A New Approach to Writing and Thinking Education

(Excerpt)

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As AI tools in assisting academic writing become increasingly prevalent, the evolution of academic writing education demands a paradigm shift from a traditional language-centric focus to a more profound emphasis on thinking skills. While language proficiency remains important, the future of academic writing hinges on nurturing clarity and convincingness in thinking skills. This shift requires a recalibration of educational priorities to instill a thinking-focused approach in both human writers and AI systems. This paper, excerpted from a textbook presenting a practical argument construction guide, highlights the main features of this new approach to writing and thinking education.

1. The Construction Approach

The thinking skills in question belong to what I term the "construction approach" of argumentation, or simply the construction approach. This approach differs from the assessment approach commonly found in traditional argument studies. Instead, it is tailored to assist research writers across academic disciplines in constructing clear and convincing arguments for their papers starting from scratch. While they are specially designed for writing an argumentative paper, the thinking skills fostered by this approach are applicable to various scenarios involving argument construction.

The main focus of the construction approach is a type of argument called the practical argument. As I will explain below, constructing a practical argument entails a cyclic process that involves transforming a hypothetical claim into a confirmed conclusion. The transformation is facilitated by the development of two types of premises: the Premise of Proof and the Premise of Defense, both of which contribute to confirming the hypothesis. Once the premises for the hypothesis are successfully established, and the hypothesis is confirmed, the construction of the practical argument will be complete. The construction process of a practical argument is illustrated in the following diagram.

The Practical Argument Construction Process

Hypothesis
(Unconfirmed Conclusion)

Premise of Proof   Premise of Defense
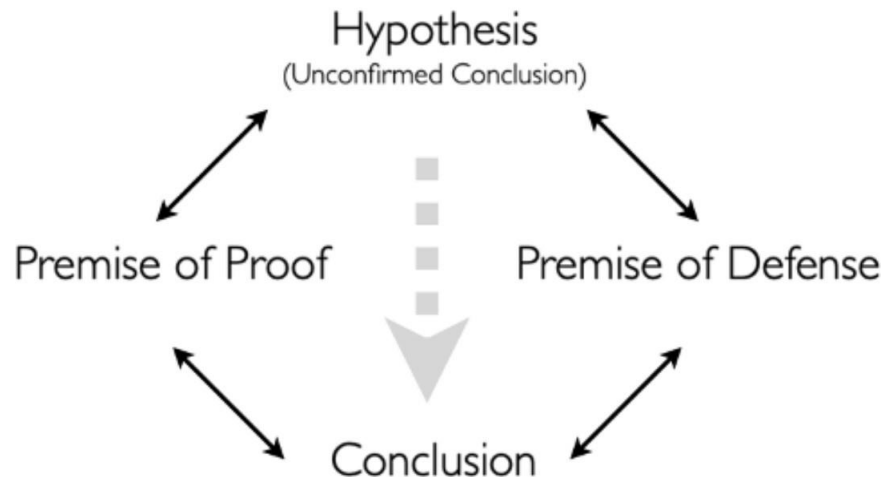
Conclusion

2. Beginning with a hypothetical conclusion

As depicted in the diagram, the construction of a practical argument entails a cyclical process that commences and concludes with the development of the argument's conclusion, which is also known as the thesis statement in the context of an argumentative research paper).

The construction process is distinguished by its outset, which involves crafting a simple sentence—a sentence that will ultimately evolve into the conclusion of a practical argument. This starting point effectively bridges the gap in understanding how an argument can be constructed from scratch. However, it also presents the primary challenge to the construction approach: *how the simple sentence can be transformed into a fully developed argument*. As will be elucidated in my book, the key to overcoming this challenge lies in the formulation of the initial sentence.

Very briefly, in order to be seamlessly integrated into an argument, the sentence must be formulated as a logical statement. And for the reasons that will be elaborated in my book, this sentence should remain as simple as possible, comprising no more than four essential elements: a subject (S), an object (O), the relationship connecting the subject to the object (R), and the circumstances under which this relationship holds true (Z). Despite its simplicity, this sentence should succinctly encapsulate the central thesis of the research, as it serves as the hypothetical conclusion of the argument.

The hypothesis plays a crucial role in initiating and guiding the subsequent research process. This process involves identifying relevant previous studies, formulating a research question based on background studies, and collecting data necessary to establish supporting premises, among other tasks. Throughout this process, the content within the SROZ elements may undergo changes as

new information becomes available. However, the hypothesis is expected to adhere to the form: "S is Related to O in Z," unless evidence suggests otherwise.

Once sufficient evidence is gathered to support the hypothesis, ensuring that the claim can be convincingly proven as well as defended, the hypothesis is transformed into a confirmed conclusion. However, if the hypothesis cannot be adequately supported, it may need to be modified or rejected.

3. Building the premises for and from a hypothetical conclusion

Following the formulation of a hypothetical conclusion, the subsequent phase of constructing a practical argument involves establishing the premises that support the hypothesis. The primary aim of constructing these premises is to provide substantiation for the hypothesis. It is important to note that the concept of support within a practical argument significantly differs from that in a conventional argument. In a conventional argument, the premises act as the foundation from which the argument's conclusion is inferred, irrespective of whether the statements are factually true or not. However, in a practical argument, the premises must consist of evidence capable of proving and defending the hypothesis, enabling its transformation into a confirmed conclusion. Thus, in a practical argument, the conclusion is not merely an inferential outcome of the premises but also forms the basis upon which the proof and defense are constructed. The content of the premises within a practical argument needs to be directly relevant to the content of the conclusion. Specifically, the premises' content should demonstrate that S is in fact Related to O in Z.

4. The Premise of Proof (POP)

There are two types of premises that need to be constructed in a practical argument. The first is termed the Premise of Proof (POP). As the name suggests, POP basically functions to prove the hypothetical conclusion. Broadly speaking, it is the premise that supplies the data for the research claim. However, POP differs significantly from a typical premise in the conventional assessment approach. Apart from serving as the ground for inferring a conclusion, POP also demonstrates that the inference is based on real-world facts. In other words, the primary function of POP is not only to infer but also to prove that the central claim of a research paper is true (or likely true) by reference to the facts that can substantiate the claim. Specifically, if the claim asserts that S is Related to O in Z, then the function of POP is to demonstrate that S is *in fact* Related to O in Z. To achieve this, POP cannot simply be "asserted to be true"; it must be grounded in verifiable truth. The inferential link between the premise and the thesis statement cannot be purely formal. *The content of the premise matters to the construction of an argument*; it should consist of factual evidence capable of proving and substantiating the argument's conclusion. The content of the hypothetical conclusion plays a pivotal role in determining the relevance of the content of POP.

5. The Premise of Defense (POD)

The second type is known as the Premise of Defense (POD). As its name implies, POD serves to defend the hypothetical conclusion from potential counterarguments that could disprove it. In

scientific research, it would be impossible to solely rely on finding the proof that can provide the perfect support for the argument's conclusion. Even if there is compelling evidence that proves the truth of a claim, as long as the possibility for the claim to be false remains unchecked, the truth is not fully confirmed. This poses a risk of violating the principle of non-contradiction. Briefly, the principle of non-contradiction states that two contradictory statements, such as "S is Related to O in Z" and "S is not Related to O in Z," cannot both be true simultaneously. Accordingly, to confirm the truth of "S is Related to O in Z," its contradictory statement, "S is not Related to O in Z," must be simultaneously proven false. Defending the hypothetical conclusion from potential counterarguments is basically about finding ways to demonstrate that *it is implausible that S is not Related to O in Z*. Note that simply defending a hypothesis against contradiction is not sufficient to prove its truth. However, if the defense fails to refute the contradictory claim, it guarantees the refutation of the defended claim. By defending the research claim from the possibility of falsity, POD justifies the assertion of the claim, regardless of whether compelling evidence exists to prove it. In this sense, POD plays a more fundamental role than Premise of Proof (POP) in supporting a thesis statement; it provides a necessary condition for the claim to be true. No argument is complete without a premise capable of defending its conclusion against the possibility of falsity.

6. The order of the premises construction

In the construction process, the order in which the two premises are established does not adhere to a strict order. Scientific research commonly follows the practice of formulating a hypothesis first and subsequently seeking evidence to substantiate it. Hence, it is customary to begin with POP before addressing POD. Nonetheless, there are situations where direct evidence proving a hypothesis is not readily available. In such instances, it may be more advantageous to commence with POD before constructing POP.

7. The components of an argumentative paper

So far I have outlined the components of a practical argument in the construction approach. Now I need to broaden the scope to include the components of an argumentative paper. An argumentative research paper is a piece of academic writing that presents a specific argument.

What distinguishes such a paper is its focus on conveying new research ideas and justifying them. Examples of argumentative research papers include dissertations, journal articles, conference papers, grant proposals, and other writings aimed at communicating original research ideas to readers. For a focused elucidation, we will focus on the process of building a dissertation, although the principles discussed can be applied to other types of argumentative writing.

Let us start with a template that provides an overview of the essential components required to create a clear and convincing dissertation.

The Research Writing Template
(A Bird's Eye View)

{Preliminary Thesis Statement / Objective} _____

_____{Background} _____

_____{Problem}

_____

{Question} _____ {Hypothesis / Thesis Statement}

_____

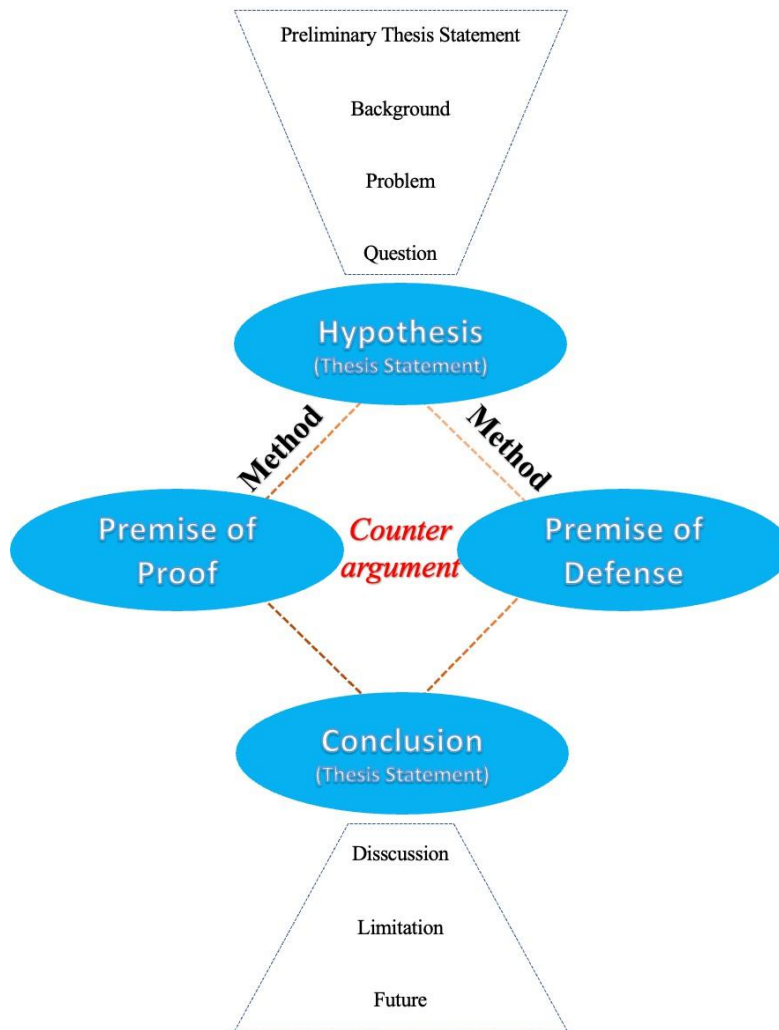{Method}_____{Proof}

_____

_____ {Counterargument}

_____

{Defense} _____

_____{Conclusion} _____

{Limitation} _____ {Future} _____

While various academic disciplines may prescribe different formats and styles for dissertations, utilizing appropriate terminologies and phraseologies, most disciplines agree on the necessity of the components outlined in the research writing template provided here. It is crucial to understand that each of these components should be imbued with *fundamental ideas* essential for developing a clear and convincing dissertation. They should not be confused with the specific words, styles, and formats used to articulate these ideas. For instance, the "thesis statement" component serves as the space designated for the central research idea of a dissertation. In many argumentative papers, a thesis statement is not explicitly presented. Thus, no question is raised as to how the research claim should be properly phrased or formatted in a dissertation. However, if a thesis statement is missing altogether from an argumentative paper, then the paper would be pointless and doomed to be unsatisfactory.

To visualize where an argument is among the research writing components, let me introduce the research writing diagram, which is an elaboration of the diagram of the practical argument construction process seen earlier.

8. The Research Writing Diagram

The Research Writing Diagram

Preliminary Thesis Statement

Background

Problem

Question

Hypothesis
(Thesis Statement)

Method

Method

Premise of Proof

Counter argument

Premise of Defense

Conclusion
(Thesis Statement)

Disscussion

Limitation

Future

8.1 Preliminary thesis statement (objective)

First and foremost, you need to begin your dissertation by thinking about a research objective, or what your dissertation aims to accomplish. At this stage, the research objective may be an intuitive and preliminary idea. But it should reflect what your dissertation basically aims to argue for; i.e., the central claim or thesis statement of the argumentative paper. To ensure adequacy, the objective must exhibit a clear focus on your research, likely entailing a specific subject of inquiry and its relationship to a particular object. Furthermore, it is important to make the objective realistic by setting a modest boundary for your research. What lies within the boundary is the concern of your current research endeavor, and what lies outside is not. As we shall see, the essential elements of a research objective resemble those of a preliminary thesis statement.

8.2 Background

The research background is closely linked to the research objective. It explains the rationale behind your research endeavor. Specifically, it delineates the historical context that has led to the formulation of your present research objective. Besides demonstrating your mastery of the background knowledge within your research field, the primary purpose of including the research background in a dissertation is to lay the groundwork for the development of your research originality. A crucial aspect of developing research originality involves showcasing how your research differs significantly from previous studies within the same field. To accomplish this, it is essential to begin by outlining the background that has informed your current research, identifying those previous studies that were conducted prior to yours.

8.3 Problem

The "problem" in this context refers to the shortcomings, deficiencies, or limitations identified in previous work that directly influenced your own research. This problem may not be publicly acknowledged and could be based solely on your own suspicion or conjecture. Articulating the problem that your research seeks to address constitutes the second and most crucial aspect of introducing the background of your research. Merely presenting previous studies in your research background is insufficient; they must be contextualized within the framework of a problem. Understanding the achievements of previous research in the field is important, but it is equally essential to explain how these studies can be further refined or advanced. If previous research were flawless, there would be little justification for conducting new research. Thus, the problem identified in previous research serves as the rationale for your own research. It acts as the link that connects previous research to your own.

8.4 Question

As the research problem serves as a bridge connecting previous research to your own, it must be directly relevant to the topic you intend to investigate. Essentially, it should form the foundation for formulating a central research question for your study. Ideally, during the analysis of the problem, you should already have a research question pertaining to the identified problem. Asking

the right question is indispensable for conducting effective and meaningful research. Research inherently involves inquiry, aiming to uncover new discoveries by seeking specific information that addresses a particular question. The type of information obtained ultimately depends on the question being posed. For example, the question of "why" you are writing a dissertation differs significantly from the question of "how" you are writing it, as they lead to different directions of inquiry. While the former addresses the rationale behind writing the paper, the latter pertains to the methodology employed in its execution.

8.5 Hypothesis or claim (thesis statement)

Arguably, the term "hypothesis" is predominantly utilized in empirical sciences. For humanities and other disciplines that do not rely on empirical methods to conduct research, they may prefer to use a different term, such as "claim" or "main point". However, whether termed as a "hypothesis" or a "claim," the concept represents a hypothetical answer to a research question. It should embody the originality of your research and serve as the foundation for constructing the main argument of the research. This is the most crucial part of a dissertation, and where logical thinking skills are mostly needed. Every satisfactory dissertation should feature an original claim. During the initial stages of the writing process, a claim functions as a preliminary research hypothesis awaiting confirmation. Subsequently, the writing process entails establishing logical support for the claim. In the final stages of writing, once all premises supporting the claim are adequately established and the claim is confirmed, it transforms into the research conclusion of the dissertation.

8.6 Premise of Proof

While an original research claim forms the core of a dissertation, its effectiveness hinges on its convincingness. For instance, asserting that a day will extend to 36 hours in a billion years may seem intriguing, but without credible evidence to substantiate it, the claim holds little weight. Thus, substantiating a claim with evidence is just as crucial as formulating the claim itself. Evidence, comprising data collected from experiments, interviews, questionnaires, literature reviews, or other research methods, constitutes the backbone of proof. A premise of proof is simply a premise that presents this evidence. To convincingly support a claim, there must be an inferential relation linking the premise of proof to the claim; in other words, the premise of proof should logically infer the claim.

8.7 Counterargument

In scientific research, no hypothesis can be definitively proven to be 100% true. Regardless of the credibility of supporting evidence, absolute conclusions cannot be drawn. There always remains the possibility for a claim to be false. Such a possibility represents the counterargument to a claim. Thus, merely providing evidence for a claim is insufficient; it is also necessary to anticipate the possibility for the claim to be false. As will be elaborated later, a counterargument manifests as a form of disagreement. However, it's essential to recognize that not all disagreements constitute counterarguments. Understanding what constitutes the counterargument to a claim fundamentally

relies on the same logical principles as understanding what constitutes proof for the claim. They both stem from the same logical basis.

8.8 Premise of Defense

Given the inherent possibility for a research claim to be false, understanding how to defend a claim against its counterargument is just as crucial as acquiring evidence to substantiate it. Indeed, the ability to construct a premise of defense may prove more valuable in building a logical argument, as locating definitive evidence for a claim can be challenging. Compared to constructing a premise of proof, constructing a premise of defense demands a higher level of logical thinking skills. It necessitates the ability to anticipate a counterargument and subsequently counter it. The support for a claim is comprehensive when both the premise of proof and the premise of defense for the claim are adeptly constructed.

8.9 Conclusion

Once both the premise of proof and the premise of defense are meticulously constructed, the research claim being supported can be transformed into the conclusion of an argument, marking the completion of the argument construction process. Note that the conclusion may differ from the original hypothesis, although it is also possible for them to align.

8.10   Other components

Once you have completed the process of proving and defending your research claim, you enter the stage of finalizing your dissertation. Depending on the requirements of your academic discipline, this stage may entail providing a Discussion section to accompany the final conclusion of your research, based on the results collected and assembled for the premise of proof and premise of defense. For instance, if the conclusion significantly deviates from the original hypothesis, it would be necessary to explain this difference and delineate how the transition was made from the hypothesis to the conclusion. The discussion may also address any limitations inherent in your present research. Every research endeavor operates within a finite period of time, and consequently, limitations are inevitable in some form or another. By specifying the limitations of your present research, you lay the groundwork for future steps and avenues of inquiry.

To facilitate the thinking skills training, special recipes and templates are provided in my book. The recipes provide step-by-step and systematic guidance on how to build a thesis statement, establish the research background, identify the research problem, and formulate a research question. The templates provide a coherent framework for connecting different thought components together. The integration of both templates and recipes provides research writers with a systematic and coherent framework for thinking with clarity and convincingness. For more details, please contact me to get a copy of my book.

Reference

Lai W. L. (2024) *Begin with one simple sentence: The argument construction guide.* In press.