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# On the Role of Feedback in Project-based Learning and Performance Assessment Settings: Using Tools, Technologies, and Routines to Advance Student Work

Research Seminar Series
University of Sydney, Australia

**Brent Duckor, Ph.D.**
**Carrie Holmberg, Ed.D.**

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# Four guiding questions/challenges for today's talk

1. How to decide on a feedback framework that aligns with learning goals one wishes to achieve or advance in a secondary school classroom context?

1. How to identity performance tasks that are authentically embedded in a curriculum AND are amenable to cycles of feedback with a unit of instruction?

1. How to observe mechanisms (e.g., procedures, tools, language) that invite augmentation of student "drafts" across a period of time?

1. How to evaluate the qualities of general and specify augmentations that have traceable effects on performance of student drafts leading to "final work product" (exhibition, portfolio, etc.)?

How to decide on a feedback framework that aligns with learning goals one wishes to achieve or advance in a secondary school classroom context?

# Tackling the first question:
# Finding a feedback framework

So if we want to develop a practitioner-focused research agenda, one that approximates how to better use and evaluate feedback implementation in secondary schools, we will have to look for frameworks that are:

- ❏ User-friendly
- ❏ Closely aligned with the school culture and ways of teaching and assessing
- ❏ Easily embedded in a curriculum and similar to how stakeholders define learning goals and progress

# Recent review of feedback frameworks

**Table 2**
Models thematic areas.

| Models | Descriptive | Internal processing | Interactional | Pedagogical | Student Characteristics |
|---|---|---|---|---|---|
| Ramaprasad, 1983 | ■ | | | | |
| Kulhavy & Stock, 1989 | ▫ | ■ | | | |
| Sadler, 1989 | ▫ | | | ■ | |
| Bangert-Drowns et al., 1991 | ■ | ■ | | | |
| Butler & Winne, 1995 | ▫ | ■ | ▫ | | ■ |
| Kluger & DeNisi, 1996 | ▫ | ■ | | | ▫ |
| Tunstall & Gipps, 1996 | ■ | | | ▫ | |
| Mason & Bruning, 2001 | ■ | | | ■ | ▫ |
| Narciss, 2004-2008 | ■ | ■ | ■ | ▫ | ■ |
| Nicol & McFarlane-Dick, 2006 | | ▫ | | ■ | |
| Hattie & Timperley, 2007 | ■ | | | ■ | |
| Evans, 2013 | | | ▫ | ■ | ■ |
| Lipnevich et al., 2016 | ■ | ■ | ▫ | ▫ | ■ |
| Carless & Boud, 2018 | | ▫ | | ■ | |

Note: darker colors indicate more emphasis in that thematic area as concluded from the authors' content analysis.
Descriptive: area addressed by models including definitions, typologies or discussing relations and links among variables included in the model.
Internal processing: area addressed by models describing how students process feedback from a cognitive, emotional or motivation perspective.
Interactional: area addressed by models that describe how different sources or agents interact during the presentation and reception of feedback.
Pedagogical: area addressed by models that explore how to implement and present feedback so that it has a learning impact.
Student characteristics: area addressed by models that analyze how the individual characteristics of the learner affect the reception and processing of feedback.



Panadero & Lipnevich, 2023

# Hattie & Timperley (2007)

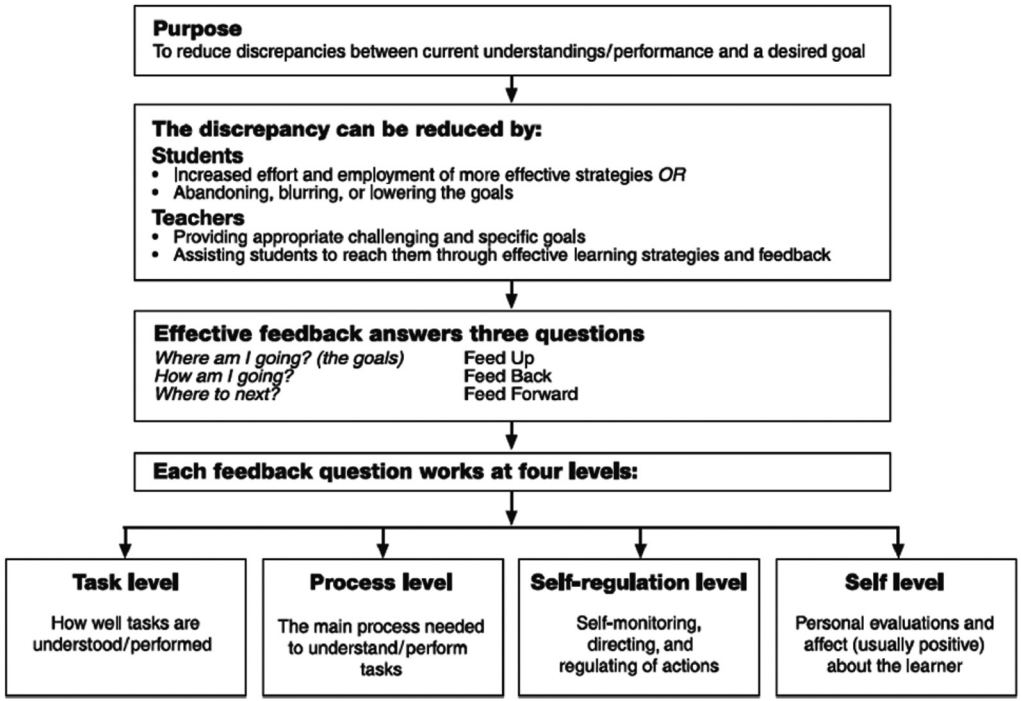
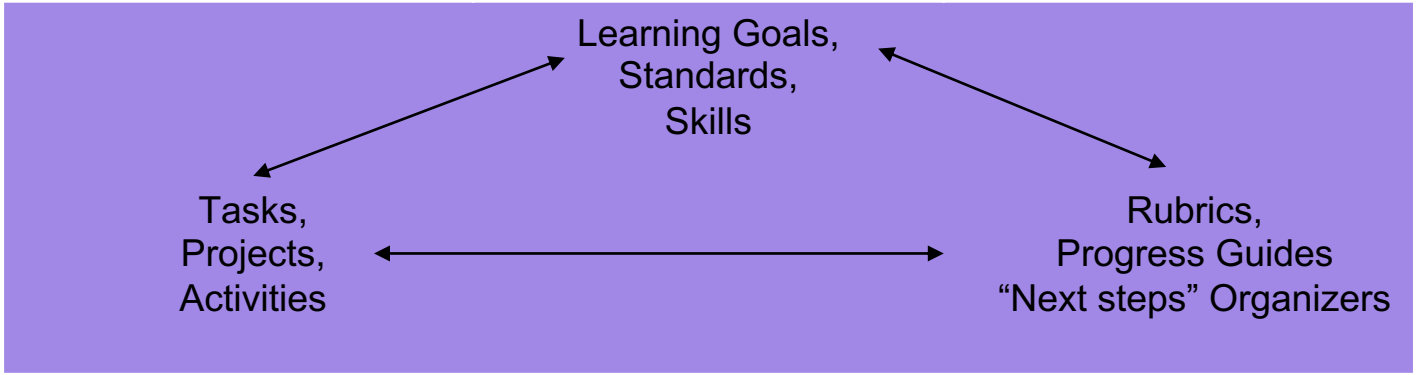



FIGURE 1. *A model of feedback to enhance learning.*

# Duckor & Holmberg (2023)

| Context for Learning | | |
|---|---|---|
| Face-to-Face | Blended | Distance Learning |
| **Focal Point** | | |
| Directionality | Configuration | Modality |
| **Lenses** | | |
| Teacher-driven | Whole class | Written |
| Peer-to-peer-driven | Small groups (2-4) | Spoken |
| Self-driven | Individual (1:1) | Nonverbal |

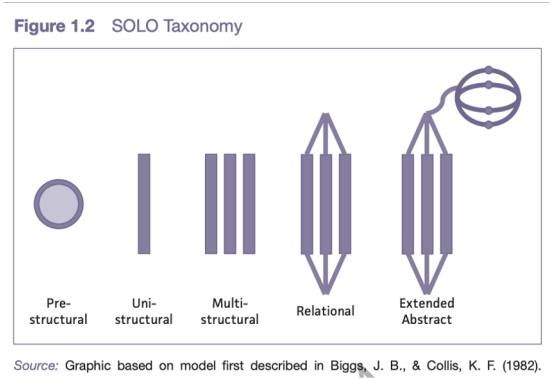


# The first question cont.: Finding a feedback framework that aligns with learning goals (LGs)

We have to understand what kinds of constructs we're dealing with, which should have some influence on what we will say counts as achievement or growth or progress. LGs will likely be:

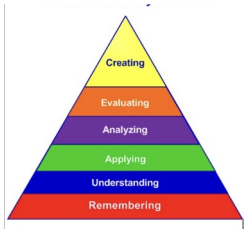
- ❏ Anchored in taxonomies, standards, habits of mind, etc.
- ❏ Closely aligned with the school culture and ways of teaching and assessing what counts as success criteria
- ❏ Easily embedded in a curriculum and similar to how stakeholders define learning goals and progress

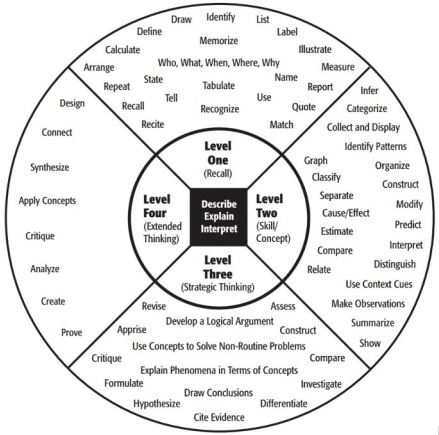
# Lots of choices?!





| | |
|---|---|
| **Evidence** | How do we know what we know? |
| **Perspective** | From whose point of view is this being presented? |
| **Connection** | How is this event connected to others? |
| **Supposition** | What if things were different? |
| **Relevance** | Why is this important? |



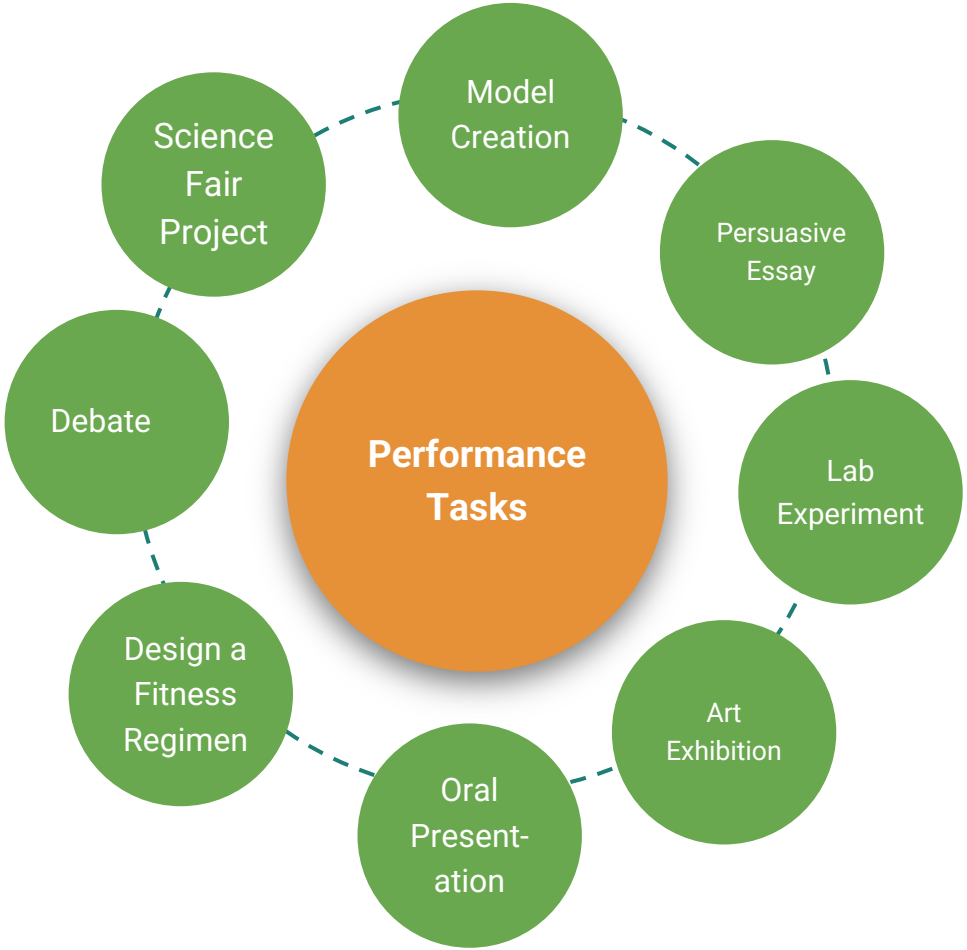
2. How to identity performance tasks that are authentically embedded in a curriculum AND  are amenable to cycles of feedback with a unit of instruction?

# Second question: Identify a rich set of performance tasks (PTs) aligned with learning goals (LGs) in feedback study

We want to gain control over the kinds of tasks that we will consider as amenable to feedback in authentic, embedded settings. In project-based learning contexts, we would consider most performance tasks as fitting within the appropriate field of study. These performance tasks will likely be:

- ❏ Found in different subject matter and grade levels
- ❏ Closely aligned with longer multi-week assignments
- ❏ Embedded in curriculum that emphasize multifaceted learning goals and processes for learning/drafting to completion

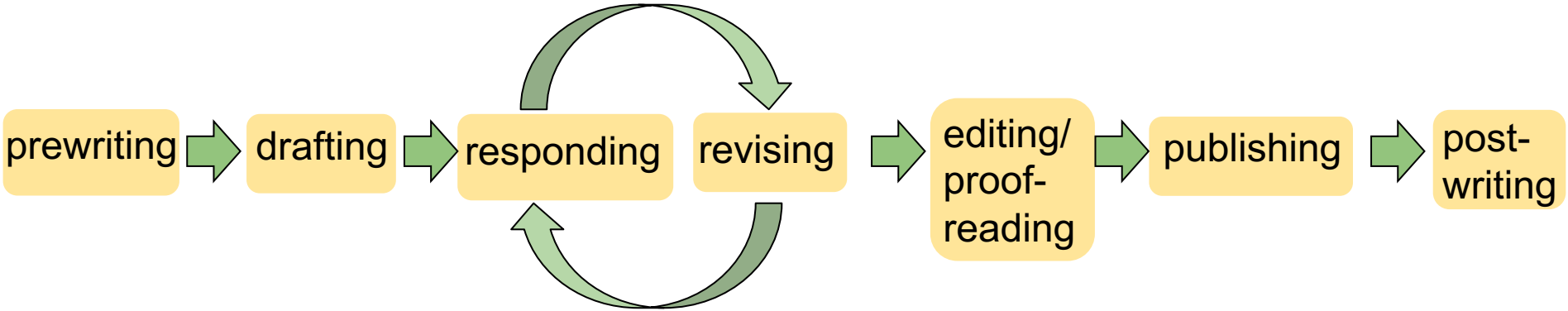
# Examples abound



# Lowery, Rodriguez, & Benfield (2019) note

A *performance task* is one that asks students to do or create something that shows evidence of what they have learned. This type of assessment gives students the opportunity to display their understanding outside of the traditional multiple choice test or essay. Rigorous performance tasks are those that call for the application of knowledge and skills, are open-ended, provide authentic contexts, and show evidence of understanding (McTighe 2015).

# Writing as a process which REQUIRES feedback




Adapted from Bay Area Writing Project

3. How to observe mechanisms (e.g., procedures, tools, language) that invite augmentation of student “drafts” across a period of time?

# Third question/challenge: Observe mechanisms that invite augmentation of student work “product”

This challenge is related to the first and second because it asks us to figure out what we mean by feedback that is *iterative, useful, and additive* to something like a final product.

Here the focus will be on **processes, mechanisms, tools, and procedures** that “add value” so to speak from the first to the final graded draft. These **tools** will likely be:

- ❏ Found in different subject matter and grade levels
- ❏ Likely aligned as evaluation criteria for assignments
- ❏ May emphasize specific learning targets/strands for improvement during cycle of learning

# Generic “rubric” example: Science lab

| | Needs Improvement | Emerging | Proficient | Advanced |
|---|---|---|---|---|
| **Hypothesis/RQs** | | | | |
| **Lab procedures** | | | | |
| **Evidence** | | | | |
| **Analysis/ Conclusion** | | | | |

# Scoring guide example: Issues, Evidence, and You

| Score | **Recognizing Relevant Content:** Response identifies and describes scientific information relevant to a particular problem or issue. | **Applying Relevant Content:** Response uses relevant scientific information in new situations, such as solving problems or resolving issues. |
|---|---|---|
| 4 | Accomplishes Level 3 AND extends beyond in some significant way. | Accomplishes Level 3<br>AND extends beyond in some significant way. |
| 3 | Accurately and completely identifies AND describes relevant scientific information. | Accurately and completely uses scientific information to solve problem or resolve issue. |
| 2 | Identifies and/or describes scientific information BUT has some omissions. | Shows an attempt to use scientific information BUT the explanation is incomplete; also may have minor errors. |
| 1 | Incorrectly identifies and/or describes scientific information. | Uses scientific information incorrectly and/or provides incorrect scientific information; OR provides correct scientific information BUT does not use it. |
| 0 | Missing, illegible, or is irrelevant or off topic. | Missing, illegible, or is irrelevant or off topic. |
| X | Student had no opportunity to respond. | |

# Finding a sweet spot: Making feedback formative

## From Rubrics

| | Needs Improvement | Emerging | Proficient | Advanced |
|---|---|---|---|---|
| Hypothesis/ RQs | | | | |
| Lab procedures | | | | |
| Evidence | | | | |
| Analysis/ Conclusion | | | | |

## Towards Progress Guides

| UNDERSTANDING AND WEIGHING EVIDENCE | |
|---|---|
| **My Current Draft Demonstrates** (Circle One) | **My Next Steps Are** |
| I can weigh evidence. | To improve my draft, I will…<br>1.<br>2. |
| I can add some evidence. | To improve my draft, I will…<br>1.<br>2. |
| I can take a position. | To improve my draft, I will…<br>1.<br>2. |
| I can restate the prompt. | To improve my draft, I will…<br>1.<br>2. |
| I'm not yet ready. | To improve my draft, I will…<br>1.<br>2. |

# Third question/challenge: Observe mechanisms that invite augmentation of student work “product” (cont.)

This challenge remains for us to figure out what we mean by feedback that is *iterative, useful, and additive* to something like a final product.

One can study the **processes** AND **tools** that lead to augmentations in student work product but each should be rooted in:

- ❏ evaluation criteria for assignments **based on broader learning goals**
- ❏ specific learning targets/strands for improvement **during cycle of learning**

# Processes perspective

Cowie & Bell (1999)

**An Overview of the Model of Formative Assessment**

In this section, the two forms of formative assessment are discussed together. These two forms, and the links between them, can be represented diagrammatically, as in Fig. 3.



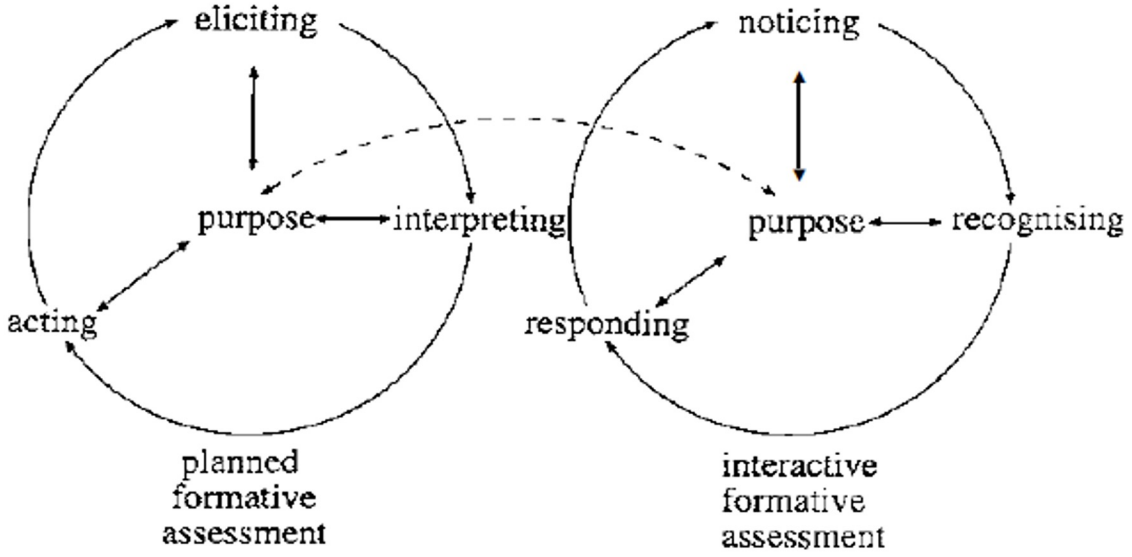



FIG. 3. A model of formative assessment.

4. How to evaluate the qualities of general and specify augmentations that have traceable effects on performance of student drafts leading to “final work product” (exhibition, portfolio, etc.)?

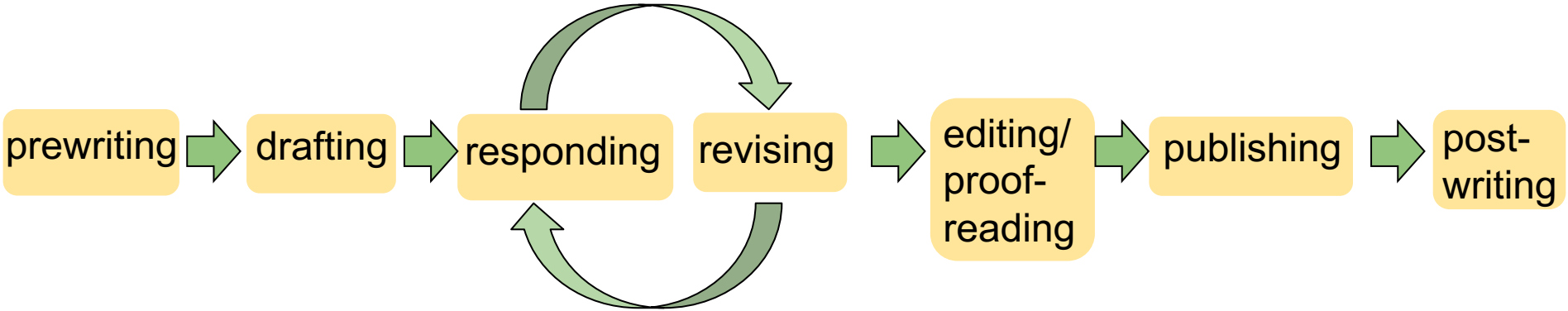
# Fourth question/challenge: Evaluate the qualities of the general and specific augmentations

Feedback that is *iterative, useful, and additive* will have traceable effects on performance (e.g., goals, criteria, proficiencies, progressions, scales)

The focus on augmentations that make a difference will be traceable, visible, and shared. These **augmentations** will likely be:

- ❑ Found in exchanges with different ***modalities of feedback*** (spoken, non verbal, and written)
- ❑ Tied to boundary objects/tools (scoring guides, rubrics, etc.) used in different ***configurations of feedback***
- ❑ May emphasize more than one ***directionality of feedback*** of work-in-progress (teacher, peer or student driven) specific learning targets/strands for improvement during cycle of learning

# Writing as a process which REQUIRES feedback and systematic augmentation across life of the task




Adapted from Bay Area Writing Project

# Rubric for persuasive writing: Where's the augmentation?

| | 4-Accomplished | 3-Proficient | 2-Developing | 1-Emerging |
|---|---|---|---|---|
| **Thesis** | Clearly and succinctly asserts a potentially defensible stance on an issue | Identifies an issue and angle on it | A personal opinion that is not clearly stated and may or may not be connected to an issue | Goal of essay is not understood; no assertion(s) made |
| **Organization** | Information is presented in a logical order and maintains the interest of the audience. | Information is presented in a logical order but does not always maintain the interest of the audience. | Most information is presented in a logical order. | There is no clear introduction, structure, or conclusion. |
| **Evidence** | Reasons stated with thorough support. | Reasons are stated, but the arguments are thin or weak in places. | If reasons are given, weak arguments results. | Arguments weak or missing. |
| **Conventions** | There are no errors in grammar, mechanics, and/or spelling. | There are few errors in grammar, mechanics, and/or spelling, but they do not interfere with understanding. | Errors in grammar, mechanics, and/or spelling interfere with reading fluency. | Errors in grammar, mechanics, and/or spelling interfere with understanding. |

# Scoring Guide: Where's the augmentation?

| Score | **Recognizing Relevant Content:** Response identifies and describes scientific information relevant to a particular problem or issue. | **Applying Relevant Content:** Response uses relevant scientific information in new situations, such as solving problems or resolving issues. |
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| 0 | Missing, illegible, or is irrelevant or off topic. | Missing, illegible, or is irrelevant or off topic. |
| X | Student had no opportunity to respond. | |

# Progress Guide for Students: Where's the augmentation?

| CAUSES OF THE DUST BOWL: UNDERSTANDING AND WEIGHING EVIDENCE | |
|---|---|
| **My Current Draft Demonstrates (Circle One)** | **My Next Steps Are** |
| I can weigh evidence. | To improve my draft, I will…<br>1.<br>2. |
| I can add some evidence. | To improve my draft, I will…<br>1.<br>2. |
| I can take a position. | To improve my draft, I will…<br>1.<br>2. |
| I can restate the prompt. | To improve my draft, I will…<br>1.<br>2. |
| I'm not yet ready. | To improve my draft, I will…<br>1.<br>2. |

# Future directions for feedback research

Let's situate our new "feedback for deeper learning" studies in locations where each of the four questions are addressable in part because we've chosen to focus these studies at school **sites that emphasize projects, performance tasks, etc.** embedded in "real world" activities

Let's disentangle the problems for research and researchers from the problems of practice and practitioners who need ***user friendly frameworks, adaptable tools, and visible procedures*** for carrying out the work of feedback on *well-defined performances-in-progress*

Then, let's start examining the role (if any) of multiple agents (students, teachers, machines) in **maximizing augmentation** on performances, which may or may not contribute to more effective outcomes aligned with specifiable learning goals.

Questions, reflections, and more challenges welcome!

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# Thank you

Contact us:

Brent.Duckor@sjsu.edu
Carrie.Holmberg@sjsu.edu