feature

A Gentle Introduction to Microediting

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Abstract

This paper examines the role of microediting in the process of improving the quality of the biomedical literature. Microediting as a sub-set of copyediting is discussed, and a brief comparison with macroediting is included. The components of microediting, reasons for microediting, and ways an author's editor might sell microediting to clients are also examined. The reader is given samples of jargon and fractured prose written by hopeful biomedical authors and is provided with a table in which levels of editing are depicted as checklists. An encapsulated set of authors' arguments used as defenses against accepting editorial recommendations and suggestions is intended to prepare the neophyte editor for future conversations with clients.

Introduction

THOSE of you who have taken my workshops know that my teaching philosophy is based on the premise that both students and instructor learn more and retain that learning more willingly if the learning environment is pleasant, supportive, and laced with humor. Most people appear to learn best in an environment in which they feel free to ask whatever questions come to mind, to venture answers when they are not really sure of them, and to "play" with illustrative material and exercises until they have mastered the principles and practice being conveyed to them.

In just this way, I have learned all of the things in my life that have stayed with me. The ones I memorized, out of terror of the consequences if I did not have them committed to memory, have left me long ago—and linger only as vaguely unpleasant wisps of memory. The ones I "crammed" in painful post-midnight sessions because I dared not let my grade point average slip have also eluded me. The lessons I continue to have in my intellectual briefcase are the ones that joyful and enthusiastic classroom teachers shared with me as if these lessons were delicious secrets and things that were part of my entertainment card rather than items on my report card.

Approach this piece on microediting in just that spirit. Microediting is an interesting and exciting field of study and practice. Glean from this text whatever you can, and share your findings with colleagues and clients alike—as a tasty item in the editorial menu.

Microediting as a Subset of Copyediting

I take this opportunity to describe some definitions of *copyediting, microediting, macroediting,* and other related terms because of the wide variability in the use of these terms. When some people use the term *copyediting,* they refer only to the process of proofreading one set of copy against another. Others use the term to describe the process of reviewing copy—at whatever level is agreed upon or needed. Some of us believe that copyediting is the process through which an editor converts a manuscript from what the author believes is already a state of perfection into a product a publisher will view as potentially publishable. By the same token, authors frequently view editors and publishers with no more enthusiasm than they would accord to morticians.

On a more objective level, if copyediting in biomedical science can be accurately defined at all, it consists of correcting the language; marking the mechanical style and format of scientific manuscripts to bring them into conformity with the required standards for publication; and coping, if required, with substantive editing, administration, and proofreading. It may mean doing any one of these tasks or any combination of these tasks. Technical editing, a subset of copyediting, puts manuscripts under

a microscope (and, in fact, is often referred to as *microediting*). Substantive editing and creative editing, additional subsets of copyediting, deal with manuscripts at a macroscopic level (and are sometimes referred to as *macroediting*). Copyediting is arguably a biomedical editor's most important and time-consuming task.

Components of Microediting

Having set the stage by defining copyediting, let us move on to focus on *microediting.* One tongue-in-cheek definition of "microediting" is editing that is too small to be detected by the unaided human eye. On a more serious level, microediting might be defined as "*a critical review of material at or below the level of the paragraph.* The intent of such a review is to improve the quality of grammar, syntax, style, tone, clarity, credibility, and overall appeal for the audience to which the material is directed."[1] Add to this definition the concept that the ultimate aim for writing in the sciences is that all material should be written in such a way that its meaning and intent cannot be misunderstood. In addition, apply the underlying justification for conducting stringent microediting of material as an effort to free it of jargon,

Table 1. Levels of review involved in microediting and macroediting

Minimal Copyediting	Medium Copyediting (minimal copyediting + items shown below)	Maximal Copyediting (minimal and medium copyediting + items shown below)
____ Review and correct spelling, grammar, and punctuation.	____ Check heads in text and tables against content; correct or query the author.	____ Check math, numbers, problems, and answers to questions in exercises.
____ Correct inconsistencies in capitalization and compounding, style of numbers, use of italics and underlines, and sequence of anything alphabetical or numerical, subject/verb agreement.	____ Make list of tables/figures. Put all tables/figures in consistent format.	____ Check descriptions of tables and figures in text against information in tables and figures themselves.
____ Point out, **but do not rewrite**, awkward, turgid, confusing sentences or sections.	____ Check parallelism throughout text; rewrite when necessary to make elements in series parallel. Be sure all lists are consistent in format.	____ Review manuscript for sentences, paragraphs, and other sections that need to be rewritten, placed in another part of the manuscript, or deleted.
____ Point out, **but do not fix**, major organizational problems.	____ Check pronouns; make sure all have clear antecedents; if necessary, replace with nouns or rewrite passage that is unclear or incorrect.	____ Add or delete heads and subheads as needed.
____ Check completeness, accuracy, format of tables and figures, bibliographies, and footnotes.	____ Check for use of passive voice; whenever possible, replace with active voice.	____ Check organization of each section of the manuscript, and of the overall manuscript, and rewrite or reorganize as needed.
	____ Check for shifts in verb tense; correct or query author.	____ Rewrite awkward, turgid, and confusing sentences, paragraphs, or sections.
	____ Check for shifts in tone and style; correct or query author.	____ Review logic of arguments; look for weak points.
	____ Check coherence of sentences: misplaced parts, dangling modifiers, missing words or phrases.	____ Write transition sentences, when necessary.
	____ Eliminate biased language; be consistent with number and person.	____ Check accuracy of all content.
	____ Explain unfamiliar acronyms and abbreviations at first mention.	____ Eliminate redundancies.

incorrect grammar, awkward and unclear syntax, and convoluted and lengthy sentence structures. Table 1 provides a capsule description of three levels of review that move from microediting along a continuum to macroediting. These levels are described as minimal, medium, and maximal, and the items included in the three lists should constitute a reasonable checklist of areas covered by the microeditor and the macroeditor.

Does the definition given above encourage movement toward the goal of polishing a manuscript to the point that it cannot be misunderstood? This is a very important concept. Many times, I am afraid we editors are satisfied if we can improve our clients' manuscripts to the point where they will probably be understood—and are relieved if the authors take enough of our suggestions to reach that point. In some cases, we just give up—because the author is hopeless, even if the material is not. Being allowed to craft a manuscript to the point that it cannot be misunderstood would be nirvana. But, just because we do not get to participate in an ideal situation does not mean that we cannot work with material and aim it toward being non-misunderstandable. Many of us do keep hoping for the perfect human relationship, the diet that really works, or the teenager who learns to install paper towels in a dispenser.

Reasons for Microediting

"The difference between the right word and the nearly right word is the same difference as between lightning and the lightning bug," observed Mark Twain. Think of microediting as therapy for the restless mind. Think of it as a compulsion: "I edit because I must." Perhaps you can think of it as your contribution to society. Some of the writing that comes from the pens or computers of otherwise well-educated scientists makes me believe that the same university department that teaches medical trainees how to write so that only pharmacists and nurses can decipher their inner-circle codes also teaches them to contrive sentence structures and use vocabulary that they would otherwise shun. Without that explanation, I am at a loss to explain some of the material that comes across my desk for review and clearance in the federal agency in which I work. All of the items shown in Table 2, for example, are from highly educated, frequently published scientists. The examples of prolix and jargonistic prose shown in the examples I provide were repaired before the manuscripts saw the light of day outside my agency, but I sometimes wake up in the middle of the night thinking about all the manuscripts that go out the front doors of various scientific and academic institutions and make their way into the literature without editorial treatment.

In Defense of Microediting

After determining what microediting is, identifying its component parts, and establishing a rationale for why microediting is important for publications and presentations, we come to the bottom line of bottom lines. How can you persuade your clients to let you do your job as an editor? Some editors work in a context in which their services are underwritten and mandated by the management of the organization in which they work. They are "required editors." Most editors do not, however, work that way. And incidentally, for those of you who do not, let me assure you that being a requirement has its own set of disadvantages. The organization wants the material that appears in public under its aegis to give the most positive effect per unit of cost—with no negative effects. The author wants the material that goes out to do the same thing—but the author wants to be in a position to benefit professionally along with the benefit that accrues to the organization.

The most difficult editor-author relationship I know of is the one-time, on-the-phone, or with-written-notes-only contact. It does not give the editor any opportunity to convince the author that the editor is a proponent of the author's material—and, indeed, of the author. It does not give the editor any opportunity to explain about unit modifiers, dangling modifiers, or just plain modifiers. It does not give much opportunity to describe the difference between the effect of material written in a clear, lucid style and material that must be ingested in much the same manner as castor oil (and sometimes, with something of the same effect). Somewhat less taxing, but also less than ideal, is the relationship in which the editor works only indirectly with the author—and only periodically. Table 3 shows some of the arguments an author is likely to offer to an editor who wishes to modify the author's words or approach to writing. It is difficult to counter these arguments in the context of the brief or distant relationships described above. With an ongoing author-editor relationship, as described below, the editor at least stands a chance of being able to overcome the author's fears and resentments about having his or her prose amended.

So, I would describe the ideal author-editor relationship as the situation in which the author and editor work for the same organization; they are considered and treated as colleagues; they work together on manuscripts, presentations, and posters or other types of displays; it is understood that the editor wants the author's material to be of the highest possible quality; the author appreciates the fact that the editor strives for high quality for the sake of the art and the science and not because the editor's name is on the manuscript; the editor reminds himself or

TABLE 2. JUSTIFICATION FOR THE EXISTENCE OF BIOMEDICAL EDITORS

1. **Two all-time favorites speak for themselves:**
   "A fresh stool specimen, in the hands of a skilled microscopist, can be very informative—up to a point."
   "The 50 dogs in this study were numbered 1 through 51."
2. **Problems in determining gender:**
   "Analysis by sex showed no consistent sex differences in children less than 10 years old."
   "No significant sex differences in prevalence existed for any age interval."
   "Table II shows EIS Officers broken down by age and sex."
3. **Creative, if misleading, spellings:**
   "While Mrs. K_____ was organizing her volunteers, the team of medical detectives was pouring over patient records."
   "She had been splenectomized in 1965 because of a traumatic rapture."
   "All 4 illicited neutralizing antibody in the volunteers."
   "The authors express their appreciation to Prof. W. L_____, Basel, and Dr. L. A_____, Atlanta, for critical review of this artical."
   "Two individuals had lived in Georgia 1 and 2 years, respectably."
4. **Punishing the innocent:**
   "All strains had similar susceptibility patterns for spectino-mycin, the drug recommended for patients who fail treatment with penicillin."
   "An additional patient who was a treatment failure thereafter remained infected for an additional week."
5. **Strange associations:**
   "Hamsters can appear active at one hour and be moribund and dead 1 hour later."
   "Hospital studies indicate that *E. cloacae* and *E. aerogenes* are most frequently isolated from sputum followed by urine."
   "All but two sera collected from infections over 15 days old gave IHA titers of...."
   "Three patients are part of a separate report."
6. **The need to move furniture:**
   "The investigators spent the morning in Estes Park trapping mammals and biting flies."
   "The approximate age and sex of each animal was noted."
   "In July 1977, we mailed five specimens spiked with digoxin and a questionnaire."
7. **Vague exactitude:**
   "Of the approximately 4691 sera from these 8 species, about 1.8% were serologic positive."
   "The slanted cultures should be read in approximately a few minutes."
   "Strong tentative information can be gained by...."
8. **If you thought the "disease detectives" were human beings:**
   "At Kingsport, guinea pigs, which are sensitive to airborne infections, were being placed in private homes and other locations to try to track down the source of the disease in that city."
9. **Scary cause and effect:**
   "The unusually large proportion of deaths in Vermont, the doctors said, could be due to the fact that it takes at least 21 days to complete specimens taken from a living patient while autopsies can be conducted much sooner."
10. **Pomposity that reveals more about the author than about the material:**
    "An open mind in this regard should be sobered by the thought that some animals shed their lifetime." [The author went on to refer to these unfortunate creatures as "shedder dogs" and was not amused when I inquired whether they were "Irish shedders."]
    "When death prevails, it may be valuable to demonstrate that the organism is omnipotent in all tissues a possible index of its high degree of virulence."
    "With the opening of the animal, the first to present itself is the liver—impressive in its size and position."
    "Urine, realizing its manner of collection, does not lend itself to periods of transport as is possible with blood."
    "Erratic liquid media behavior should be noted and the causative circumstances identified if possible."
    "Caution in the interpretation of laboratory animal death occurring within 24 to 48 hours should be viewed with some suspicion."
    "Prolonged and persistent continuance via publication in the literature that unerringly this disease must always be accompanied by evidence of jaundice should be dispelled."
    "To further muddy these turbid waters, we have conducted a variation of Leck's study with several methodological differences."

And finally...

"Thus it is in this spirit of exploration that the authors of this paper have undertaken to add in some small degree to what appears to be a general lack of investigation as to the academic impact of the use of simulation techniques in the typical college classroom." [This editor felt they added a great deal to the general lack....]

Table 3. Biomedical authors' defense against editing

1. Everyday language is inappropriate and not precise enough to describe the results of a medical study.
2. Long words are more scientific.
3. However writers write, editors will alter the writing to suit themselves.
4. Everyone has his or her style, and using this style is better than conforming to a supposedly correct set of rules.
5. My writing style follows the convention for writing medical (or pharmaceutical, chemical, environmental) reports.
6. My peers write this way, and they are the only ones who need to understand what I am writing.

herself often that the author is a scientist and needs to be instructed gently and carefully in the grammatical and other occult arts.[2] The few opportunities I have had over the past 40 years of editing and reviewing science manuscripts to develop and maintain such a relationship with authors are among my most treasured memories—and many of these authors continue to be valued clients even though they are no longer writing for my agency.

Summary

Microeditors can do their jobs as purists. They do not have to look beyond the level of the paragraph if they do not wish to do so. Manuscripts will doubtless be enhanced by their zealous efforts to bring into conformity rebellious commas and hyphens, creative spellings, runaway modifiers, singular subjects followed shamefacedly by plural verbs, and the like. Macroeditors are less fortunate; they must look at the forest AND focus on the individual trees at the same time.

It is almost impossible for people who call themselves microeditors or macroeditors to resist the temptation to edit billboards, cereal boxes, and restaurant menus—much less the poorly written pieces whose components they are supposed to be redesigning and refining within the level of the paragraph or at the level of the complete manuscript. Microeditors mark comma faults, flawed allusion, and unclear antecedents with as much zeal as macroeditors do results placed in the discussion, discussion placed in the materials and methods, and the author's opinions spread like jam over what is supposed to be a scientific (i.e., objective) report. I don't know any solution to this compulsion on the part of editors. Perhaps it isn't a problem. Perhaps it is a calling, like art. I do know that most editors of my acquaintance can do microediting without macroediting, if they really force themselves. But I do not know any editors who can do macroediting without microediting. This essential attention to detail—at the most intimate level of contact with the language within an individual sentence—is built into all of us who call ourselves editors. So, macroeditors we may be, but microeditors we must be. Nitpicking is, in fact, the artistic heart of the editing process.

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