Writing Scholarly Articles: Supplementary Handouts

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SAMPLE ABSTRACT 1

IDENTIFYING GAPS BETWEEN FACULTY AND RESIDENT EXPECTATIONS OF RESIDENT AUTONOMY

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Background: With the advent of work hours restrictions and generational changes in residents, the culture of residency is shifting. Residents are regaled with faculty anecdotes, "When I was a resident...," and faculty members are frustrated by residents who seem to have different educational expectations and priorities. This subjective evidence suggests a cultural divide, but there are few evidence-based reports to substantiate or clarify areas of divergence.

Goal: To objectively identify specific differences in how pediatric residents and faculty perceive resident autonomy and expectations.

Design: Parallel surveys were distributed to all pediatric and medicine-pediatric residents and to pediatric faculty who regularly interact with residents at the University of Rochester Medical Center. The surveys contained questions about resident performance, work ethic, autonomy, and faculty-resident interactions. The 16-question resident survey and the 20-question faculty survey included seventeen parallel items. Several questions allowed for multiple responses and comments.

Results: Of the 78 residents and 100 faculty members who received the survey, 77% of residents and 67% of faculty responded. Residents at all levels differed significantly from faculty in their perception of residents' ability to present a complete HPI and thorough patient assessment. They also differed significantly on residents' degree of autonomy, faculty encouragement of residents' independent thought, and amount of faculty feedback. Of the 17 parallel responses, residents differed significantly with the faculty on 10 at p < .001 level and on 6 others at p <.05 level. Their sole area of agreement was how often faculty provide too much direction.

Conclusions: We found a gap between faculty and residents in their perceptions of resident autonomy and of faculty support for resident autonomy. Given the importance of autonomy in independent practice after residency, further studies are needed to investigate the validity and possible sources of these differences in perceptions, so that strategies to enhance resident autonomy in training can be developed.
### ARTICLE PLANNING WORKSHEET

**Note:** My writing classes like to use this worksheet in planning a paper, before moving on to the GUIDELINES FOR WRITING A RESEARCH ARTICLE (next page).

<table>
<thead>
<tr>
<th>Introduction:</th>
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<tbody>
<tr>
<td>• What is this paper trying to prove?</td>
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<tr>
<td>• Why does it matter?</td>
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<td>• What gap in the literature will the study fill?</td>
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<td>• What literature needs to be discussed?</td>
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<tr>
<th>Methods:</th>
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<td>• What part of the methods needs most detailed description?</td>
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<td>• What potential weaknesses need to be addressed?</td>
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<th>Results:</th>
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<tr>
<td>• How much data should be included? Are the results as described in the abstract enough for a paper?</td>
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<td>• Consider which results should be presented in graphics, tables, or narrative.</td>
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<th>Discussion:</th>
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<td>• What is the strongest, most interesting finding to highlight?</td>
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<td>• What results need more careful discussion (e.g., in relation to previous reports?)</td>
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<td>• What are the limitations of the study?</td>
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<td>• Are the conclusions stated with sufficient qualifiers (e.g., findings in our sample demonstrate; findings suggest, may indicate, are consistent with the interpretation that..., ?)</td>
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Guidelines for Writing a Research Article

Initial Planning Questions
1. How shall I convert my project into a reportable study?
2. What is this paper trying to prove? Why does it matter?
3. What challenges do I face in putting the argument across?
   Where and how will I address these issues?
4. What journal should I target?

Abstract

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Content and organization</th>
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<tbody>
<tr>
<td>➢ Write abstract to help readers decide whether to read or download</td>
<td>1. Journals provide length limits and formats</td>
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<tr>
<td>➢ Make it clear and informative (address importance, validity, applicability)</td>
<td>2. Follow same order as sections of the paper (with subheadings if required)</td>
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<tr>
<td>➢ Be sure the primary question and conclusions of the paper come through clearly</td>
<td>3. Clear summary is more important than details of data (this is not a meeting abstract)</td>
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<tr>
<td>➢ For most medical journals, keep the introduction short and focused</td>
<td>4. State your conclusion clearly, but with essential qualifications: Don’t let the brevity</td>
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<td>of an abstract lure you into overstatement</td>
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Introduction

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<thead>
<tr>
<th>Strategies</th>
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<tbody>
<tr>
<td>➢ Define question to be addressed</td>
<td>1. Adhere to journal style for length, content</td>
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<tr>
<td>➢ Establish the study’s importance and novelty</td>
<td>2. In first paragraph, concisely state question and why it matters</td>
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<tr>
<td>➢ For most medical journals, keep the introduction short and focused</td>
<td>3. Next, review essential literature:</td>
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<td>• Be selective! Summarize background to explain:</td>
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<td>• choice of question/hypothesis</td>
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<td>• claim to novelty and significance</td>
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<td>• Save detailed comparisons with previous studies for Discussion</td>
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<td>4. In final paragraph, briefly describe:</td>
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<td>• Study question or hypothesis</td>
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<td></td>
<td>• Design</td>
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<td>• Sample</td>
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<tr>
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<td>• Methods</td>
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Materials & Methods

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<tr>
<th>Strategies</th>
<th>Content and organization</th>
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<tbody>
<tr>
<td>➢ Keep it simple and brief</td>
<td>1. Overview of design</td>
</tr>
<tr>
<td>➢ Define key variables, use names consistently</td>
<td>• Define type: e.g., retrospective or case-control study; prospective, randomized, controlled trial</td>
</tr>
<tr>
<td>➢ Use headings for clarity and easy reference</td>
<td>• Say enough about design to allow reader to evaluate the study</td>
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<tr>
<td>➢ Literature references here should focus on methods</td>
<td>2. Description of sample</td>
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<td>• Population and setting for recruitment</td>
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<td>• Planned sample size and power</td>
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<td>• Inclusion/exclusion criteria</td>
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<td>• Comparison groups, other precautions to minimize bias</td>
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<td>3. Study protocol: subject assessment, time course, treatment/intervention, follow-up</td>
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<td>4. Specific procedures or instruments</td>
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<td>• Methods for initial assessments (e.g., dx methods)</td>
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<td>• Methods to obtain outcome measures (survey instruments, physical measurements, biological assays)</td>
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<tr>
<td></td>
<td>• Give more detail where methods are novel, less where previously published</td>
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<tr>
<td></td>
<td>5. Statistical plan and methods</td>
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<td>• Define terms and describe tests (briefly)</td>
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<td></td>
<td>• Explain rationale for unfamiliar statistical methods</td>
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# Results

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| Present results systematically; generally use same order throughout paper | 1. Typical order of presentation:  
- Describe sample collected first  
- Then follow order of hypotheses, chronology, or design elements  
- In general:  
  - present simple results before complex  
  - give prominence to strongest findings  
  - Provide subsection headings if needed for clarity |
| Keep like things alike:  
- Label variables consistently  
- Use similar formats for tables/figures and statistical notations | 2. Numerical data  
- Limit graphs, tables to key data; design them to highlight important results  
- Choose best presentation format:  
  - Use graphics to show relations between data sets  
  - Use tables if specific numbers are essential  
  - Otherwise, use narrative  
- Briefly interpret figures, tables, images in narrative (but don't reiterate data) |
| Answer all research questions; include negative findings | 3. Narrative presentation of results  
- Stick to the facts  
- Keep story as simple and focused as possible without distorting meaning  
  - Avoid over-explanation  
  - Avoid detailed data if summary is adequate  
- Omission of tangential data will almost always strengthen your paper |
| Let the data speak for themselves:  
- Presentation should indicate trend in your reasoning, **BUT**  
- Generally avoid interpretation of results  
- Strictly avoid broad conclusions and speculations | |

# Discussion

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<tr>
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| Highlight key findings and forestall criticisms | 1. General plan for Discussion:  
- First, highlight key findings in the context of the central purpose of study  
- Next, evaluate findings in relation to literature  
- Then discuss limitations of study  
- End with conclusions and recommendations |
| Relate conclusions to original hypotheses | 2. Strategic issues in ordering Discussion:  
- Begin and end with most exciting, convincing, novel results. Put in the middle what is debatable, complicated, or boring  
- Organize mid-section systematically (e.g. follow order of Results)  
- Avoid speculations, recommendations, and suggestions for future studies until the end |
| Seek balance in interpreting results:  
- Over-statement can be fatal, but  
- Under-statement may hide the importance of study | 3. Discuss other studies in order to:  
- Compare previous results with your findings  
- Clarify complex issues raised by your results  
  - **Don't repeat literature review from Introduction!**  
    - There you establish study's importance and novelty  
    - Here you use previous reports to confirm, question, or clarify your results (or theirs) |
| Be selective! Discuss only results that deserve comment | 4. Discuss limitations as well as strengths  
- Design weaknesses: cluster in a paragraph before conclusions  
- Methodological problems: discuss in the context of specific findings  
- Serious problems: indicate how much they undermine confidence in validity of results (i.e. spin to minimize the damage) |
| Don't disparage or attack previous studies; do try to explain differences | 5. End with a summary of key findings and brief interpretation of their significance  
- Clearly label speculations and recommendations that go beyond data  
- Propose specific future studies if suggested by novel results (not needed for simple confirmatory studies) |
| Separate conclusions/speculations from interpretations of results | |
STEPS FOR EFFICIENT WRITING OF A JOURNAL ARTICLE

Phase 1: Preparation

1. Plan the paper when you plan the study (e.g., introduction and methods)
2. Plan ahead for writing co-authored papers:
   • Agree on first author and order of secondary authors
   • Reach consensus in advance on task-sharing and production schedule
   • Good collective tasks: interpret data, select journal, develop the “argument” of paper
   • A primary writer is essential to collate text contributions, define focus, manage revisions, make final decisions
3. Collect, organize, and prioritize bibliographic materials before you begin to write
4. Get data in order and sketch out tables and figures

Phase 2: Writing and Revising the First Draft

1. Choose journal, and study Instructions to Authors and several recent articles to define:
   • total page limit, and length and content of sections (including refs)
   • typical number and size of tables or figures
   • audience
     * Who are your readers?
     * How diverse is this audience?
     * How much do they know about the topic?
     * What is their level of interest in this topic?
   Answers to these questions will determine your style, content, and methods of persuasion.

2. Define your primary purpose, i.e., What scientific question are you addressing and how will you answer it?
   • Write down a brief statement of your focal question/purpose.
   • Keep it handy as you write, to help you (and your reader) stay focused on the main point of the paper.

3. Generate ideas (You need to make the bricks before you begin to build the wall.)
   • capture ideas on tape, in conversation, at keyboard
   • brainstorm with group (e.g., write ideas on post-it notes and sort topics into groups)
   • map ideas with sketches, charts, diagrams
   • give a seminar and receive feedback

4. Sequence these ideas and shape first draft as quickly as possible (don’t obsess over holes yet)

5. Refine the tables and figures

6. Now go back and systematically refine the document (large scale ⇒ small scale)
   • Logic and clarity of primary argument
   • Clarity of study design
   • Appropriate (conventional) placement of material in subsections of paper
   • Focus in selection of data to support primary argument (data, refs)
   • Organization of supporting data
   • Logic, clarity, focus, and continuity at paragraph level
   • Brevity and clarity at sentence level
   • Readability and formatting
   • Spelling
Rethink, reprioritize, reorganize, and then rephrase.

Phase 3: Feedback and Final Revisions

1. Recruit reviewers: mentors, specialists, or collaborators, plus one “naïve” reader. Never submit a paper that hasn’t been read by someone else.
2. Let document lie fallow. Do not read for at least 1 week, preferably 1 month, while the reviewers comments are coming in.
3. Assimilate and evaluate critiques.
4. Revise radically, if needed, but keep sequence of backups.
5. Before you submit the paper, re-review compulsively for:
   - numerical consistency at every level
   - clarity of formatting, especially in figures and tables
   - completeness and accuracy of references
   - conformity to every detail of journal style (especially references)
6. Know when to stop. You’ll get another chance to revise when the reviews come back.
WRITING PRODUCTIVITY: 10 TIPS FOR EFFICIENT WRITING

1. The first draft only has to get written to succeed
   - Recycle old work to “prime the pumps”
   - Write around an outline to avoid blank screen anxiety
   - Write what is easiest first (e.g., description before analysis and evaluation)
   - Or don’t write: draw pictures, dictate, talk to someone to capture main building blocks
   - Imitate a good model
   - Don’t obsess over holes or details (yet)

2. At the start, remain open to new ideas
   - Give yourself room for new insights and directions as you compose
   - Later, build a consistent, logically ordered progression of ideas

3. Develop regular writing habits
   - Write during your personal “prime time” and protect this time from interruptions
   - Write regularly (e.g., 1-2 hour periods, 2-4 times/week)
   - Avoid binge writing
   - Use rituals if they work for you!

4. Control your writing environment
   - Create an environment that enhances your comfort, concentration, and efficiency
   - If necessary, mobilize your writing environment!
   - Take writing trips or attend writing retreats

5. Multi-task and recycle
   - Turn a presentation abstract into a talk, and then into a paper
   - Turn a seminar into a grant proposal
   - Reuse grant material in papers: Background/Significance ⇒ Introduction; Research Design and Methods ⇒ Materials and Methods

6. End a writing session at a new starting point
   - Don’t end a session at the end of your ideas
   - Before you stop, jot down a quick outline of ideas for your next session

7. If you stall out, step back to get a fresh perspective
   - Make a quick outline. Are critical elements missing or duplicated?
   - Put the text aside and tell a colleague what you are trying to say
   - Dictate your thoughts and listen for key ideas and new insights

8. Revise efficiently, from large to small scale
   - Logic and clarity of main argument
   - Clear presentation of study design
   - Focus, organization of supportive data
   - Placement of material in expected places
   - Paragraphs: clarity, focus, continuity
   - Sentences: clarity and brevity
   - Formatting and readability
   - Grammar and spelling

9. Exploit the power of the computer
   - Compose at the keyboard
   - Begin with an outline and fill in the text around it
   - Recycle old prose (even emails)
   - Free yourself to experiment (e.g., save dated backups, use virtual wastebasket)
- Keep all manuscripts materials on one memory stick
- Develop a literature review table (concepts, refs, applications to study)
- Use electronic tools (esp. a reference manager—but don't let spell check substitute for careful proofing)

10. **Expect to revise, and revise again**
- Efficiency won’t eliminate the need to rewrite and revise
- Anticipate at least 5-6 drafts for papers, 4 for grants

**SEVEN TIPS FOR FIGHTING PROCRASTINATION**

1. **Fight to protect your writing time**
   - Identify writing as a professional priority
   - Set aside regular, prime time for writing
   - Protect this time vigorously

2. **Set time-limited goals and reinforce them**
   - Set specific writing goals with deadlines
   - Publicly announce your goals (to spouse, writing partner, colleagues, or boss)
   - Ask for follow-up and reinforcement

3. **Divide and conquer**
   - Subdivide a writing task into manageable units
   - Set feasible goals (e.g. cut 10% of the words from a paper)
   - Create a timeline and track progress (at least weekly)
   - Reward incremental progress
   - Celebrate completion

4. **Create a writing support system**
   - Develop a support system to enhance productivity:
     * research team
     * peer-exchange (co-authors or writing partners; weekly productivity sessions)
     * writers’ group
     * personal rewards system

5. **Maximize the pleasure**
   - Emphasize what makes writing worthwhile to you—e.g.:
     * Capitalize on creative impulses
     * Use writing to strengthen the conceptual basis of your research
     * Socialize the process (find a partner)
     * Remind yourself of your ultimate goal
   - Disguise the task as something more fun: give a talk, ask interested colleagues to review draft of paper

6. **Minimize the punishment**
   - Proactively manage personal and professional conflicts
   - Avoid exhausting writing binges
   - Hire an editor if you need one

7. **Curb your perfectionist urges!**
   - Don't aim for “perfection” before the final drafts
   - Even then, recognize when enough is enough
   - Review process will allow for further refinement from a new perspective

Few (if any) writers avoid the labor of revisions!