10 Steps to Write a Scientific Paper

A Checklist for Scientific Writing

Dedication

To people who like my Scribd.com document
5 Steps to Write the Abstract of Scientific Writing.

Note: You are responsible for your own writing. You may not use this material commercially. In this edition, you may not give this PDF away. That being said, welcome to *10 Steps to Write a Scientific Paper.*

To your success,

Teppei Suzuki, Ph.D.

Preface

When I started writing a scientific paper, I had no colleague, no experience, and no mentor. Nothing. I started with nothing, except for my burning desire to getting published. In fact, I couldn't get any meaningful advice from anyone, even though I have paid hefty price to my university. After all, I had to educate myself. When I submitted my manuscript, I was seriously criticized and treated like a complete idiot because my English wasn't that good. This painful experience damaged my self-image and eventually mental and physical health. After trials and errors, I got published without any mentoring whatsoever. Not just once. Year after year. Because I figured out what mattered and what didn't.

I think that not everyone has the right mentor. It's not your fault. The primal reason why I created this Report is that I simply don't want anyone to repeat my painful experience. I'm passionate about helping you get your scientific paper done. While previous books on scientific writing are useful, I'm pretty unsatisfied with them because none of them is a step-by-step solution. Here I'll give you a quick yet real step-by-step solution for you. No gimmicks. No tricks. No ideal things that don't work in the real world. I'm giving you a practical 10 step solution that will not overwhelm you. Now let's look at the 10 steps to write and publish a scientific paper. Here they are:

Step 1: Set Up Basic Habits as a Writer
Step 2: Get Started
Step 3: Write the First Draft
Step 4: Make Your Writing Convincing
Step 5: Make Your Paragraphs Flow
Step 6: Make Your Sentences Work
Step 7: Choose Your Words
Step 8: Finish Your Manuscript
Step 9: Finish the Reference Section
Step 10: Handle Editorial Processes

On a separate note, this Report is a beta version. I may revise it later. So be free to post your opinions and comments on Scribd.com or send them directly to me. Try this Report and tell me what happens. Now let's look at the 10 steps closely.

Step 1: How to Set Up Basic Habits as a Writer

Before you start writing your manuscript, I want you to develop some habits as a writer. Writing ability will probably compound if you just continue to maintain these habits, even if you are not a natural writer. You may already do one or two of the following habits. But I want let you know that maintaining all the habits all at the same time will have more substantial snowball effect over the long haul.

- ☐ **1.1. Use dictionaries.** Keep dictionaries at hand and use them on a regular basis. This is a simple yet powerful way to improve your writing. Using dictionaries will also help you to clarify your thinking processes and to choose the right word.
- ☐ **1.2. Use thesauruses.** The reason why I want you to use a thesaurus is that you can find short, familiar words. Don't try to impress others by using unfamiliar words. Unfamiliar words are powerless. Also you can reduce phrases or words you unconsciously use over and over by replacing them by others.
- ☐ **1.3. Use *The Chicago Manual of Style*.** You can use this manual the same way you use a dictionary. It gives you detailed guidelines and rules that are based on logic and convention. When it comes to grammatical rules, no person is more knowledgeable than *The Chicago Manual of Style*.
- ☐ **1.4. Read constantly; Read a variety of materials.** You have to read in order to write. Read many articles in your field to learn current topics, their specific language, and their interests. Also read a variety of materials that have nothing to do with your field: financial reports, business news, magazines, sales letters, poems, and so on.
- ☐ **1.5. Watch the spelling.** If you try to memorize the spelling of a word by associating it with the pronunciation, you may misspell. If you know words you often misspell, pick up these words, store them in flash cards. Watch them from time to time, and try to visualize them in your metal mind.
- ☐ **1.6. Develop a good ear.** The writer's writer Gary Provost said, "It's not a matter of remembering rules you were given in high schools. It is, quite simply, a matter of music." If you develop a good ear, your grammatical mistakes will be reduced. So listen to audio books or good speakers on a regular basis.
- ☐ **1.7. Use at least 3-5 books on writing.** Leverage the knowledge, wisdom, and experience of writers. If you want to cut the learning curve in half and accelerate learning processes, read books on writing.

Step 2: How to Get Started

They say, "You have to take actions!" or "Just write!" Ok, that might be true. But have you ever been taught exactly how to get started and what to do next? Actually, getting started is not simply about jumping in and writing about something, although doing writing exercises is important. In Step 2, I give you a step-by-step plan to get started.

- **2.1. Clarify the reason why you write.** Do you know what motivates you most? The first step to getting started is to get there in your mind first. In other words, clarify your intention: image it, think about it, and visualize it. As Albert Einstein said, "Imagination is more important than knowledge."
- **2.2. Write while you are doing research.** I want you to write while you are doing research. Writing affects your thought processes and thus your research. Thinking, writing, and doing are all connected together.
- **2.3. Do the literature search.** "You cannot write securely on any subject unless you have gathered far more information than you will use," said Gary Provost. Literature search takes more time than you might think, but it's worth it. As you gather information, ask yourself, "What is already known?" "What is not known?" "Is there any contradictory story in the literature?" These questions will help you when you write the Introduction section. Doing the literature search is indeed essential down the road.
- **2.4. Take notes.** As you set your intention and get started, new ideas will come to you anywhere at any time. If you don't take notes, your idea will probably go elsewhere. Even if you can remember every idea, keeping many ideas in your mind is not very good for your mental health. The solution is to capture you ideas. Take notes no matter how crazy or odd an idea seems to be. Take notes on your interpretation of data, a new concept of experiments, or a new idea of an algorithm, and so on.
- **2.5. Picture your audience.** What kind of terminology should you use? What kinds of technical terms do you have to explain before you use them? What kind of background knowledge do you have to include? The answer: it all depends on audience you try communicate. Picturing your audience is important for you to communicate effectively.
- **2.6. Write a rough draft of your submission letter.** Strange as it may sound, I would recommend that you write a rough draft of your submission letter before you start writing your research paper. Why? Chances are that the moment you finish the main

body of your manuscript, you are probably exhausted and tired of your work.

- ☐ **2.7. Make a decision about authorship.** Authorship is a serious matter, so you have to make a decision on authorship at a relatively early stage, not at the last minute. Two important things: First, include researchers who intellectually and substantially contributed to the work. Second, eliminate those who had little contribution to the work.

Step 3: How to Write the First Draft

Unless you get the first draft done, there is nothing to revise. In your first draft, don't worry about details. You will revise it later (Step 4 to Step 9). The next question is, where do you start? When I got started, I thought that I should start with Title, Abstract, and Introduction. I was wrong. Do the opposite. Start with Methods and Results section. Then go back to the beginning. The important rule is to write the easiest parts first and leave the difficult parts last.

- ☐ **3.1. Write the Material and Methods section.** In scientific writing, the easiest part is usually the Materials and Methods section (or the Methods section). It is a good idea to write the Materials and Methods section while you are doing scientific research and your memory is fresh. This section should be written in the past tense.
- ☐ **3.2. Write the Results section.** An effective way to write this section is to break down the whole section into small chunks. Look at your data (which is Figure or Table) and write about it. Repeat this until you are done. Then organize them in a logical way.
- ☐ 3.3. **Write the Discussion section.** The following questions may help you:
  - What does my data suggest?
  - Is my data enough to conclude this?
  - Do I overstate it or understate it?
  - Do I need an additional work to make my points clearer?
  - How does my data or my interpretation of them agree or disagree with previous papers in the literature?
  - Are there any scientific papers that support my conclusion?
  - How does this data support my hypothesis?
  - Is there a logical gap in my writing?
- ☐ **3.4. Write the Conclusion section.** This section summarizes your scientific writing in a concise and informative way. First, take your time and think about your conclusions,

and think again. Second, make sure that this section does not include any new information or discussion. Here are 3 elements of the Conclusion section.

- *Restate your main findings in a more general way*. In this section, you want you point out your main findings not only for specialists, but also for more general readers. Hence, you restate your main findings in a more general way.
- *Write recommendation*. You may recommend your methodology, experiments, mathematical models, parameters in your mathematical models, and so on.
- *Write implications*. Write how and why your scientific work has an impact on current scientific knowledge or your field. Writing implications is helpful for your readers to understand the significance of your work.

□ **3.5. Write the Introduction section.** You now go back to Introduction. Don't make the mistake of trying to write the Introduction section first and then getting stuck. "I should mention that some experienced writers prepare their title and Abstract after the paper is written, even though by placement these elements come first," says Robert A. Day, the author of *How to Write and Publish a Scientific Paper*. Once your main points are clarified, you can identify necessary information that needs to be included in the Introduction section. Also keep this section short.

□ **3.6. Write the Abstract.** Here's the key to write an Abstract: write the main body first. Then, and only then, you write an Abstract. Writing an Abstract is much easier if you have already written the main body of your paper. Here are 5 steps:

- *Step 1: Write briefly why you have done your research.* Try to appeal to wide audience. If your reader don't read first sentence, they don't read second one.
- *Step 2: Write how you have done your research*. Write your methods or experimental designs and settings.
- *Step 3: Write major results.* Don't try to include everything. Pick up a few important results of your work. Or choose the most important result.
- *Step 4*: *Write implications*. Write how and why your work benefits society or your scientific field. Or write how and why your work has an impact on current scientific knowledge.
- *Step 5: Rewrite for brevity.* After you have written four elements, now is the time for rewriting. Be short and concise. At the same time, remember what Quintus Horatius Flaccus, a Roman poet, said: *Brevis esse laboro, Obscurus fio*. Which means, if you try hard to be succinct, you merely become obscure.

□ **3.7. Set a temporary title.** You can rewrite the title anytime you want. Your title will evolve as you clarify what your main points really are. In your first draft, don't be

caught up with choosing the right title. Just set a temporary title and revise it later.

Step 4: How to Make Your Writing Convincing

My experience has taught me that writing a scientific paper is not simply about discussing scientific data and writing scientific truth. Scientists don't automatically agree and believe it, even though it would eventually turn out to be correct. You have to make it believable; you have to make your scientific findings more irresistible to accept using data, logic, passion, and words. In other words, you have to make your writing more convincing.

- **4.1. Mater the 5 elements of scientific writing.**
  - *Specificity*. Being specific makes your writing real, alive, and credible. Your scientific paper should have a specific purpose and a specific scope. You can address specific problems to give some insights into a more general picture.
  - *Precision*. Precision is important. You have to treat all aspects of scientific writing precisely: data, Tables, Figures, references, descriptions, and definitions of technical terms and nomenclatures, etc.
  - *Clarity*. Clarity of your writing comes from 1) using simple words, 2) using simple sentences, 3) making your organization logical, and 4) cutting unnecessary parts.
  - *Consistency*. Consistency is important for technical terms, notations, and nomenclature. Once you have defined them, you should be consistent throughout the paper.
  - *Concise*. That which is quickly said is well said. Avoid side issues, needless repetitions, and unnecessary words.
- **4.2. Be sometimes tactful in your writing.** Teachers say you have to be clear, precise, concise, and forthright. That might be true, but not all the time. If you are clear, precise, concise, and straightforward all the time, do you know what happens? People (especially reviewers) won't like your writing. Why? Because new scientific truth is sometimes painful, and people simply do not like pain. In an ideal world, tactfulness may not be needed; but in reality, you should be careful about choosing your words and phrases and not annoying the reader. The easiest way to do this is to eliminate words and phrases that irritate you because they will irritate the reader too. Also try to eliminate negative words or phrases that overly criticize people and replace them by neutral or positive ones.
- **4.3. Be honest about your interpretations of data.** "Science is a way of trying not to

fool yourself. The first principle is that you must not fool yourself and you are the easiest person to fool," said Richard Feynman. As your research makes progress, you may have to adjust or sometimes dramatically change your original hypothesis or your interpretations of data. Don't attach to your first thoughts.

- ☐ **4.4. Use a contradictory story properly.** Look at newspapers and magazines. Top stories are usually about fight: politics, celebrities, businesses, and sports. The sad thing is that people love fight. This means including a contradictory story in your writing can attract the reader's attention. In your scientific paper, you cannot agitate it. In scientific writing, what this really means is that including both sides of discussion makes your writing more intriguing. Ideally, your paper should contribute to resolving that contradictory story.
- ☐ **4.5. Don't force a personal style of someone else.** "No classic resembles any previous classic, so do not be discouraged," said Ernest Hemingway. Forget about trying to be someone else. You don't have to pretend to be some great scientist. Just focus on writing clearly and precisely, and your style will emerge.
- ☐ **4.6. Create music in your writing.** Monotonous writing is boring. Don't write words. Write music.
- ☐ **4.7. Tell your full story.** Writing a scientific paper is not just about discussing scientific data and writing scientific truth. Scientists just don't automatically believe it. An effective way anyone can do is tell your full story. What this means is that you try to discuss from different perspectives: use references that support your finding, models, or hypothesis; do an additional experimental or computer simulation; analyze your data in two different ways; try different parameters. All this makes your paper more self-contained, more reliable, and more believable.

Step 5: How to Make Your Paragraphs Flow

Have you ever been frustrated by seeing an awkward transition from a paragraph to the next paragraph and not knowing how to fix it? I myself really wanted to know how to fix it and how to make paragraphs flow naturally. In Step 5, I give you 7 ways to make paragraphs flow:

- ☐ **5.1. Make your writing moving towards only one direction.** It is a good strategy to avoid long transitions because they tend to distract the reader. Paragraph by paragraph, the logical progression of your writing should help your reader to walk

through only one direction.

- ☐ **5.2. Eliminate side issues.** The writer's writer Gary Provost succinctly said, "An article is not everything that's true. It's every important thing that's true." So don't try to include everything. You can eliminate any paragraphs or sentences that do not support your main points.
- ☐ **5.3. Use one topic sentence in a paragraph, most of the time.** Using a topic sentence in a paragraph is an effective way to make your writing clear and strong. Once you determine which sentence is your topic sentence, the function of the rest of the sentences is to support that topic sentence.
- ☐ **5.4. Use short paragraphs occasionally.** Ongoing long paragraphs tend to be overwhelming and boring. People are pleased to read a short paragraph if it is concisely packed.
- ☐ **5.5. Vary sentence opener; Use transition phrases.** To create natural transitions between paragraphs, you can use transition phrases such as, *However*, *On the other hand*, *Another reason is*, *In addition to*, *To understand this*, *For instance*, and so on.
- ☐ **5.6. Vary sentence lengths.** Varying sentence lengths is also good because it creates rhythm in your writing.
- ☐ **5.7. Use bridge words.** A bridge word is a word that appears both in the last sentence of a paragraph and in the first sentence of the next paragraph. Ideally, a bridge word should be a keyword for the two paragraphs so that the transition seems almost invisible.

Step 6: How to Make Your Sentences Work

After you re-organized your paragraphs, you start looking at sentences (Step 6). Now is the time to revise sentence by sentence. Here are 7 key points that make your sentences work.

- ☐ **6.1. Say things in a positive way, most of the time.** Instead of saying "It is not clear that…," you say "It is unclear that…" The former includes the negative word; the latter does not. Note that the latter is more concise and therefore stronger.
- ☐ **6.2. Use the active voice, most of the time.** Using the active voice is important to make your writing concise and straightforward. Instead of saying "It was shown by Smith that…," you say "Smith showed…" Instead of saying "It is shown in Figure 1 that…," you say "Figure 1 shows…"
- ☐ **6.3. Use parallel construction.** Parallel construction is good for three reasons: First, it

creates clarity. Second, it creates rhythm. Third, it creates contrast. Many good writings and old sayings include parallel construction: "Veni, vidi, vici (Julius Caesar)." "Those who know do not speak. Those who speak do not know (Laozi)." In scientific writing, you can sometimes use parallel construction: "Proteins are composed of amino acids; carbohydrates are composed of monosaccharides."

- ☐ **6.4. Reduce parentheses.** Parentheses are useful, but sometimes they are unnecessary. You can eliminate parentheses and rewrite sentences most of the time.
- ☐ **6.5. Use colons and semicolons.** If you want to master how to use colons and semicolons, please read *The Chicago Manual of Style*. In general, a colon introduces a list or amplifies the precedent sentence, whereas a semicolon combines two sentences that are closely related to each other.
- ☐ **6.6. Cut unnecessary words.** Most of the time, you can cut the word *very* out of "It is very clear that" or "It is very important that…" In scientific writing, there is no substantial difference between *important* and *very important*. Similarly, instead of writing "In the near future," just write "In the future."
- ☐ **6.7. Place emphatic words at the end.** Put the word you want to emphasize at the end. Pay attention to the end of each sentence and the end of each paragraph. Finally pay attention to the last word of the last paragraph. Does it sound like a good finale?

Step 7: How to Choose Your Words

You can be more precise, more concise, and clearer in your writing, if you pay attention to your words.

- ☐ **7.1. Avoid jargon**. In scientific writing, terminology and nomenclature should not necessarily be classified as jargon. I'm talking about other types of jargon. According to my dictionary, jargon also means 1) confused unintelligible language and 2) obscure and often pretentious language often marked by circumlocutions and long words. Examples: *in terms of*, *as a matter of fact*, *due to the fact that*, and so on. You can avoid these kinds of jargons most of the time.
- ☐ **7.3. Use short words.** The word *terminate* is less powerful than the word *cut*. The word *finalize* is less powerful than the word *end*. The word *employ* is less powerful than the word *use*. In general, short words have power. Because they are concise and familiar.
- ☐ **7.2. Use familiar words.** "Avoid an unusual and unfamiliar word just as you would a reef," said Julius Caesar. If you try to use unfamiliar words, chances are that you stop

and open a dictionary; and guess what? You will lose momentum. So will your audience. The solution is to do the opposite, that is, to use familiar words. This strategy saves both your time and your reader's time. Also remember, words that your reader does not know have no power.

- ☐ **7.4. Pay attention to articles: *a*, *an*, and *the*.** Correctly using articles is sometimes difficult for non-native speakers, but here are 3 ways to improve this issue: 1) listen to audios carefully and develop a good ear; 2) read good writing carefully; 3) use dictionaries to see example sentences. Also, here are three things you must know.
  - *Difference between* a *and* an. Examples:
    - a *hydrogen bond*, but an *H-bond*. Because the latter begins with a vowel.
  - *Difference between* a *and* the. Examples:
    - *Infrared spectroscopy is* a *powerful tool* (not *the powerful tool*). Because there are many tools out there.
    - *The Big Bang* (not *A Big Bang*) *is the cosmological model* (maybe not *a cosmological model*) *of the universe* (not *a universe*). The sentence implies that the Big Band theory is now well established.
  - *Overuse of* the. Academic writing tends to overuse *the*. Sometimes you can eliminate it.
- ☐ **7.5. Be conservative to use italics, scared quotes, exclamations.**
  - You use italics three occasions: to introduce technical terms; to put a special emphasis on words; to avoid confusion.
  - *The Chicago Manual of Style* discourages to use scared quotes. By using scared quotes (i.e., quoting some technical or nontechnical words), you say "this is not my word." But this kind of trick often irritates the reader.
  - Nine out of ten, you don't need exclamation points.
- ☐ **7.6. Master the art of suggestion.** Sometimes you have strong evidence and enough scientific data. Sometimes you only have limited data and indirect evidence. You have to determine what kinds of words or phrases you should use in your scientific writing:
  - If you want to state something clearly or you are confident in your conclusion, you might say:
    - *This shows/demonstrates that…*
    - *This suggests that…*
  - If you are relatively confident in your conclusion but feel you might not be completely right, you might say:
    - *This probably suggests that…*

- ✧ *This presumably suggests that…*
- ✧ *This presumably indicates that…*

➢ If you state implications or you only have limited data or indirect evidence, you might say:

- ✧ *This may have implications for…*
- ✧ *This might indicate that…*
- ✧ *This may/might possibly mean that…*
- ✧ *This could lead to a new discovery…*

□ **7.7. Use your terminology and nomenclature precisely.** In scientific writing, we cannot help but using terminology and nomenclature. Terminology consists of special words, phrases, and expressions used in a particular subject, science, or profession. Nomenclature, on the other hand, is rather a system for naming things (e.g., chemical nomenclature). Since not all of your readers are familiar with your scientific terminology and nomenclature, you should briefly explain and define some of them. Also note that some technical terms are actually obscure and ill defined. Why? Scientists and engineers sometimes use them without deliberately thinking about what they really mean. If this is the case, you have to set back and be more careful in using them.

Step 8: How to Finish Your Manuscript

Carefully checking your manuscript is crucial for whether your manuscript is accepted or not. If you are a beginner, you may have to spend more time and energy in checking your manuscript than you might think. Checking your manuscript may be a tedious job, but you'll be really disappointed when you find mistakes *after* you have submitted your manuscript. Here are 7 specific steps to check your manuscript:

□ **8.1. Read out loud.** Writing is not a visual art. That is why you have to listen carefully to what you have written. How do your words sound? You may find some awkward sounds, grammatical errors, or sentences that are too long to read out loud.

□ **8.2. Read for the content.** We are sometimes confused in writing and thinking processes. You might have written "a 7% increase," where all you really wanted to say was "a 7% decrease." Also check numbers in your Tables, mathematical expressions, and any other details.

□ **8.3. Check whether or not something is missing.** You may be so familiar with your

subject that you might have missed some information that your reader has to know. Ask yourself, "Is there something missing in my manuscript?" and "If I finish writing, what will my reader lose?"

- ☐ **8.4. Check for grammatical flaws.** You want to avoid grammatical errors such as tense, conjugation, article, and case. As I said in Step 1, as you develop a good ear, your grammatical errors will be reduced.
- ☐ **8.5. Check the spelling of your words.** As Marilyn vos Savant says, "When our spelling is perfect, it's invisible. But when it's flawed, it prompts strong negative associations." When you check the spelling of your words, try to watch your manuscript carefully, rather than just read it. It is also important to know that your spell checker in your software does not completely eliminate mistakes of your spelling.
- ☐ **8.6. Read Instruction for Authors.** You should carefully read Instruction for Authors. Intricate rules for preparing manuscript change from journal to journal. Also make sure that you have got a recent version.
- ☐ **8.7. Read for unity and consistency.** While writing takes time, your final work should look like as if it were written in one time. This is called unity. Also, pay close attention to technical terms you used. Your terminology should be consistent within your paper.

Step 9: How to Finish the Reference Section

When it comes to academic writing, detail does matter. That's why you have to be careful in making a list of references. The Reference section is part of your scientific paper. Here are 7 key points to make a list of references.

- ☐ **9.1. Do not include everything.** Don't try to include everything. This is partly because today we live in the world of information overload. So when it comes to making a list of references, I think it is acceptable to be rather selective.
- ☐ **9.2. Cite relevant and helpful materials only.** Instead of trying to include everything, you select relevant materials that are considered to be helpful and informative to your audience. This increases readability and credibility.
- ☐ **9.3. Use the influence of authority appropriately.** We are all vulnerable to authority. Dr. Robert Cialdini, the author of *Influence: The Psychology of Persuasion*, says: "The very first book of the Bible, for example, describes how failure to obey the ultimate authority produced the loss of paradise for Adam, Eve, and the rest of the human race." "Consequently, we are trained from birth that obedience to proper authority is

right and disobedience is wrong." Do yourself a favor. It is a wise strategy to include relevant studies from prestigious, respected journals. Also, if you have to cite a book, cite a respected, authoritative book.

- ☐ **9.4. Keep up with recent progress in your field.** Cite some recent papers if they are relevant to your papers. This makes your paper look fresh. In addition, this gives the impression that your literature search is thoroughly done.
- ☐ **9.5. Avoid unpublished work.** References should be available to editors, reviewers, and readers. Thus, using unpublished work as a reference is usually not a very good idea.
- ☐ **9.6. Prefer to cite scientific facts, not scientists.** Prefer to cite scientific facts, not scientists. You don't have to cite names of scientists and engineers every time you cite. Also, do not criticize scientists personally; simply treat their scientific facts fairly and objectively.
- ☐ **9.7. Pay careful attention to the format of your target journal.** Finally, you must check out the format of the Reference section in your target journal. Pay close attention to each and every detail, such as author's names, page numbers, publications years, journal abbreviations, and so on. "You must pay very careful attention to the format of your list of references. You will save yourself time and frustration by putting together this section of your paper with infinite care," says Ann M. Körner, the author of *Guide to Publishing a Scientific Paper*.

Step 10: How to Handle Editorial Processes

Getting your manuscript done is just a beginning. You have to get it published. The key is to be persistent.

- ☐ **10.1. Be prepared to submit your paper.**
  - *Submission Letter*. The corresponding author should write and send a submission letter. First, you have to know how to write a letter. Consult a dictionary or a book on letter writing. In your submission letter, instead of saying your technical details, present how your work influences your specific field.
  - *Copyright*. Most of the time, you have to submit a copyright transfer form. For example, if I submit my manuscript to the *Journal of Physical Chemistry*, I must submit to a copyright transfer form, too. Then my manuscript is accepted, the American Chemical Society owns the copyright.

- *Potential Reviewers*. Some journals request you to suggest reviewers. First, make a list of names of potential reviewers that you think really competent. Second, make a list of their current addresses and e-mail addresses.
- *Submission*. I recommend that you use an electronic submission system publishers provide, whenever possible. Some journals only accept electronic submission.

□ **10.2. Follow up the process.**

- If you submit your manuscript via the Internet, most of your communication is through emails. You will receive an email from editors noticing that your manuscript has been received by editors. At the same time, you will receive your manuscript ID number. Even if your communication is done through emails, you should print out these emails and save them.
- In most specialized journals, the editors decide whether your manuscript is suited for your target journal. Then your manuscript will be sent to a few reviewers, and you will receive comments by reviewers in 4 to 6 weeks. For whatsoever reason, however, reviewers' comments tend to delay. Sometimes, your reviewer suddenly decides not to review any more and your editor sends your manuscript another reviewer.
- If 6 to 8 weeks have passed and nothing returns, contact the editor handling your manuscript. Follow up to let them know you are paying attention to the next steps and keeping track.

□ **10.3. Handle rejections.** For whatever reason, your manuscript may be rejected. First, do not take it personally, although this is one of the hardest things to do. Remember what Dale Carnegie once said: no one kicks a dead dog**.** Simply use this feedback objectively and say the magic word, "Next!" The sooner, the better. Then revise your manuscript and try another journal. That's all you need to do.

□ **10.4. Deal with reviewers.** I'm brutally honest about this: be prepared to be criticized. Here are several types of reviewers, some of which might surprise you down the road:

- *The Deal-Killer*. They may try to kill the possibility of your paper being published, for whatever reason. They are usually irrational and arrogant. The only solution is to reply objectively and contact your editor separately.
- *The Politician*. They may be a bit political. It is difficult for you to persuade them from a scientific standpoint. The solution is again to reply objectively and contact your editor separately.
- *The Tech*. They want to point out technical issues only, not scientific findings. I'm not saying that technical issues are not important. But technical aspects are

sometimes of secondary important. They do not objectively review the scientific side of your work. The solution is to point out that technical aspects probably do not affect the main conclusion of your work and are of secondary important.

- *The What-About*. They tend to say, "what about this?" or "what about that?" Their comments, however, are usually trapped by side issues. In other words, their comments are irrelevant from your standpoint. The solution is to stick to your main points and to say that their comments might be interesting but not the main objective of your work.
- *The Adviser*. They review your manuscript objectively and give some suggestions in favor of you. Simply try to improve or revise your manuscript according to their suggestions.

□ **10.5. Know the 10 rules of replying to reviewers.**

- *1. Don't make the editor your enemy.* The last thing you want to do is to make the editor your enemy.
- *2. Break down the comments into small chunks.* Don't be overwhelmed by the comments by your reviewers to answer all at once. Answer one comment at a time.
- *3. Always start with the easiest comment*. Don't try to answer the heaviest comment first. If you do, you will probably be stuck. Leave the most difficult last.
- *4. Don't be clouded by emotion.* Emotion clouds rational thinking. If you have a point, state it in a rational manner.
- *5. Be objective and logical.* Always operate from objective reality. There is always a logical solution to dealing with reviewers.
- *6. Be open to change.* Don't be attached to your original manuscript too much. Be open to change. Buddha said, "All unhappiness comes from attachment." Most of the time, revising improves the quality of your paper.
- *7. Don't be trapped by side issues.* No matter how brilliant their comments might be, unless they are relevant to your main points, the comments are meaningless.
- *8. Be tactful.* As I said, tactfulness is sometimes important in scientific writing. Tactfulness plays a major role in dealing with reviewers.
- *9. Don't disclose everything.* Honesty means that you do not tell a lie. Honesty does not mean that you have to disclose everything.
- *10. Be bold if necessary.* Sometimes you need to push the envelope. You cannot please everyone.

□ **10.6. Proofread.** If your manuscript is accepted, you will receive proof later. Well, when

you receive your proof, do not prematurely celebrate. Because it's not over until it's over. You have to read your proof very carefully. Some journals require that you return your proof corrections within 48 hours. Take your time and read it. Read it again. Do not hesitate to do one more check. Since Tables are sometimes re-tabulated in proof, you should be careful in checking Tables. After you have done the work, you send your final corrections.

- □ **10.7. Get Published.** Now you can probably order reprints and give them to your colleagues, family members, and friends. Please remember, you cannot completely control the outcome of how other people appreciate your paper. However, you should reward yourself because you get the writing published all the way through to completion.

Note: Thank you for reading. This Report is a beta version. I may revise it later. So be free to post your opinions and comments on Scribd.com or send them directly to me. Try it and tell me what happens.

To your success,

Teppei Suzuki, Ph.D.