaboration for statistical programmers can take many different shapes. It requires actively supporting co-workers, helping with troubleshoots, validating datasets, and reviewing code. It also means prioritizing team over personal success. Individuals who view personal achievements as a more significant prerogative than organizational success are often deemed as less credible and trustworthy. From a utilitarian perspective, co-workers are more likely to view those who can bring benefits to the team in a more positive light.

Apart from managing teamwork dynamics, collaboration also necessitates establishing a working relationship with stakeholders. This means strategically communicating with stakeholders to ensure both project success and stakeholder expectations are fully met. Surprisingly, poor stakeholder management is frequently marked as a key factor for project failure, contributing up to 50% of all failed projects.⁹ In the office and in the workplace, people are unlikely to back the ideas of those who refuse to collaborate effectively since ineffective collaboration overwhelmingly predicts project failure.

PERSONAL ANECDOTE: FINDING INFLUENCE IN EARLY CAREER

Finding early-career influence is especially challenging, because of a lack of track record. But it is definitely possible. This anecdote will demonstrate an application of the “4Cs” framework in establishing “influence without authority.” For context, as a data scientist at a Series A FinTech startup, the role came with extraordinary responsibility and a direct line of access to the CEO. The primary assignment was to build a Sales Forecasting R Shiny dashboard that would shape the vision and growth strategy of the business.

Having never held a leadership role, only six months of job experience, and limited exposure to R Shiny, the situation presented a unique challenge in establishing credibility. However, what compensated for the lack of credentials was a hustler mentality, a willingness to proactively learn and execute swiftly despite the gaps in specialized experience. In this context, credibility did not form on the basis of authority and experience, but through a sense of commitment and drive to deliver results and succeed.

Understanding the strategic importance of the dashboard, collaboration became essential. Working closely with both the executives and the sales team provided insights into important market dynamics, such as the average deal size, growth projections, and new logos per year, that would not have been possible on a solo effort. In this scenario, collaboration had little to do with coordinating complex group dynamics and managing large teams. Instead, it was simply about showing up for oneself and the team, asking the right questions, listening attentively, and engaging authentically with the stakeholders who depend on the task given. No matter if early-career individuals lack the connection or the leadership, this type of collaboration is a feasible path for any individual with the necessary determination.

As the dashboard began to shape up, presenting it to the CEO became the next pivotal moment. The CEO immediately bought into the growth strategy and decided that the dashboard should be presented to the entire Board of Directors in the following week. It marked both a incredible opportunity but also considerable pressure for someone in their early career with minimal formal presentation experience to be assigned to this important task. To impress the Board, both technical competence and the ability to communicate the complex technical analytics with clarity and conviction were equally important.

When the Board presentation arrived, the approach centered on letting the data tell the story. The scenarios were methodically presented, and the analysis was formulated to present the most significant drivers of sales performance. By following the data and crafting a data-backed narrative, the presentation successfully convinced the Board of the company's ideal customer profile and the optimal product-market fit strategy. This moment illustrates that confidence does not require experience or authority. When the analysis is rigorous; the communication is smooth; and the data is solid, the work speaks authoritatively regardless of the contributor's tenure.

The key takeaways are three-fold. First, even in early career while still developing one's voice, it is critical to build confidence. Having a confident, positive mindset will not only project outwards to augment your professional impression on others, but also craft an internal feedback system that promotes individual growth. Second, credibility is not just built through experience or years on the job. Rather, it is how individuals show up every day at work. In other words, a productive, proactive programmer who is fresh on the job trumps a senior member who does little and lacks confidence despite years of experience at the company. Third, collaboration does not need to be with a large team. Sometimes, it can be how individuals show up for themselves, meaning the quality of engagement and the sincerity of the contribution. This anecdote from an early career at a FinTech startup demonstrates that influence is accessible at any career stage, early or late. The path to influence is not about waiting for permission or accumulating years of experience; it is about being proactive with competence, confidence, and commitment from day one.

TEAM STORIES: RADICAL TRANSPARENCY FOR A STUDY RESUBMISSION

This team story that happened at a client company highlights the importance of transparency in communication. Unlike the previous anecdote, this situation began with failure. The company's original submission study had failed; the Associate Director quit and blamed the Senior Management, and the Executive Director tasked a Wu Consulting Group consultant with forming a new team to put together a study resubmission. Given the high stakes and time-sensitive nature of a resubmission, the pressure was immense, and the timeline was compressed.

The consultant brought to this challenge their technical credibility. They were a top statistical programmer who had successfully managed a team of three and demonstrated exceptional knowledge in ADaM (Analysis Data Model), not just SDTM (Study Data Tabulation Model). This technical expertise mattered significantly in the pharmaceutical and biostatistical space, where ADaM proficiency requires even more understanding of statistical methodology than SDTM. In this case, credibility was similarly not based on years of tenure or seniority within the organization, but rather a demonstrated technical track record and effective leadership. This unique kind of credibility made the consultant high valued at client site, allowing their suggestions to be swiftly adopted in the successful resubmission effort.

Rather than create distance from the statisticians, especially after the initial failed attempt, the new submission team took a collaborative approach by working closer with them. The team ultimately comprised of ten top programmers from three separate groups, allowing to each to bring their unique flavor of perspective and expertise. This strategic decision helped integrate technical programming with rigorous statistical analysis, which cleared logistical roadblocks that were often present in complex studies.

When communicating with the Executive Director, the consultant made a bold choice to keep transparent the complexity of the study and the realistic timeline for completion. As opposed to offering chimerical optimism and downplaying the severity of the situation, the consultant made clear that they would need the top programmers and an additional six months to complete the project. This transparency not only acknowledge the present challenges, but also reflected on the lessons from the initial failure. The genuinity helped the consultant establish trust with the Executive Director to set realistic expectations, ensuring that the project would have the necessary time and resources it truly needed rather than setting up for another failure through an incompletable overpromise.

Perhaps the most important aspect of this story was the confidence and boldness of the effort. Despite intense organizational pressure, the consultant convinced the Executive Director that the Senior Manager from the failed submission deserved a second chance. Moreover, the consultant also placed their faith in assembling a new team of ten programmers who had never worked together before. This was not blind luck, but rather the consultant's confidence in both their own leadership capacity and also the technical and collaborative capabilities of the individuals selected, which ultimately resulted in total success.

This experience brings three key insights about leadership and transparency in high-pressure situations. First, instead of covering up mistakes, starting projects with radical transparency allows for proper scoping. This ensures that reality does not fall short of oversold and overpromised ambitions that would never materialize. Second, asking for help is a sign of maturity and allows for the formation of the best team. Had the consultant not asked for a technical team and extra time, the resubmission would probably have not been as successful. Third, empowering the team will encourage members to perform at their best. By advocating for the Senior Manager's second chance and by selecting the top expert programmers, the consultant created an environment where team members felt trusted and valued, thereby setting them up for success through encouragement and genuine collaboration.

TEAM STORIES: FROM AN ONCOLOGY HEAD TO PRINCIPAL CONSULTANT

The final story walks through a career transition from being an Oncology Therapeutic Area (TA) Head at a large pharmaceutical firm to becoming a principal programming consultant without holding a true leadership role. The unique challenge was in a shift from being in a clear pharmaceutical corporate hierarchy to a consultant role without that same formal structure and managerial title while still exercising functional leadership and influence.

Similar to the previous story, this consultant had a similar brand of technical credentials. As a top programming consultant who consistently demonstrated excellence, they took genuine pride and ownership of the work. The key highlight is their consistency in delivering high-quality work with an internal motivation that promotes genuine engagement with the work. Both their technical background and more importantly their proactive mentality created a positive reputation for people to trust the consultant's judgement and input, even in the absence of having formal authority.

Operating without formal leadership authority required a fundamental reconceptualization of how to collaborate with statisticians. Rather than viewing them as subordinates to be managed or as distant colleagues in a separate department, the consultant understood statisticians as key team members whose success was integral to the overall project outcomes. The collaboration extended to quality control processes, where working with TFL (Tables, Figures, and Listings) shells became a mechanism to ensure compliance with the Statistical Analysis Plan. This was not about exercising control or asserting authority, but about creating partnership and shared ownership of quality. By positioning statisticians as partners rather than managers to direct or obstacles to navigate, the consultant fostered genuine collaboration that enhanced both the technical quality of the work and the working relationships that made complex projects sustainable.

A critical moment in establishing influence came when the consultant immediately notified the lead statistician about significant issues in the Statistical Analysis Plan: misalignments, missing variables, and incorrect endpoints. This communication required confidence because it meant pointing out problems that could reflect poorly on senior colleagues and potentially create tension or defensive reactions. However, the consultant understood that raising these issues promptly was essential to project success and was not a sign of undermining authority or stepping out of line. The confidence came from technical expertise—knowing with certainty that the problems existed and understanding their implications—and from a commitment to quality that superseded concerns about organizational politics or personal relationships. By framing the communication around project success rather than individual blame, the consultant was able to deliver critical feedback that protected the project while maintaining collaborative relationships.

This experience demonstrated that raising issues is not a sign of undermining authority or stepping out of line, but rather an essential component of leadership regardless of formal role. The confidence to speak up about problems, to challenge the status quo when quality is at stake, and to advocate for better approaches does not require a manager title or a place in the organizational hierarchy. In fact, some of the most impactful leadership occurs outside formal authority structures, when individuals take initiative based on expertise and commitment rather than position power.

The consultant's willingness to immediately flag the SAP problems, even as someone without formal leadership role, demonstrated more genuine leadership than many people exercise from positions of authority.

This transition from Oncology Head to principal consultant without formal leadership authority creates three valuable lessons. First, consultants (FSPs) can take on influential roles while still being individual contributors. In other words, influence does not require authority or a hierarchy, but instead emerges from technical excellence, consistency, genuine collaboration, and the courage to speak up when issues arise. Second, being an influential leader means expanding out of predefined roles, and importantly, no job is beneath anyone; the consultant who moved from TA Head to principal consultant could have viewed the transition as a demotion, but instead, by embracing the programming work fully, taking ownership of quality, and leading through excellence rather than title, demonstrated that true leadership transcends role definitions and that the willingness to do whatever work is necessary is itself a form of leadership that inspires others and drives organizational success. Third, collaboration, even when it is hard and requires additional work, will save time in the long term. The immediate notification to the lead statistician about SAP problems could have been avoided to prevent awkwardness, but by investing in the difficult collaboration upfront through having hard conversations, working through corrections together, and ensuring alignment between programming and statistical approaches, the consultant prevented far more costly downstream problems like rework, missed deadlines, and compliance issues.

CONCLUSION

The stories shared throughout this presentation, from a junior data scientist presenting to a Board of Directors, to a consultant rebuilding a failed study through radical transparency, to a principal programmer leading without formal authority, all point toward practical principles that anyone can apply regardless of their career stage, title, or organizational position.

Take Advantage of Unique Strengths

The most powerful tool one has in any professional setting is the deep knowledge of their own work. No one else knows the work, the analysis, the data, and such, better than the one who creates it in the first place. The depth of this unique knowledge is almost like a patent and a strategic advantage that builds confidence and credibility. It enables one to identify insights that others missed, push back on misguided directions, and help translate technical matters into plain English that the non-tech savvy individuals can comprehend. On these topics, one possesses some authority that transcends any formal managerial titles and organizational hierarchy. The challenge is to recognize this strength and make effective use of it. Too often, professionals undervalue their own expertise, especially in the impersonal corporate hierarchy, and taking their unique knowledge for granted. In reality, this ground-level expertise is extraordinarily valuable, and organizations make better decisions when people who truly understand the work have the confidence to share what they know.

Practice Building One of the 4Cs

The framework of the four Cs (Credibility, Communication, Collaboration, and Confidence) provides a practical structure for developing influence, but attempting to master all four simultaneously can be overwhelming, so the most effective approach is to identify which dimension would most benefit the current situation and practice building that specific capability. If credibility is a challenge, practice becoming the person who delivers exceptional work consistently and can be relied upon to follow through on commitments; if communication is a challenge, practice articulating ideas clearly and having the courage to speak up even when uncomfortable; if collaboration presents difficulties, practice viewing colleagues as partners and working across organizational boundaries; if confidence is what is needed, practice trusting one's own judgment after having done the work to earn that trust. The key to this practice is making it concrete and immediate: have one's voice be heard the next time in a meeting by identifying one moment where one has relevant expertise and making the deliberate choice to share it, then doing it again in the next meeting and the meeting after that until speaking up becomes natural and your contributions are expected and valued.

It Is Never Too Late to Build Influence

The most liberating insight from these stories is that building influence is not constrained by career stage, past failures, or current position. Everyone has the capacity to build influence starting from exactly where they are currently, because every individual has someone they can influence. Influence begins with one person and one interaction at a time. The implication is both challenging and encouraging: it is never too late to build influence, but it is also never someone else's responsibility to build it for another person. It is an earned medal, rather than a given privilege. The ultimate lesson is to start practicing building it with the very next meeting, project, and opportunity to contribute meaningfully to the work that matters.

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