

ENGINEERING PERSUASION: TEACHING RHETORICAL SAVVY FOR ENGINEERING LEADERSHIP

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Abstract – This paper presents the concept of rhetorical savvy as being a valuable ability for engineering students to acquire. Rhetorical savvy is defined in terms of the broader concepts of rhetoric, including two key ideas of “*techné*” and exigence, to create an understanding of the complex nature of developing rhetorical knowledge.

These concepts are used to present an analysis of a course that directly teaches the students to develop their rhetorical savvy by developing 1) a foundational understanding of their worldview, 2) an analytical understanding of rhetorical approaches, and 3) a generative understanding of using rhetoric to create responses to rhetorical situations.

The concepts are connected to leadership by suggesting the inherently rhetorical nature of leadership, making rhetorical savvy an obvious asset.

Keywords: Aristotle, genre knowledge, leadership, rhetoric, worldview.

1. INTRODUCTION

The anonymous classical rhetorical text, *Rhetorica ad Herennium* (written around 80 BCE), advises that the goal of an introduction is to make an audience “attentive, receptive, and well-disposed” [1]. Of course, starting a paper for an engineering audience with a Latin text, and telling readers what it demands of them, already risks losing at least one of those three. However, my motivation for exposing these things is precisely because an engineer (or anyone addressing an audience) gains power through knowledge. In fact, every speaker or writer has the responsibility to put the audience into the correct frame of mind to receive information whether that information is the newest app or the most ancient rhetoric. Learning the strategies by which that frame of mind can be achieved allows the speaker to fulfill their responsibility effectively and efficiently. Yet, doing so is more complicated than it may initially seem. Implementing any rhetorical approach requires more than simply understanding a few “must-do’s”; it requires savvy, rhetorical savvy. In this paper, I will define this

concept, explain its value for engineering and some of how it may be acquired, and look at how it contributes to the leadership skills of an engineer.

2. DEFINING RHETORICAL SAVVY

As a starting point in this paper, two terms require definition: rhetoric and savvy. These definitions form a large part of the discussion because when we understand these concepts in their richness, their relevance to engineering and leadership will become apparent.

So, what is “rhetoric”? Notice, that a question has just been posed, a rhetorical question. That is, a question for which no answer was expected – indeed, it is my job to provide the answer – but which was asked for its effect. That is the first definition of rhetoric: language used for effect. And what effect is anticipated by the question? Well, precisely an anticipation of an answer, and with repeated use of questions, probably frustration and annoyance at such an obvious tactic. Any rhetorical move needs to be used in moderation. Aristotle, the brilliant polymath who lived in the Third Century BCE, defined rhetoric as “the ability to see and apply the appropriate means to persuade an audience of an idea in a given situation” [2]. This definition has three important implications:

1. Persuasion is an ability that can be learned; it is not a gift held by certain lucky individuals. It has definable competencies that, with practice and training, can be mastered.
2. Persuasion depends upon an understanding of the audience. Part of the mastery is reading audiences and identifying their biases, propensities, and vulnerabilities to particular ideas.
3. An audience’s ‘persuadability’ changes depending on situations. An audience at a political rally will be persuaded differently than an audience at an academic conference; indeed, one or other of those audience’s may not be persuadable at all. That is, not every situation is a situation for persuasion – not every situation is rhetorical.

Lloyd Bitzer, in his seminal essay “The Rhetorical Situation,” defines a situation as being rhetorical if it demands or invites communication in some way. The

term Bitzer uses for that demand is “exigence” – “an imperfection marked by urgency; it is a defect, an obstacle, something waiting to be done, a thing which is other than it should be” [3, p. 6]. An engineer (or politician, or parent, or playwright) need not speak up unless there is some defect that can be addressed by speaking. Those are the constraints on the rhetorical situation. To speak when there is nothing to speak of is to waste one’s breath; likewise, to speak when words can have no effect. Yet our engineering students’ problem is far more often missing the exigence that exists than speaking when nothing is to be said. The effective speaker is the one who speaks the right thing in the right moment

If our students understand not only the situations open to persuasion but also have the abilities to persuade, and the abilities to tune that persuasion to a particular audience, then they will have the potential to represent ideas in ways that will persuade. However, that confluence of understanding and abilities is not simple; it requires savvy.

So, to the second term for definition. “Savvy” has a dictionary definition something like shrewdness and knowledge in the realities of life, but more importantly, it carries the connotations of confidence and agility. Someone with savvy can negotiate difficult situations, balance disparate interests, and instill confidence in an idea, a process, or a person. Interestingly, in philosophical and rhetorical discussions of savvy, the technical term is *techné*, from the Greek word for craft or artisanship, but also of course the root of technology – the etymology of which means the study of the craft. But the Greek *techné* had two distinct meanings. The first meaning is simply craft or the “process of producing things,” but the second is equally important: “the capacity of knowledge of contingency – practical knowledge – that allows and accounts for that production” [4, p. 91]. So, *techné* involves not only the practical ability to do but the knowing capacity to conceptualize. If we think about an engineering education, we can see both of these at work: our students need to have the *techné* 1, an ability to do physics or chemistry, but more than that they need to have *techné* 2, the capacity to conceptualize whether a computer program will compile, whether a circuit will function, or whether a solid model accurately represents the process or structure it is intended to show. Thus, savvy can be understood as a kind of higher-order knowledge required for expertise.

Anne Beaufort has constructed a model with five overlapping domains of knowledge required for writing expertise: subject matter knowledge, genre knowledge, discourse community knowledge, writing process knowledge and rhetorical knowledge [5]. In Beaufort’s original conceptualization, she privileges discourse community knowledge, but I have reframed her model to suggest the priority of rhetorical knowledge in shaping and controlling the other four (see Figure 1) because the

ability to manage or navigate between different knowledge groups and put to use one’s subject matter expertise requires a rhetorical knowledge of audience and exigence.

Each of these five domains requires some definition. Subject matter knowledge is the most straightforward: it entails not only the existing knowledge in a particular field, but also the acceptable types of “critical thinking necessary for the creation of ‘new’ or ‘transformed’ knowledge” [5] in the field. So, it includes not only what we know in a field, but also what questions we can ask and what kinds of answers fall within the acceptable. The questions that drive Engineering differ profoundly from the questions that drive, say, History, but also from the questions of Chemistry or Physics. Whereas the last two ask questions of what happens and why, engineering asks the questions, “how can we use this?” and “what will solve this problem?”

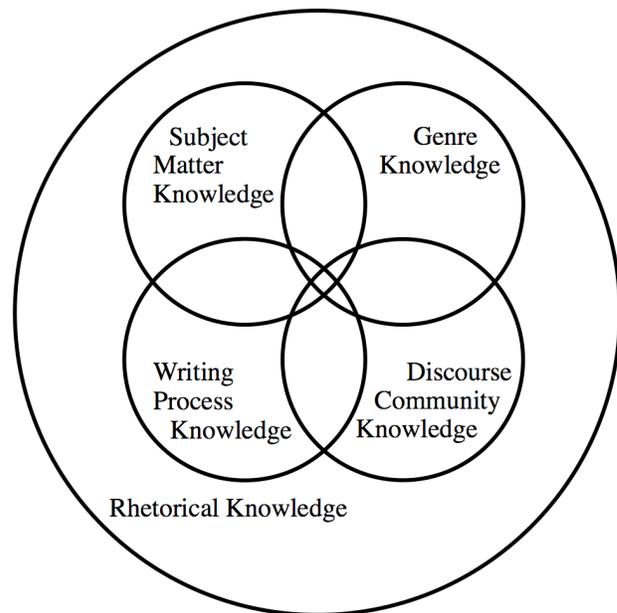


Fig. 1: The knowledge domains of writing expertise adapted from [5]

Genre refers not only to the types of documents written but to the ways in which knowledge is defined and stabilized [5]. Science uses laboratory reports because analysis of results is fundamental to how knowledge is constructed in the sciences. Engineering, as *applied* science, uses a wider and more flexible array of structures to stabilize knowledge from the specification drawing to field notes, and the relative importance will vary depending on the field of engineering.

Discourse communities are groups engaged in shared practices or behaviours that cultivate their own ways of communicating in terms of written texts, visual representations, and oral practices. So, for example, an app designer might communicate her most significant

ideas through code comments or demonstrating an informal paper prototype, whereas a chemical engineer might document his work with a process diagram and a report. Different discourse communities will value different channels of communication. The interplay between these channels and the understanding of when and how to use each get used to construct specific discourse community knowledge [5], which needs to be adapted as one moves into other communities.

Writing process knowledge involves the conceptualization and strategies of how to structure writing from outlining to editing, and including revising for an audience or understanding the value and use of research to support an idea.

Finally, rhetorical knowledge is the ability to address the particular rhetorical situation including audience, purpose, and best approach all while considering the broader context of timing, relationships, etc. [5]. So, this sphere most closely represents what I have been calling “savvy.” While Beaufort places discourse community knowledge in the outer circle – signalling that understanding the group’s way of knowing has precedence [5, p. 19] – I have recast the concept with rhetorical knowledge in the overarching position because having rhetorical knowledge allows one to use “every available means” available in any discourse community or genre.

To summarize then, rhetorical savvy is an expertise (techné 2) over multiple knowledge domains that enables someone to understand the demands of the rhetorical situation and bring to bear the appropriate subject knowledge, genres, and processes to persuade an audience within a particular community. As an ability, it is essential to high-level success in any field.

To give our students the ability to do physics without also enabling them to apply physics flexibly to various systems would be to fail in our endeavour. Similarly, to ask our students to write a report or make a presentation without also enabling them to meet the exigence of a new rhetorical situation is to disable our students in an equally important aspect of their intellectual development.

3. DEVELOPING RHETORICAL SAVVY

So the next question that emerges – and this question is real not rhetorical – is how we can best develop rhetorical savvy in our students. Some students clearly come to us with such savvy: they have learned to navigate difficult and disparate social situations to create particular and substantial rhetorical effects. But the majority of students are timid and limited. They need a means of developing rhetorical abilities. In 2008, the Engineering Communication Program at the University of Toronto started to address this need by offering a series of complementary studies elective courses aimed not only to strengthen students’ communication abilities, but also to

broaden their understanding of what “communication” is – to enhance their rhetorical education.

One course, called Language and Power, takes on the rhetorical education head on. In that course, students read Aristotle and the *Rhetorica* as well as Lloyd Bitzer and others, but the reading is not the end but the means: the end is to enable students to develop at least the beginnings of rhetorical savvy. The approach is one that could be extended to other courses or adapted into more technical courses that have a communication component, admittedly with some work. The approach is threefold – rhetoric often works in threes:

1. Establishing a foundation: Students gain a rhetorical foundation through an examination of their worldview. Worldview is a concept from philosophy, psychology, and theology to explain the fundamental position of the individual in the world as shaped by the variable matrix of family, education, religion, ethnicity, politics, as well as personal experience.
2. Acquiring the tools: Students learn the foundational tools of rhetorical analysis, tools like the one this paper began with about the goal of an introduction, but also pertaining to patterns of logical reasoning and inference, the makings of a credible and trustworthy persona, and figures of diction, thought, and style.
3. Generating new ideas: Students put the rhetorical approaches to work, not only to analyze but to generate their own unique persuasive arguments, first about general, everyday topics, but moving toward the more specialized kinds of persuasion that comprise engineering and professional discourse.

These three stages are relatively commonplace in education – foundation, structured analysis, and original creation – but what makes this context a little unusual is that the main project under development is the students’ selves.

3.1 Exploring Worldview

Perhaps the most unfamiliar terrain for the students (and faculty) is the examination of worldview. This aspect of the course asks students to think very personally – again something uncommon in an engineering education – because it is only as one understands one’s position in the world that one can begin to gain one’s own exigence (that urgency or drive to engage).

Theologian N.T. Wright explains worldview as “the basic stuff of human existence, the lens through which the world is seen, the blueprint for how one should live, and above all the sense of identity and place which enables human beings to be what they are” [6, p. 124]. We cannot escape as we have no existence apart from our worldview. It is the subjective foundation that allows us objectivity; it is the objective basis of our being which enables our individual and collective subjectivity. Yet, for most of us, its basis and origins lie entirely unexamined.

Since, as Socrates said, “The unexamined life is not worth living,” I ask students to examine. My students write papers that analyze the origins of their worldview addressing three questions:

1. Where do I come from – what are the experiences, factors, influences that make me who I am?
2. How do I see the world as a result of those influences (or in resistance to them)?
3. How does my worldview impact my interaction with the world?

Such questions are necessarily personal, so I provide students with a set of safety valves to write about what they can permit someone to read, but I receive papers that are profoundly personal. I have had more than one student over the years tell me that the little four-page worldview paper is the most important document they have ever written. And these papers do their work: the students discover in themselves the basis for their exigence in multiple rhetorical situations. They find through self-examination why they regard particular circumstances or events as “defects” or “obstacles” that need to be addressed.

Having students who can critically assess their worldview and understand the power it can give them in a rhetorical situation creates the first step in students gaining rhetorical savvy. Do all of my students really reach this objective? Certainly not. To some degree all increase in self-awareness but because self-examination requires maturity some students will merely skim the surface of themselves, thereby enabling only the most simplistic of rhetorical positions. However, a surprising number do take the step and begin to develop their ability to respond to a rhetorical situation.

3.2 Building a Rhetorical Toolbox

While a short paper such as this one is insufficient to develop the patterns of reasoning, the development of individual credibility, or the kinds of figures of style that students learn in a course on rhetoric, the point of the toolbox metaphor is that students gain a range of skills. Each one builds the students’ understanding of the range of possibilities – increasing their “available means of persuasion” in a given situation such that by the end of the course, the students are able to identify the means by which others are persuading them and develop their abilities to construct arguments and persuasive cases of their own. After the most recent iteration of the course, one graduating student commented:

I feel with most courses, within the first month you sort of know how good you are at the subject and the rest is gaining new knowledge to maintain some mark. But here, I actually felt like I was making progress at a skill, and by the end I didn't only 'know more' about the subject but had consciously gotten 'better' at something

(rhetorical analysis). It was an empowering feeling as a student.

3.3 Generating Persuasive Rhetoric

To help the students develop both skill and confidence in creating persuasive arguments, students get many little opportunities to generate low-stakes arguments on topics that they or I propose, and fewer higher stakes opportunities to develop rhetorical arguments that respond to situations. In the low-stakes exercises, students are challenged to exercise a single means of persuasion – whether that is an elaborate figure of diction or a targeted approach to logical reasoning. As they do so, I provide the students with ongoing guidance to help them develop their own professional persona that can be trusted because of careful and consistent reasoning.

The students’ final project is to create their own piece of persuasion: the students often grab the opportunity to exercise their creativity, creating comics and spoken word poems, conducting interviews and writing letters to MPs, the Dean, the university president, or newspapers. One student even developed a leadership course for his part-time workplace. Whatever the students generate, I require them to demonstrate their awareness of what they are doing – from the overarching structures to the detailed figures of diction. As such, they begin to make use of language for power.

4. RHETORICAL SAVVY AS LEADERSHIP CAPACITY

The title of this paper purported to connect rhetorical savvy to leadership. This requires yet one more definition: “leadership,” according to management writer, Kevin Kruse, “is a process of social influence, which maximizes the efforts of others, towards the achievement of a goal” [7]. If we accept leadership as exercising “social influence” toward a goal, it is inherently rhetorical, and relies upon the handling of the rhetorical situation. So, those with greater rhetorical savvy – those who are able to put to use the five domains of knowledge while capitalizing on the exigence of a situation – will, invariably, be those who exhibit the greatest leadership capacity.

Encouraging students to develop their self-understanding creates a primary opportunity for them to gain the foundation for leadership. Further, by guiding students to develop the techné – the savvy ability to navigate rhetorical situations with agility – we can help them gain the confidence that undergirds exercising social influence. Finally, by providing students with a means to understand the exigencies that drive them, we can help students find their voice to achieve significant goals with others.

5. CONCLUSION

So, as educators who want our students to be leaders not simply the led, we need to take the whole student including their deeply subjective worldview to invite and coax them to develop a foundation from which they can respond to the world, to provide them with a range of rhetorical approaches by which they can develop agility in that response, and encourage them to make forays into rhetorical situations where the students can exercise their exigence, and perhaps even make a difference.

In technical or design courses, the opportunities to promote rhetorical savvy will be different, and less explicit; however, they are no less important, no less real. In the cornerstone design course I teach, our students are coached in their identity as novice designers (shaping their worldview), given instruction in specific genres and modes of communication from prototype demos to design reports (building their toolbox), and offered opportunities to work on projects that matter to the students and give them exigence to defend their design publicly and independently.

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