

Special Session - A War of Words: Using Sticky Language to Effect Change in Engineering Education

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Abstract – Reform in engineering education requires not only identifying what needs to change, but also understanding implicit barriers to change and the tools that can help overcome them. Language is an excellent example of such a barrier, and of such a tool. For example, engineering educators sometimes refer to “the basics” (math, science, and engineering science) thereby assigning those topics a privileged position in the engineering canon; the same educators will sometimes use the term “soft” to deflate certain qualitative critical thinking, creative, and communications skills, thereby assigning them lower status—and less air time—in the education of student engineers. These examples demonstrate the ability of language to obstruct change, and also suggest that the careful choice of memorable or “sticky” locutions can provide reformers with a powerful means of reframing the debate. In this special session we examine the use of language in the resistance to and promotion of change, and identify promising locutions that can help transform engineering education.

Index Terms – sticky language, locution, educational reform, the basics, the missing basics, soft skills

INTRODUCTION

The status quo in engineering education is impressively resistant to change. About once a decade, the engineering community issues a call for reform in engineering education – but the calls for change from 1970 sound eerily similar to those we hear today [1-3]. Indeed, the dominant paradigm in engineering education has been in place since the publication of the Grinter report in 1955 [4].

While there are many causes for the slow speed of transformation in engineering education, one important aspect of the status quo’s resistance to change is the *language* used by engineering educators. For example, engineering educators frequently describe mathematics and physics as “the basics” or “the fundamentals”. By referring to mathematics and physics in this way, the speaker implicitly describes where they should appear within a curriculum (i.e., “fundamentals” must come early), and claims that these topics cannot to be questioned: who would argue that we should cut out “the basics”? At the same time, we describe teamwork and communication as “soft skills” – a locution that implies both that these skills are less difficult

to master than “hard skills”, and also that they are of less value. Indeed, we should not be surprised that the “soft skills” are often afterthoughts in many courses, when we describe them so.

We propose that, although education reformers have put a great deal of thought into how we should change curricula, relatively little thought has been explicitly given to the language we use in talking about reform. Yet, we contend that the power of language is as important in the reform of engineering education as it is in politics, commerce, and religion. In this special session, we hope to engage participants in thinking about the locutions we use as a community, to identify areas in which there are opportunities for changing our use of language in engineering education, and finally to find new ways to talk about reform in engineering education that exploit known results from marketing and psychology.

GOALS OF THE SESSION

This session has three goals for participants:

First, by the end of the session, participants should be more aware of the importance of language in the pursuit of change. Participants will be able to identify examples of locution that are commonly used in discussions of engineering education reform, as well as the values and assumptions associated with those locutions.

Second, participants will be able to discuss the key aspects of the Heath’s “sticky language” framework [5], and apply this framework to existing locutions.

Finally, participants will develop new locutions that can be brought to bear in leading change in engineering education.

SESSION CONTENT

The session content naturally divides into three sections, corresponding to the three goals.

I. Today’s Locutions: Challenges and Opportunities

Initially we will identify, deconstruct, and reflect upon the locutions that are commonly, and often unconsciously, employed in discussions of engineering education. Through this discussion, participants will become more conscious of their own choice of language, and of the way that language is sometimes used to short circuit arguments about reform.

Particular emphasis will be placed on understanding what the assumptions and values are that underlie given word choices. We will also identify “opportunity areas” for new locutions: for example, is there a better way to talk about “soft skills”? The use of the sticky locution, “the missing basics” [6] will be offered as one example and others will be considered, primarily in small group exercises.

II. Making Language Stick

Having examined the language that is commonly used in engineering education, we will discuss the Heath brother’s “sticky language” framework. *Made to Stick* suggests that locutions are sticky when they are (1) simple, (2) unexpected, (3) concrete, (4) credible, (5) emotional, and (6) a story. During this segment the presenters will outline this framework, and present a practical approach to designing sticky locutions using it.

III. Tomorrow’s Locutions

Finally, we will collectively generate and share new “sticky” locutions that might be applied to the challenge of reform in engineering education. Using ideation techniques, small groups will create one or more “sticky” locutions that address the areas of opportunity they identified. The session will conclude with pitches for new “sticky language” from each group, and a brief wrap-up.

SESSION AGENDA

- **Introduction** (10 minutes): Brief overview of agenda for the session and working methods.
- **Deconstruct existing locutions** (15 minutes): Small group exercise; teams of 4-8 will examine examples provided by the facilitators and potentially generate additional examples.
- **Identify areas of opportunity** (10 minutes): Small group exercise; teams analyze the examples from previous exercise to identify categories for creating new language.
- **The Sticky Language Framework** (15 minutes): Presentation and large group discussion.
- **Idea generation and selection** (30 minutes): Small group exercise; teams generate ideas for new locutions within identified categories.
- **Report Out, Wrap Up** (10 minutes)

ANTICIPATED AUDIENCE

This session is appropriate for engineering educators (faculty and administrators) who are interested in effecting change, both within their own institutions and more broadly.

SESSION OUTCOMES

By the end of the session, we hope that participants will be able to deconstruct language that is used to defend the *status quo* in engineering education; will have invented some new ways to talk about engineering education with their

colleagues; and will be able to articulate why these word choices are effective. We also hope to identify collaborators who are interested in working further on constructing effective messages for change in engineering education.

REFERENCES

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REQUIRED EQUIPMENT AND MATERIALS

This session does not require any special equipment besides seating in small groups (4-8), and a standard projector. It would be helpful if the conference organizers provided post-it flip charts and flip chart markers. The facilitators will provide a laptop, appropriate handouts, small post-its, paper, and Sharpie markers for small group work.