

## When Code Isn't Enough: Communication and Leadership Skills for Statisticians and Programmers

John M. LaBore, SAS Institute, Noblesville, IN  
Joshua M. Horstman, PharmaStat LLC, Indianapolis, IN  
Robert Goodloe, Indiana University, Indianapolis, IN

### ABSTRACT

Statisticians and statistical programmers working in SAS® and R and other software are entering a period of rapid change, driven by automation and Artificial Intelligence (AI)-assisted development. While these tools can generate code and accelerate analyses, they cannot replace the human skills that turn results into decisions and insights into action. As technical barriers continue to fall, communication and leadership skills are becoming the primary differentiators for career growth. Whether you aspire to be a trusted technical expert, lead analytics teams, or expand your influence as a consultant, your ability to clearly explain results, defend analytical choices, and guide others now matters more than ever. In an AI-driven world, those who can communicate with confidence and lead with clarity will stand out. Toastmasters International offers a practical, supportive way for technical professionals to deliberately build these skills. Drawing on the authors' combined 40+ years of Toastmasters experience, this paper challenges statisticians and statistical programmers to invest in themselves and take ownership of the skills that will define their impact—and their careers—when code alone is no longer enough.

### INTRODUCTION

AI is a major catalyst for change in the work of statisticians and statistical programmers, especially in pharmaceutical settings. As AI tools are increasingly used to accelerate coding and analysis, the technical role of a programmer and analyst needs to be reevaluated. Even with these AI advancements, the need for analytical thinking and concise communication are still essential. Two 2025 studies from the Future of Jobs Report and NACE state that employers value verbal and written communication skills as an important must-have and analytical thinking remains the most sought-after core skill. These reports echo the sentiment that human-centric skills are necessary and invaluable amid rapid technological advances.

Many statisticians and statistical programmers work independently and communicate primarily through written channels such as email and online chat without many opportunities to hone their face-to-face communication skills. Yet modern analytics work increasingly requires explaining results to nontechnical stakeholders, defending analytical choices, facilitating decisions, and leading cross-functional collaboration. These skills can be learned, but they rarely improve without deliberate, repeated practice in a supportive environment. One practical venue for technical professionals seeking to develop their communication and leadership skills is Toastmasters International.

### THE TOASTMASTERS PROGRAM

Most people have heard of Toastmasters International, but those who are not members and have not visited a club meeting usually are not aware of the scope of the Toastmasters program. Toastmasters International is not just for learning to give a best man or maid-of-honor toast at weddings. The educational program within Toastmasters is, in fact, a very comprehensive leadership and communication skills development program that has been fine-tuned for more than 100 years. It has proudly transformed nearly eight million lives since the inception of the first Toastmasters club in 1924.

In the 2025 program year, there were over 265,000 Toastmasters members worldwide participating in more than 13,800 clubs across 149 countries. The mission of Toastmasters International is to empower individuals to become more effective communicators and leaders.

Those who participate as members in clubs follow communication and leadership training pathways and build their skills by:

- Actively taking on leadership roles during meetings
- Preparing and presenting speeches
- Giving responses during Table Topics (i.e., impromptu speaking) sessions in meetings.

Several speech contests are held each year, providing an opportunity for members to voluntarily test their newly developed skills. Members also prepare and give evaluations of other members' speeches and other members' leadership performance during meetings. In addition to receiving valuable feedback through evaluations, members are encouraged to stretch even further by providing evaluations to others.

Club meetings vary in duration but typically last an hour. Meetings follow a carefully defined agenda to efficiently use the time allotted with the goal of giving all members an opportunity to participate as desired. Nearly all Toastmasters Clubs meet at least twice a month, and many meet every week. Each club determines how often it meets, on which day, and at what time.

In any large metropolitan area, one will find clubs meeting at a wide variety of days and times. Nearly all meet during the workweek, with some meeting in the early morning, some at the noon hour, and others in the evenings. Meeting places are wherever clubs can find space to meet in their local area, and typical places are restaurant meeting rooms, churches, YMCA buildings, or government buildings. While most clubs are open to the general public, some clubs operate within a specific company or institution and are limited to members of that organization.

## **TOASTMASTERS IS A CLUB**

Toastmasters is a setting that allows you to test, refine, and strengthen communication and leadership skills before applying them in your professional context. The "test environment" where you will gain practice and experience is a Toastmasters club, typically comprised of 10 to 25 members. Clubs not only provide speaking opportunities but also provide two sets of leadership opportunities: club officer roles and within-meeting roles.

Club officer roles are elected either once or twice a year (depending on the club bylaws). These roles are the President, Vice-President of Education, Vice-President of Membership, Vice-President of Public Relations, Secretary, Treasurer, and Sergeant-at-Arms.

The other set of opportunities are the within-meeting roles, as defined on the agenda prior to each meeting (and members are typically identified for the roles several weeks ahead of a meeting). Standard roles are:

- Toastmaster: Serves as the meeting host and guides the agenda
- Speaker: Delivers a prepared speech tied to an educational pathway
- Evaluator: Gives structured feedback on a speaker's performance
- Timer: Tracks speech and evaluation times
- Wordmaster: Provides a word of the day for members to utilize in their responses and supports the promotion of good language use
- Ah-Counter: Serves as a grammarian that keeps track of filler words and language habits such as um's and ah's and other non-words
- Table Topics Master: Leads the 1 to 2 minute impromptu speaking portion of the meeting

Some clubs also have "Best Speaker", "Best Table Topics Response", and "Best Evaluator" awards that are voted on and awarded by club members at the end of each meeting.

## **TOASTMASTERS IS AN EDUCATIONAL PROGRAM**

Pathways is Toastmasters' flexible education program for building communication and leadership skills that can be applied to a variety of real-world settings. Pathways currently lists six specialized pathways which are available in six languages (Arabic, English, French, German, Simplified Chinese, and Spanish):

- Presentation Mastery
- Motivational Strategies
- Visionary Communication
- Dynamic Leadership
- Persuasive Influence
- Engaging Humor

Most people will easily identify two or three pathways in which they would like to improve. A programmer who is often asked to present in team meetings will find the pathways of Presentation Mastery and Visionary Communication helpful. A programmer seeking to convince management of the value of a new process or procedure likely will find the Persuasive Influence pathway helpful.

Each pathway has five levels: 1) Mastering Fundamentals, 2) Learning Your Style, 3) Increasing Knowledge, 4) Building Skills, and 5) Demonstrating Expertise. Each pathway is comprised of both required and elective projects. Pathway recognition (an accolade called “Proficient” that includes a formal Certificate of Proficiency) is achieved when 14 projects are completed across all five levels and includes a combination of 10 required projects and 4 elective projects chosen from a comprehensive list covering a variety of subjects. Each project includes at least one speech. You can also document your progress for employers as you complete advanced levels in pathways and Toastmasters (at your request) can send official letters to your employer.

For those who would like help deciding which pathway to tackle first, Toastmasters has an online assessment you can use to evaluate your current skills, find out what your current interests are, and identify your goals. When the assessment is complete, the tool will identify three pathways that best match your responses. You are not required to choose any of the three and can choose one of the others.

Members can earn online badges as they move through the program, in addition to certificates of proficiency. The “Distinguished Toastmaster” designation is the highest level in the Toastmasters educational program and is earned by completing two of the pathways plus several other leadership requirements.

## **TOASTMASTERS IS AN ORGANIZATION**

Each local club operates independently, although clubs are organized into areas, divisions, districts, and regions within Toastmasters International. Each level of the organizational structure has members that voluntarily serve in officer roles.

Toastmasters Areas and Divisions typically hold meetings twice a year and conduct speech contests at their level. Toastmasters members serving as Area Directors visit each club within their area (typically 4 to 6 clubs) twice each year to evaluate the club and provide feedback to the club officers. Likewise, Division Directors monitor the performance of each Area and provide feedback to Area Directors.

Toastmasters Districts generally comprise 150-300 clubs and have a full slate of officers. District officers generally meet bimonthly with all division and area directors. The district officers and other volunteers plan and host the annual District conference, along with 2 to 4 educational and officer training programs each year.

Regions have Regional Directors who oversee the Districts within their Region and the Regional Directors work with the international officers of Toastmasters and the Toastmasters International home office staff. The Toastmasters International world headquarters is in Englewood, Colorado, a Denver suburb.

## **HOW TOASTMASTERS BENEFITS TECHNICAL PROFESSIONALS**

### **COMMUNICATION**

Better communication has been the keystone of Toastmasters from the beginning, and thus Toastmasters developed a unique and proven program for developing communication skills in a positive and supportive

atmosphere. Members receive regular, constructive feedback as they practice organizing their thoughts and presenting them clearly. Members learn how to structure and deliver effective presentations while also improving confidence, listening, word choice, and impromptu speaking. Evaluating other members as they give speeches, responding to Table Topics, or carrying out roles in meetings also helps improve listening skills. Members often find that the process of evaluating others helps to internalize positive changes in their own speaking.

## **LEADERSHIP**

Toastmasters not only provides material to improve a member's knowledge of leadership, but the clubs (and higher levels in the organization) provide a wealth of opportunities to put theory into practice. Members take on roles in meetings and their performance in those roles is evaluated, and constructive feedback is provided at the end of meetings. Officer roles at the club, area, division, district, region, and international level provide a range of increasing leadership responsibilities and opportunities to hone leadership skills.

A key element of leadership is learning the art of persuading others to do what needs to be done. Doing so requires communicating well and knowing how to work as a team. Toastmasters provides the opportunity to do both. Members learn how to vary their approach to suit the needs of different people, whether it is an audience listening to their speech, a committee or team at work, or even members of their own family.

Toastmasters leadership training helps members improve their ability to plan a meeting or event, create a meeting agenda, inspire participation, set direction for a team, deal with unexpected obstacles, and mentor others. Members also gain experience adapting to unexpected responsibilities, a common reality in most professional roles.

## **NETWORKING**

Toastmasters conducted a 2025 membership characterization survey revealing that over 80.4% of members are college graduates, more than 41.8% of all members holding master's or doctoral degrees, 39% of members are bilingual, 74.9% of members experienced less fear during public speaking compared to before joining, 94.2% of members agree Toastmasters helped them meet their goals, and rated 8.99 out of 10 for their willingness to recommend the organization to someone else.

Female members first joined in 1970 and now comprise more than half (55.9%) of all members; in fact, the first female member, Helen Blanchard, joined Toastmasters in 1970 and became the first female to serve as International President in 1985.

These demographics suggest that many professionals can find clubs with members from a wide range of educational and professional backgrounds. Thus, the constructive feedback given from members will be rich in a variety of personal and professional setbacks and victories. Members are able to build relationships with other professionals in their area, make new friends, become more aware of what is going on in their community, and gain perspectives they might not get otherwise.

For readers interested in applying these ideas for personal growth, the next step is simple: visit a Toastmasters club to observe the skills in real time.

## **GETTING STARTED WITH TOASTMASTERS**

### **FINDING A CLUB**

Finding a nearby local club is very easy using the "Find a Club" tool on the Toastmasters.org website. One can simply enter a zip code to view all clubs nearby sorted by distance. Users can filter by distance, meeting day, meeting time, club status, and online participation. Many clubs have their own websites with details about the club, such as names and photos of club officers and members and club meeting minutes. The Toastmasters International website ([www.toastmasters.org](http://www.toastmasters.org)) has a wealth of helpful information for those wanting to know more about Toastmasters.

Many clubs allow for virtual participation through an online teleconferencing tool such as Zoom or Microsoft Teams. Some clubs utilize a hybrid model that includes both in-person and on-line members in

the same meeting. These arrangements create an opportunity for a technical professional working remotely to participate in a club even if there is not one nearby. Each Toastmasters Club is unique and develops its own style of operation due to those who make up its membership. Experienced Toastmasters suggest visiting more than one club in your area to observe a typical meeting of those clubs. You will likely find there is at least one club having a meeting style you will feel most comfortable participating in on a regular basis.

## **YOUR FIRST MEETING**

Guests are always welcome at Toastmasters Club meetings (just be sure and check that the club is not a “closed” club that only those from a specific company or organization can attend; this will not be a problem if you are a member of that company or organization). Note that even if your company or organization has a “closed” club, you can still participate in any nearby “open” club in your area. Another aspect you may want to check on is that some companies or organizations will pay all or part of the annual dues for those participating in Toastmasters, whether in “closed” or “open” clubs.

After determining the date and time and location of the meeting you wish to attend, it is a good idea to contact a club officers to make sure the meeting date, time, and location has not changed from what is listed on the website. It is also a good idea to give the club officer a heads-up that you plan to attend a meeting so that they are aware there will be one or more guests attending a given meeting. You might also ask what the normal attire is for the meeting. Most clubs now specify “business casual” as normal meeting attire, but it’s still a good idea to confirm this aspect when you contact a club officer.

Guests should dress in the manner expected (no less than business casual is a good rule of thumb) and should expect to be asked to introduce themselves (often this is only their name and why they are interested in Toastmasters). The club will typically welcome guests to participate in the meeting to the extent they are comfortable. Many first-time guests only observe, but some do volunteer to participate in giving impromptu responses to Table Topics questions. There is no reason to be nervous, as everyone else in the club has walked through the door as a first-time guest. They want guests to be comfortable at their meeting.

## **CONCLUSION**

Toastmasters International can help programmers, statisticians, and other technical professionals develop important leadership and communication skills within a positive and supportive environment. Through the Toastmasters International program, individuals can gain the ability and confidence to step out from behind the monitor and give an effective presentation, run a productive meeting, or lead a successful team. These skills, in conjunction with deep technical expertise, form a powerful combination that is in high demand in today’s marketplace. In a workplace where AI can assist with code generation and routine tasks, the professionals who stand out will be those who can explain, persuade, lead, and connect technical work to meaningful decisions.

## **REFERENCES**

Toastmasters International: <http://www.toastmasters.org>

## **CONTACT INFORMATION**

Your comments and questions are valued and encouraged. Contact the authors at:

John M. LaBore  
SAS Institute  
317-498-2159  
John.labore@sas.com

Joshua M. Horstman  
PharmaStat LLC  
317-414-9584  
jhorstman@pharmastat.com

Robert J. Goodloe, Jr.  
Indiana University  
256-702-5152  
rgoodloe@iu.edu

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