# *Transforming Your Stumbling Blocks into Stepping Stones*

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**Abstract**
This interactive session will give you a chance to develop new approaches to the stumbling blocks you encounter in your career: being overcommitted, trouble prioritizing tasks, inexperienced colleagues, lack of technical expertise. In the first phase of this interactive panel discussion, participants will rate common barriers in statistical consulting and collaboration. Our panelists will present strategies to overcome the most popular barriers and turn these stumbling blocks into stepping stones for professional success. In the second phase, audience participants will describe their current stumbling blocks. The panelists will suggest ways to transform these stumbling blocks into facilitators of professional success. Members of the audience will also be given the chance to contribute to this conversation by suggesting new strategies to overcome these barriers. The selection of content to be discussed by the panelists will be determined by the session participants, not the session panelists. This is a reverse of the usual process for determining topics to be discussed in a contributed session. We will be operating as statisticians, gathering data to determine the topics to discuss.

**Key Words:** Career Development; Collaboration; Facilitators; Statistical Consulting; Panel; Audience Participation

## 1. Introduction

Collaboration is an important aspect of being a statistician and a key part of statistical consulting. What we mean by collaboration in general is working together to create something neither party could create alone. Specifically, borrowing from definitions proposed by Vance (2015), Love, et. al (2017), and Vance and Smith (2019): collaboration is "working with domain experts to create solutions to research, business, and policy challenges and achieve research, business, and policy goals."

The terminal goals of collaboration for the statistician, according to Vance (2020), are to make a deep contribution to the domain or in the field of statistics and to develop a strong relationship with the domain expert. Since it is often the case that collaboration is an iterative process and one collaborative project leads to another, a collaboration can still be successful even if neither terminal goal is achieved in the first iteration. Deep contributions and strong relationships require time and effort. One could argue that as long as incremental progress is being made toward both terminal goals, the collaboration is a success.

Some benefits of collaboration include:

- Working on interesting projects introduced by the domain expert
- Working with interesting people (domain experts) in a variety of fields
- Opportunities to apply statistics to solve a real problem or make a data-driven decision, i.e., making a real-world impact with statistics
- Exposure to different types of statistical and problem-solving techniques.

Do you see your next meeting as a consultation or collaboration? Sometimes this question is addressed in the *prepare* step. If it is not, address it at the beginning of the *wanted conversation.* Whether the meeting is to be a consultation or a collaboration is an important decision to agree upon, sooner than later.
If the person meeting with you is seeking only your expert advice on their project and they expect to pay for your services and own the results of them, you are their consultant. I think it is dangerous for you to say, “I will be happy to collaborate with you on your project.” I agree that it is appropriate and powerful for you to want to interact in a cooperative, non-hierarchical, collaborative, non-adversarial manner. However, your client may interpret your statement about being “happy to collaborate” as you inviting yourself to be a partner on their project whose ownership is now suddenly under question. Rather than risk a misunderstanding on this key point of project ownership, I suggest explicitly exploring two possibilities:

- I could be your consultant and be paid at my usual hourly rate. In this arrangement, you would own all the results of my work on your project.
- I could collaborate with you on your project. In this arrangement, we would share in the benefits of our work on your project. For example, I may be a coauthor on some of your project-related publications. Whether it will be appropriate for me to be a coauthor on any of these publications may not be something we know right now. However, now is the time to sort out the process we will use to determine how we might share benefits.

We believe that effective collaboration and consultation practices are learnable and teachable. However, neither is easy. One framework for thinking about and improving one’s skills in consulting and collaboration—the ASCCR Framework for Collaboration—was developed by Vance and Smith (2019) to make engaging in collaborations easier.

A framework developed by Zahn (2019) for systematically improving your consulting and collaboration involves three processes: POWER, RAPID, and LEARN. POWER is a systematic way to plan and execute effective interactions. RAPID is a process to rapidly recover from breakdowns. LEARN is a process to develop your ability to deal with a particularly troublesome breakdown by working with it in a videoed role-play.

At the Joint Statistical Meetings in 2020, we conducted a session titled, "Transforming Your Stumbling Blocks into Stepping Stones." In this session we introduced eight "stumbling blocks" that may be preventing you from having the quantity or quality of collaborations you aspire to. You will have the opportunity to vote on which ones are most relevant to you and the degree to which they represent your personal stumbling blocks.

The panelists discussed the highest rated stumbling blocks: defining what the stumbling block or obstacle might be, how to immediately deal with that stumbling block, and steps to prevent or lessen the likelihood of such a stumbling block becoming an obstacle in your statistical practice in the future. During and after the panelists' discussion we opened up the chat room for audience contributions to overcoming these stumbling blocks and introducing additional stumbling blocks. This paper summarizes the discussion that occurred during the JSM session.

## 2. Two Frameworks

Before we get into how to overcome or prevent the Stumbling Blocks, we will briefly introduce the two frameworks mentioned previously to provide common language for how to think about these stumbling blocks and how to overcome them in statistical consulting and collaboration. The first is the ASCCR Frame. ASCCR stands for Attitude, Structure, Content, Communication, and Relationship. Briefly:

**Attitude**--Some attitudes contribute to effective collaborations and some detract from it. What attitudes do you have about yourself, about the domain expert, or about how you will work together that promote or detract from collaboration?

**Structure**--Creating effective structure for collaborative projects or for meetings, such as with Zahn's POWER structure (2019), helps one to focus on the technical details of the project. When one has practiced implementing the POWER structure for meetings until it becomes second nature, one no longer must spend much energy on the process of conducting a meeting and can focus more on the domain problem and the potential statistical solutions.

**Content**--We believe that every statistical project has three components. The first is Qualitative (Q1): what is the domain problem, what data could help solve it, how were the data collected, how will the solution be used? The second is Quantitative (Q2): what statistical modeling, analyses, inferences, predictions can solve the original Q1 problem? Finally, the statistical solution must be translated back into a Qualitative (Q3) solution: What is the answer to the domain problem and how will it be implemented? Ultimately it is the content of a collaboration that determines the contribution the statistician makes to the project.

**Communication**--Oral and written communication is key to collaboration as it facilitates making a deep contribution and developing a strong relationship.

**Relationship**--Relationships are at the heart of collaboration and consultation, and developing strong ones is an end goal itself. Strong relationships also make it easier to make important contributions and facilitate the other aspects of the ASCCR Frame.

**Three Processes: Power, Rapid, Learn**

Another approach to systematically improving all aspects of your consulting and collaboration practice is to use the three processes POWER, RAPID, and LEARN.

**POWER** is a systematic way to plan and execute effective interactions. The five steps in Power are Prepare, Open, Work, End, and Reflect.

**RAPID** is a process to recover from any breakdown so that you and your client can return to productive work. The five steps in RAPID are Recognize, Address, Pinpoint, Identify, and Do it.

Looking to the future, **LEARN** is a process that develops your ability to deal with particularly troublesome breakdowns by working with them in video-recorded role-plays. The five steps in LEARN are Listen, Evaluate, Act, Review, and Next. These three processes are described in detail in *Stumbling Blocks to Stepping Stones: A Guide to Effective Meetings and Working Relationships*, Zahn (2019).

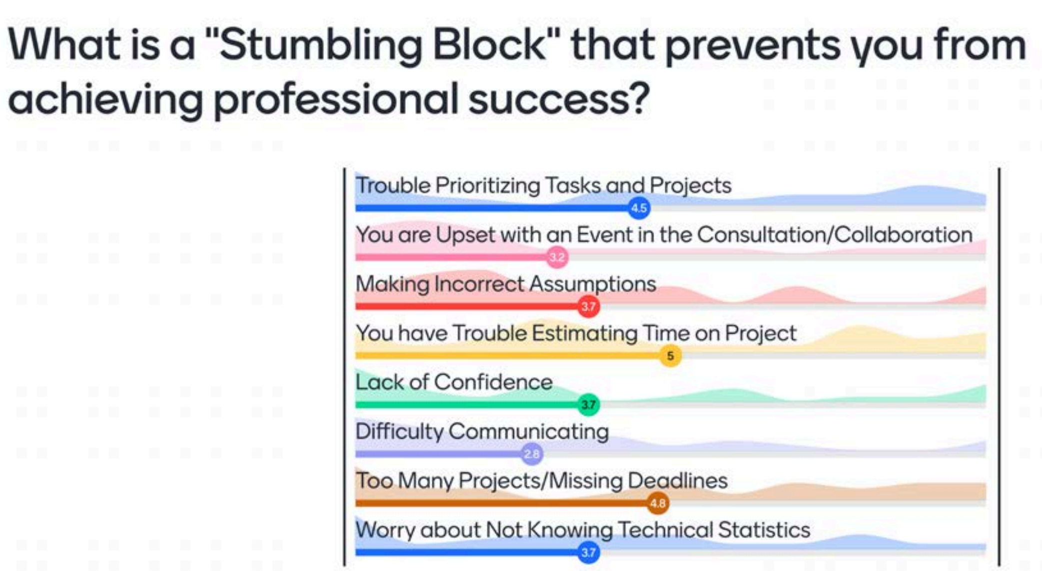


**Figure 1: Results of the Stumbling Block Survey of the Session Audience**

## 3. Stumbling Blocks and Some Solutions

### 3.1 Doug Zahn: Stumble Number 1

**Stumbling block: You are upset with the outcomes of a consultation/collaboration.**
This stumbling block occurs when you have failed to have a complete wanted conversation in the OPEN conversation in the POWER process. You did not make it clear to your client what you wanted to receive as compensation for your part on this project: co-authorship or a fee.

**Recovery from the stumble**
The first step in recovery is to acknowledge the presence of the stumbling block. The second is to deal with the emotional clouds that are now present, probably for both you and your client. Now is the time to resist the temptation to blame the stumbling block and the emotional clouds on your client.
In my experience there is always a point in time during the project when either party could have taken an action that would have eliminated the stumbling block. The question is whether either party is willing to do it. This action might seem unreasonable to you, but sorting it out before the end of the project will do a lot to preserve and improve the relationship between you and your client.

Often additional conversation will yield a path to sorting out the stumbling block. What is definitely required is a willingness on the part of both parties to stay in the conversation until this path has been identified. The learning point for you in this consultation may be an awareness of how critical it is to stay in the wanted conversation until both parties are clear that they agree on the goals of the consultation. Doing so will make it possible for both of you to have success here.

**Preventing this stumbling block in the future.**
Having a complete wanted conversation is a key step toward avoiding a breakdown at the conclusion of any consultation or collaboration. This requires both parties to be full participants in the conversation. Often this is uncomfortable when there is a disagreement between the parties on which tasks in the project are of highest priority. The relevant question here is, "Are you more committed to being comfortable or more committed to having a successful project?"
It is OK to say that you are uncomfortable in an intense wanted conversation. It is far better to get all the relevant topics on the table during the wanted conversation rather than ignoring them and hoping that they will go away. Generally they do not. I encourage you to stay in the wanted conversation until both parties agree that it is complete. Time spent on this activity will pay dividends many times over. How long will this take? As long as it takes.

**How do you have a complete wanted conversation?**
By continuing to ask: "What else do you want to get out of this meeting?" Find out at the beginning of a session or project what your client wants…*NOT AT THE END.* Also. communicate what *you want* out of the session or project at the beginning, *not at the end*.

**Response (Kathy Hanford)**
As you have presented so well in your book, the wanted conversation is the second of the four conversations of the Open segment of the POWER process. The small talk at the beginning sets a friendly tone. The first conversation about time is also important. The time conversation aids in making sure there is time at the end of your interaction to ensure the wants have been addressed. The willing and able conversations after the wanted conversation lets both you and your collaborator understand what wants will be addressed, as well as the priorities and timelines for accomplishing each task.

### 3.2 Doug Zahn: Stumble Number 2

**Stumbling block - Incorrect Assumptions**
Stumbling blocks occur when we make incorrect assumptions about matters of substance. Early in my career I assumed that teaching and consulting well would be sufficient for me to earn tenure. I worked hard at learning to teach and consult better by studying with individuals who were masterful in these two areas. However, I chose to ignore the advice of senior faculty who emphasized the importance of developing a strong record of research in my career.
All went smoothly until my record was reviewed in my fifth year. The strong message in that review was that I must have one or two papers published in reputable journals. I scrambled to squeeze two papers out of my dissertation that were published in Technometrics in the nick of time. And so, I was promoted to associate professor with tenure.

Then I returned to my teaching and consulting path for the next six years and applied for promotion to professor. This time I was turned down by the Promotion and Tenure committee by a vote of 5-0. Since this was a major breakdown for me, my career path was definitely not going in the direction I had planned. For an extended period of time I found myself in an emotional cloud of disappointment, upset, and anger. I blamed this result on the Promotion and Tenure committee, refusing to see my part in the events as they unfolded.

**Recovery from the Stumble**
As time passed, I came to see that I needed a new plan. I scrutinized my activities at Florida State and saw that, while I had not done traditional research, I had done much research on the questions of how to teach and consult more effectively. I regularly presented invited and contributed papers on these topics at the annual Joint Statistical Meetings.

**Stepping Stones to a Solution**
Since I had been active in all three areas of teaching, consulting, and research, I decided to petition the Promotion and Tenure committee for permission to solicit three recommendation letters from each of these three areas rather than just three letters from research, as was usually done. I was thrilled when the chairman of the committee approved my petition.

I identified nine individuals to write support letters. They all accepted the invitation and submitted their letters. The committee met again. The results this time: 5-0, in favor! Success!

I was thrilled. This is a testimony to the power of staying in the conversation and addressing reactance directly. I saw reactance in my behavior in that I interpreted the directions from the department, actually the demand that I do traditional research, as infringing on my freedoms. This is where reactance led to behavior that was definitely not in my best interest. Success only came after I was successful in my efforts to expand the department's definition of research of what was required for promotion to professor.

**Response (Jason Wilson)**
In response to Doug's powerful story about the stumbling block of incorrect assumptions, I'd like to point out a couple of lessons. One lesson is that it is imperative to identify incorrect assumptions as early as possible – root them out before they become a problem and thereby avoid having to 'get rejected by the tenure and promotion committee' (or client!). The first place to do this in the initial consultation (see the POWER process, above). Be sure to have ample time (Prepare). Make sure your, and the client's, expectations are clear (Open). Afterwards, have a written summary of the salient points that both parties agree to (Reflect).

Another lesson is to have good communication. Doug didn't clearly communicate all he had been doing, even though the committee clearly communicated what they were looking for and why his application was rejected. In a consulting or collaboration context, do you have a nagging feeling that something isn't quite right? Do you find yourself "hoping" something (e.g. the collaborator's work is valid), without the actual knowledge? These are signals that it is time to have communication. The nagging feeling can occur during a consultation, or in the depths of your analysis. This feeling, or instinct, can be a thread that leads to an incorrect assumption; check it. Once Doug established solid communication with the committee, they were willing to accept an alternative approach.

### 3.3 Jason Wilson: Stumble Number 3

**Stumbling Block: Prioritization - Failing to prioritize tasks and failing to stick to the prioritization**
This stumbling block addresses the problem of having too many things to do, getting overwhelmed, and not effectively completing the most important tasks in our overall schedule, of which statistical consulting is a part. This section is not about time management in general, but specifically the issue of how to identify our priorities and stick to our priorities.

**Recovering from the Stumble**
When we have "tripped" over the "stumbling block" of too much work, we need to acknowledge that we have fallen (work overload) and then stand back up. In

standing back up, we have two choices: (1) continue walking (work) as we were or (2) use the stumbling block (too much work) as a stepping stone (learn our lesson and change the way we work). In choosing option (2), we need to take stock of our current projects and deadlines and goals, sort them out, and convert them from being overwhelming to being manageable. Here are some steps to make this assessment:

1. **Review**. Take time for review. Perhaps you have reached a point of burn-out and can no longer work, even though you have time. Perhaps you can work, but you know it is not as productive. Perhaps you are making it, but you're losing the joy of your work because the gnawing fear of deadlines continually hangs over you. You need to set aside time within your workflow to plan. This may require rearranging your schedule or pushing back deadline(s). If you don't change your gait, you'll probably stumble over the same stone.
2. **Set Goals**. Do you have a list of goals? If not, make one. We waste extra energy trying to remember and recall everything, and we inevitably don't do it right. Classify your goals by time frame, e.g. Short-term, medium-term, long-term. The time-frame you use should be appropriate for you. Some people may only need two categories, others may need more than three. Goals are used to help identify priorities. There are different ways to define goals, and different philosophies of doing it, but what is important is that you identify the ends toward which you are working. If you already have a list of goals, take it out and bring it up to date.

**Stepping Stones to a Solution**

Now that you've stood up (assessed), it's time to get back on track. This is the point at which you change your gait (work differently). The steps to do this are: identify tasks, prioritize tasks, schedule tasks, and implement.

1. **Identify tasks**. Write down all the tasks you have to do. Take out your goals and categorize your tasks under your goals. This may generate new tasks or the need to modify your goals. That's great – do what is necessary to make your goals and tasks cohere. You will need to organize your goals and tasks. One proven method is with a Daytimer (paper). A more modern approach is using a spreadsheet or an App, such as Trello, on your laptop or phone.
2. **Prioritize tasks**. Go to a list of tasks. Number them from 1 to k with 1 as the highest priority and k as the lowest priority. It may be sufficient to do it with your most immediate tasks in order to get you back walking, or you may need to also do it with other lists. Eventually, however, you should have identified the prioritization of your goals and tasks, even though some may be of roughly equal priority. (Bonus: Consider applying the Pareto Principle and identify the 20% of your tasks that will result in the 80% gain.)
3. **Schedule tasks**. Estimate the time needed to complete your short-term tasks. Schedule time for these tasks in your calendar. This is not an exact science, but it is likely that not having enough time to complete your tasks was part of your stumble and this step helps solve the problem of not tripping over the stumbling block by stepping on top of it. If you do not have enough time for the tasks this week, then you should tell your clients or your boss.

4. **Implement your plan**. It's now time to take the first step with your new gait. A few things you can do to help are: Only look at the tasks for today, this helps us stay focused. Do your #1 priority item first thing in the work-day, this gives you a win and boosts your confidence. Consider rewarding yourself when tasks get completed, and withholding the reward until sufficient tasks are completed; this can help motivate you. At the end of the workday, make the next day's list of tasks & prioritize; this saves time tomorrow and helps transition to personal life in evening.

**Response (Katherine Halvorsen)**

Jason's stepping stones do a thorough job of outlining the process of getting and keeping your life on track. I would only add "when you think it, ink it." This was advice I heard years ago and it has stuck with me. Carry a notecard or a small notebook and a pen or pencil with you throughout the day. When you learn about a new opportunity, a new task, or just remember an obligation you haven't yet captured on paper, write it down. Be sure to integrate these notes with your task list at the end of the day or at least at the end of the week. Capturing ideas and obligations when they are fresh in your mind is the most effective way to ensure they don't get lost in your daily busyness.

### 3.4 Jason Wilson: Stumble Number 4

**Stumbling Block: Time - Inaccurate time estimates and wasting time during the workday**

This stumbling block addresses the problem of the misuse of time. It could be habitually underestimating the amount of time it will take to complete a project, or simply working inefficiently. We want to make the most of our limited time. This stumbling block is not time management, in general, but specifically the issue of how to estimate the time needed for tasks and use the allotted time effectively.

**Recovering from the stumble**

When we have "tripped" over the "stumbling block" of wasting time, we need to acknowledge that we have fallen (wasted time) then stand back up (stop wasting time). One important way to stop wasting time is to identify and eliminate "time-suckers" – those things which take inordinate amounts of time or could be done substantially more efficiently. Here are two inordinate time wasters.

1. **Email**. *Have you ever started the workday by opening your email and felt like you were being productive in making all those replies, only to find that two hours later you didn't have enough time to complete your project(s)?*

Here are some email tips. First is email management. Reasons for inadequate email management systems include (i) non-existent, (ii) wrong categories, and (iii) too complicated. Inadequate email management adds a layer of uncertainty when doing email about its completeness that can spread to other work. The email system that revolutionized my work-life is called Inbox Zero by Dan Silvestre. In it he gives a system for classifying all email into 3-4 useful sub-inboxes (not merely folders) so I quickly and properly answer or prioritize every email that comes, thereby keeping my inbox at zero. He describes the implementation for the gmail platform.

**2. Email composition.** One time I asked my Dean how he was able to keep up with his email. He immediately said, "Jason, you spend way too much time composing nice emails." The time spent composing an email should be directly proportional to the importance of the communication of the email. I am a perfectionist and I still struggle with this, but by changing my habits as above I have realized major gains.

**Stepping Stones to a Solution**

Now that you've stood up (removed your time-suckers and identified your time inefficiencies), it's time to walk differently (take control of your time). Three steps to help prevent future time inefficiencies and time lacks are: scheduling, accurately estimating project times, and learning to say "no".

1. **Scheduling**. Review your schedule and come up with an overall philosophy for how you will spend your work time. Make sure to define how work time is related to non-work time. Determine the level of scheduling you want to use, and experiment with it until you achieve a process that works for you. There are different ways to schedule work time, but some highly effective people literally schedule all calendar time in blocks. Others just schedule large blocks of uninterrupted time needed to achieve optimal work efficiency. Failure to have sufficient time to enter deep work kills productivity. By contrast, learn how to push your schedule to permit you to operate in your flow channel, which involves the right balance of your skill and interest level with the task challenges (Csikszentmihalyi, 1990).
2. **Estimating time**. In order to more accurately estimate your length of time to complete projects, collect the data you presently have on past relevant projects. Make a table with "Estimated Time", "Actual Time", and "Actual Time / Estimated Time". If you have no data, start a record and make a note in your calendar to do this in a couple months. Compute an average of Actual/Estimated, e.g. 1.5 or 2. When making time estimates for clients, or other projects, multiply your estimate by the average, e.g. 10 hours becomes 15 or 20 hours. Refine your average multiplier with future data.
3. **Learning to say "no"**. *Now that you have your calendar scheduled, and the ability to estimate the time needed for new projects, here comes your next client….* Look at your calendar and see where the project can fit. Be honest with the client and negotiate. If your current schedule doesn't permit, but you really want the job, can you rearrange your schedule? If not, this is when you say "no" with no hard feelings. You have a valid reason for declining and neither you nor your client wants another stumble.

**Response (Doug Zahn)**

Jason's discussion of how to estimate the time needed for tasks and use the allocated allotted time effectively spoke directly to me. His discussion of email presented two major ideas that were so attractive that I just had to try them out immediately. To my delight, Inbox Zero by Dan Silvestre performed magic on one of my two inboxes. I started with a non-existent email management system and in 30 minutes had an email management system and a clean inbox. Admittedly, this inbox contained only 100 emails, but the experience was so powerful that I am now ready to attack my second inbox which has over 8000 emails in it! I am looking forward to getting this stumbling block off my foot! His second suggestion was to reduce the time spent composing emails. I also struggle with this, but am encouraged to start reducing the number of my rules for how to compose emails. This will help, I know, as these rules have been around so long that I can't remember the purpose behind them! Clearly it is time to simplify.

Jason's discussion of inefficient time blocks is an elegant description of how easily one can lose a 30-minute time block through a series of innocent choices, no one which is significant but together they destroy half an hour. My advice to myself in these situations is to let go of the fantasy that I can multitask. Maybe I could at one point in my life but no more! Focus is so precious and ever so much harder to maintain as our world has gotten more and more complex. It does require discipline.

I echo Jason's recommendations of scheduling, estimating time, and learning to say "no." My biggest problem with scheduling is "magical thinking" in which I "allocate" three one-hour projects to the same one-hour time slot. Needless to say at least two of these projects do not get done. Even worse, the confusion caused by trying to do three things at once often results in zero projects getting done in the hour.

One might think that estimating time will be the easiest part of this journey, especially for a statistician. Not so! I find it takes a lot of discipline to do this task, even though it sounds so easy and so natural. It requires staying in the moment all the time which is a challenging task.

There is one more wrinkle in learning to say "no". If this client is your boss, the task is much more difficult. I find that it is useful to lay out the situation for my boss, showing that my time for the next week is booked up. Inserting her two-hour project will necessitate not doing someone else's two-hour project. I ask for her help in sorting out this conflict. Katherine Halvorsen also discusses this point in her discussion of Recovering from Stumble Number 7.

### 3.5 Kathy Hanford: Stumble Number 5

**Stumbling Block:** Lack of Confidence Like many people, my lack of confidence has been a big stumbling block throughout both my personal and professional life. If I am not confident that my answer or suggestion is correct, I won't say anything. This is especially true when I am in a group that I feel know more about the domain area than me. Lack of confidence can lead to the wrong strategy being used, a possible solution being missed, or even a whole new area of study not being investigated. Lack of confidence is a stumbling block that is long term and takes time and effort to understand how to "recover" and how to keep it from causing stumbles in the future.

**Recovering from the Stumble**
What should you do if your lack of confidence leads to the wrong strategy being used in the analyses of your client's data? Once you realize that there is an issue the first thing you should do is step back and calm down (the "Address your emotional cloud" step in RAPID). Once you feel that you have recovered from the emotional cloud, write down what the issue is, possible strategies, and questions for the client that will help clarify these strategies. Then contact the client to let them know about the issue and if necessary, set up a time to meet in order to get the collaboration back on track.

**Stepping Stones to a Solution:**
The stepping stones are a modified version of the POWER process, since there is no need for either an opening or an ending.

1. **Prepare**: Try to make sure you know as much as possible about the situation that you are going into. If it is a meeting with a new domain expert, ask them to give you as much information beforehand so that you can make the best use of your time. This will give you some basic knowledge of their domain.
2. **Realize that you cannot be an expert on every area of statistics:** You can reach out to others for their expertise if it is beyond your abilities. All of those other statisticians that you find intimidating because they know so much more than you are usually very willing to work with domain experts to apply the appropriate statistics to their problem.
3. **Work and develop your strengths:** Determine not only what your strengths are, but what gives you the most satisfaction in your work. I found that I got the most satisfaction when I worked with domain experts in solving their statistical problems. You can then develop your strengths by reading, attending workshops and presentations, developing and teaching a course, and networking with others in that area. Find a mentor who is willing and excited to work with you in developing your strengths.
4. **Reflect:** Especially when a meeting does not go as planned and your confidence is low, sit back, reflect and write down the reasons that things went down-hill, what are things that you could have done to keep the meeting on track and what strategies can you use to go forward. Don't forget to also write down what went right about the meeting. Store your reflections in one place, so that they are easy to go back to and review. Reflecting helps me realize that I do have strengths and the confidence to deal with adverse situations.

**Response (Katherine Halvorsen)**
Kathy has outlined a reliable process for developing your confidence. I want to focus on her point about developing your strengths and what more you can do to build your belief in your abilities. When I was compiling my dossier for

promotion, I met with a coach to discuss the process and my concern that maybe I had not "done enough." She told me, "You need confidence building cards." She suggested that I take 3x5 cards and write down complements I had received for my work, honors I had won, and projects that had turned out particularly well. Write one complement per card. She recommended I include things that have gone well in my personal life as well as in my professional life. I followed her advice and found that recalling things that went particularly well in my work and in the rest of my life reminded me that I had done very hard things successfully in the past and that I could continue to do them now and in the future.

### 3.6 Kathy Hanford: Stumble Number 6

**Stumbling Block: Difficulty Communicating**
Sometimes as you work with a collaborator, you realize that what you heard during a meeting is not what the collaborator really intended or that the collaborator heard something from you that was not what you meant. As highlighted earlier in the ASCCR process, "Oral and written communication is key to collaboration as it facilitates making a deep contribution and developing a strong relationship." So when miscommunication occurs, it is critical that you address the problem and go forward.

**Recovering from the Stumble:**
When you first realize that there is a miscommunication, your first reaction may be to panic a little and become anxious. So you need to first address that emotional cloud (RAPID process). Doug suggests in his book that in this situation, "take a break and return when the emotional cloud has reduced in intensity". Once you have addressed the emotional cloud and are ready to move forward, you can do the following:

1. **Prepare:** Before contacting the domain expert about the problem, make sure that you understand the extent of the problem. If it is a statistical issue that you do not have the expertise, consult an expert in that area. Write down any questions you have for the domain expert that will help you determine possible strategies to address the problem. Then send an email to the domain expert letting them know about the problem, ask them relevant questions and if necessary, propose setting up a time to meet with them to discuss strategies.
2. **Do not lay blame:** If the miscommunication is due to you not hearing what the domain expert said, admit that you did not hear correctly and apologize. If the miscommunication is due to the domain expert not hearing what you said, they are going to realize their error. Emphasize that it is a learning experience for both of you and then work with them on the strategies.
3. **Ask good questions and paraphrase what you hear:** As you work with the domain expert to determine possible strategies, make sure to ask questions that tend to be open-ended. Often, the domain expert will give additional details that are very relevant to the project. Paraphrase back what you hear to make sure that you have the same understanding of the issue.

4. **Take complete notes:** Make sure to take notes as you are discussing the miscommunication and the possible strategies for resolving any problems arising from it. Before the meeting ends, confirm what tasks need to be accomplished, who is responsible for each, and a timeline. Once the meeting is over, look over your notes, add any other questions/thoughts that you have and then send out an email to the domain expert with the information.
5. **Reflect:** After the stress of dealing with the miscommunication, take the time to reflect on it. What was the reason for the miscommunication with this domain expert? What could you have done to avoid it and possible future miscommunications? Are there other things that you can do to make sure you keep your collaboration with the researcher positive and going forward? Store your reflections in one place so that they are easy to go back to and review.

**Stepping Stones to a Solution**
Following the POWER process will aid in preventing a stumble in the future.

1. **Prepare:** Before meeting with the domain expert, email them to see if they can provide as much information as they can. For example, a draft project proposal, what is their research question, papers in their domain area. Before the meeting, write down any questions you have for the domain expert that will give you a better understanding of their research and strategies for accomplishing their objectives. Prepare a draft agenda that you will go over and modify at the beginning of our meeting (**Open**).
2. **Ask good questions and paraphrase what you hear:** As you work with the domain expert to determine possible strategies, make sure to ask questions that tend to be open-ended (**Work)**. Often, the domain expert will give additional details that are very relevant to the project. Paraphrase back what you hear to make sure that you have the same understanding of the project. Leave time at the end of the meeting to make sure that they have no additional questions and all of their needs have been met (**End**).
3. **Take complete notes:** Make sure to take notes as you are discussing their project (**Work)**. Before the meeting ends, confirm what tasks need to be accomplished, who is responsible for each, and a timeline (**End)**. Once the meeting is over, look over your notes, add any other questions/thoughts that you have and then send out an email to the domain expert with the information (**Reflect)**.
4. **Reflect:** Think about how the meeting went. Both what went well and what could be improved. Taking the time to think about the meeting often brings up additional ideas for tackling the project or questions to ask the domain expert that will help keep from having a problem of miscommunication. Store your reflections in one place, so that they are easy to go back to and review.

**Response: Doug Zahn**
Kathy has prepared a thorough description of how to recover from a communication breakdown and then how to take steps to reduce the probability of such a breakdown in the future. Both the recovery from an existing

communication breakdown and then taking steps to avoid such a breakdown in the future are necessary if one is to systematically improve the quality of their professional practice. All steps that Kathy has described are essential. Resist the temptation to avoid dealing completely with each one.

### 3.7 Katherine Halvorsen: Stumble Number 7

**Stumbling Block: Taking on too many projects, or having them imposed on you, & not making deadlines**
This stumbling block occurs when you suddenly realize you can't possibly complete every project you have agreed to finish within the timeline set. This may arise when it becomes clear that some projects are going to require much more time than anticipated, or when you have personal emergencies that require your attention (e.g. a sick child, spouse, parent, or yourself). You clearly did not intend to be this situation, but maybe a colleague needed help or your boss needed something from you that you did not expect. Sometimes it occurs when you over estimate your own energy and enthusiasm for a project.

**Recovering from the Stumble (and getting immediate relief):**
There are several steps you need to take **as soon as** you begin to realize you may have to miss one or more deadlines:

1. Acknowledge the problem to yourself **as soon as** you recognize it. Don't tell yourself it will all just workout somehow.
2. Assess **all** the projects you have committed to before you discuss them with others. You have to make an agreement with yourself, first. Include both your work projects and your personal projects. Everything has to be on the table. Ask yourself:
    a. Is there one big one project that if you gave it up, or at least postponed it to a later time, you would have the relief you need? You have to be honest with yourself about this. You will lose the support of your colleagues if you ask to postpone your commitments too many times.
    b. Are there several projects with conflicting deadlines that if you renegotiated these deadlines you are certain you could meet your obligations?
3. Once you have decided your priorities, delete what you can; delegate what you can; postpone what you can; and renegotiate the work and timelines for the projects you are keeping.
4. If your boss is the source of an additional new project and you can't change any of your current commitments, have a frank talk with your boss about their priorities for your time. Your boss may change his/her mind about what you should be doing on your job.

**Stepping Stones to a Solution:**

Preventing the problem from happening in the future is a matter of regular review of your commitments, and addressing unexpected changes in your situation. For example, having to take on extra work at the office or at home due to illness or other crises, means that you need to reassess your commitments as soon as you learn about your changed circumstances. You will need some tools to help you do that.

1. Keep a calendar in several formats. I prefer a page per day and a monthly calendar. **Keep your calendar up-to-date and check it daily**. DO NOT rely on keeping all of it in your head.
    a. Schedule ALL appointments in your calendar when you make them.
    b. Rough out the tasks and times needed when considering a new project.
    c. Block times on your calendar to work on these projects.
2. Don't accept a new commitment without **checking your calendar first**.
3. Try to anticipate the demands from all your projects **in as much detail as possible**, including your job, home, and personal projects.
4. At the end of EACH meeting with your client, or at the end of a work period on one of your own projects, make sure you agree on the next tasks that have to be done, who will do each, and the times by which they will be done. Put those commitments in your calendar.
5. Reflect by reviewing/re-evaluating your commitments at least weekly. Have there been changes in any of the projects that will require you to change your estimates of the time they will take? Adjust your calendar accordingly and reconsider your options to drop, delegate, postpone, or renegotiate.

**Response (Jason Wilson)**
In response to Katherine's fine solution, I'd like to pose a few questions for the reader. First, I love the categorization of classifying extra work as "delete, delegate, postpone, or renegotiate". How do you decide which to do? If you have a strategic plan, or a set of goals, this can help you decide which option to take for current overloads. Second, what are the different ways you use your calendar? I find five in Katherine's passage: (1) short-term planning, (2) long-term planning, (3) managing my day, (4) deciding whether to take on more projects, (5) negotiating my time with my boss. Being aware of its different uses allows you to use your calendar more effectively. Third, what are some resources to help me further in this area of time management? Try dansilvestre.com.

### 3.8 Katherine Halvorsen: Stumble Number 8

**Stumbling Block: Concern that you don't have the technical knowledge the domain expert needs**
This stumbling block occurs when you realize that the project you have taken on has more technical aspects than you were aware of when you started and that you don't know much about those areas. This might happen when you read one of the papers your client has given you as a reference or when you talk with a colleague who tells you about new research in the area that they have recently seen or even when your client asks you about a technique you are not familiar with.

**Recovering from the Stumble (getting immediate relief):**
There are several steps you need to take **as soon as** you begin to realize you may not know enough in the technical area needed for the project.

1. Acknowledge the problem **as soon as** you recognize it
2. Accept that it is OK not to know. We are not expected to know everything. We are expected to be able to find out, get help, make recommendations.
3. Assess the technical problem that is causing your concern:
   a. Do you recognize what kind of technical expertise you need?
   b. Can you get technical papers the client is reading and search the references for technical papers on the topic?
   c. Turn to mentors and ask for help.
4. Renegotiate the project work: get the time you need to read or consult with others.
5. If the problem is beyond your technical expertise, and you don't want to/have the time to learn the new material needed to complete the project, recommend to the client one or more colleagues who have the expertise needed.

**Stepping Stones to a Solution:**
Preventing the problem from happening in the future is in part a matter of doing more research before you agree to take on a project.

1. Make sure you know the scope of the work from the beginning of a project. Use the initial meeting with your client to outline the parameters of the work, including: the research question, what client expects of you (design, analysis, reports), timeline for deliverables.
2. Review and reassess scope of work on your own, after the initial meeting. If the work is going to take more time to get up to speed in the technical are
a than you want to devote to the project, refer the client to others with expertise in that area as soon as possible.
3. If you are committed to the project, DO THE RESEARCH as soon as you can.
   a. Find articles and textbooks on the technical questions you have.
   b. Ask the domain expert for references. What are they reading on this topic?
   c. Review bibliographies of references to find more references.
4. Ask for help
   a. Use your mentoring network and colleagues for technical advice.
   b. Ask ASA Consulting Section members for help

c. Ask your grad school friends for help
d. Ask other statisticians in your workplace for help
e. Delegate parts of the job to someone who has the expertise.

**Response (Kathy Hanford)**
Katherine's solution is very thoughtful and complete. One additional suggestion would be to keep a list of experts in areas that you run across often in your collaborations. These can be both within your department and university. You can also develop a network of experts outside of your university. I try to keep a list like this up-to-date, especially in areas that occur frequently and which I do not have a lot of expertise.

## 4. Conclusion

We have addressed eight stumbling blocks that have, at one time or another, prevented us from achieving our full impact as applied, consulting, and collaborative statisticians. We hope that this paper provides guidance and a way forward for turning these stumbling blocks into stepping stones for statisticians to improve their practice of statistics. We also hope that, as in our session at JSM, this paper inspires a robust conversation among beginning and experienced statisticians, mentors and mentees, and everyone interested in improving the practice and profession of statistics.

## References

Csikszentmihalyi, Mihaly (1990). *Flow: The Psychology of Optimal Experience*. New York: Harper and Row. ISBN 0-06-092043-2

Love, K., Vance, E.A., Harrell, Jr., F.A., Johnson, D.E., Kutner, M.H., Snee, R.D., Zahn D. (2017) Developing a Career in the Practice of Statistics: The Mentor's Perspective. *The American Statistician*. 71(1). http://dx.doi.org/10.1080/00031305.2016.1255257

Dan Silvestre blog https://dansilvestre.com/blog/

Vance, E.A. and Smith, H. (2019) The ASCCR Frame for Learning Essential Collaboration Skills. *Journal of Statistics Education*, 27:3, 265-274, https://doi.org/10.1080/10691898.2019.1687370

Vance, E.A. (2015) Recent Developments and Their Implications for the Future of Academic Statistical Consulting Centers. *The American Statistician* 69(2), 127-137.

Vance, E. A. (2020), "Goals for Statistics and Data Science Collaborations," in *JSM Proceedings*, Alexandria, VA: American Statistical Association: Statistical Consulting Section.

Zahn, Doug. 2019. *Stumbling Blocks to Stepping Stones: A Guide to Successful Meetings and Working Relationships*. Indianapolis: iUniverse. ISBN 978-1-5320-6088-5