Characteristics of an effective undergraduate research talk, presented to an audience of undergraduates

The characteristics are divided into three categories:

Basic expectations: The math is correct and the audience can perceive what is being presented--visuals are visible and speech is audible.

Characteristics of a good talk: The presentation is clear. If the target audience pays attention, they will learn from what is being presented.

Characteristics of an excellent talk: The presentation is engaging. Paying attention is easy because the content is presented in an interesting and engaging way.

More specific characteristics in each category are below. These categories build upon each other: a good talk should meet basic expectations, and an excellent talk should also be a good talk. The line between a good talk and an excellent talk is a little fuzzy, but may be clear enough to communicate expectations.

Basic expectations: The math is correct and the audience can perceive what is being presented--visuals are visible and speech is audible. Handwriting is legible and sufficiently large, including subscripts, etc. The speaker does not block what is written on the board, either by standing in the way or by blocking boards with other boards. Speech is sufficiently loud at all times—for example, the speaker does not become too quiet at the ends of sentences, and the speaker faces the audience when saying important points. If the speaker's speech may be difficult for the audience to understand (due to stutter, accent, etc), strategies are used to ensure that the audience has other means for obtaining important content (e.g., more writing on the board, a handout, etc.) The speaker has no habits that are so distracting that they prevent audience attention to the content. The talk ends on time—if there isn't enough time to present all of the material, appropriate choices are made about which material to omit. Although there may be occasional minor content mistakes, these are corrected when attention is brought to them.

Characteristics of a good talk: If the target audience pays attention, they will learn from what is being presented. The presenter anticipates what the audience will need in order to understand the material. For example, the presenter is aware of the knowledge-level of the target audience and provides any reminders or new information the audience needs to understand the presented content. The presenter provides context for details: for example, the presenter clearly states the focus of the talk and the purpose and relevance of chunks of detail within the talk. The talk is robust: if an audience member misses an important point or stops paying attention to think and then starts paying attention again a minute or two later, it is possible to figure out what's going on (e.g., important points are written on the board, repetition is used strategically, and reminders are given as needed). The presenter gives the audience time to absorb difficult concepts (e.g., by providing an example or a conceptual explanation to reinforce the concept). The presenter monitors audience understanding (for example by asking for questions), and adjusts the presentation as needed. No habits or awkwardness of visuals or delivery detract from audience understanding of the content. Content mistakes are rare, minor, and quickly fixed. In other words, the presentation communicates clearly.

Characteristics of an excellent talk: Paying attention is easy because the content is presented in an interesting and engaging way. The presenter uses "showmanship" to elicit interest, excitement, mystery, curiosity, etc., for example by posing well-chosen questions and commenting about what's interesting or surprising about the content. The presenter carefully chooses the focus of the talk based on an understanding of what the audience will find interesting and then uses that focus to decide which content to include and which non-essential content to omit. The presenter places emphasis on the most important points while de-emphasizing subsidiary details, for example by using examples to efficiently communicate basic concepts while reserving formal treatments for the subtler points that need such treatment; by carefully presenting the interesting aspects of a proof while summarizing or omitting less-interesting details, and by using voice, body language, eye contact, and board work to indicate the relative importance of presented information. No habits or awkwardness of visuals or delivery detract from audience enjoyment of the presentation. The presenter monitors audience interest (for example by watching facial expressions), and adjusts the presentation as needed. Rather than merely presenting content, the presenter guides the audience to discovery. In other words, the presentation is engaging.

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