Enhancing Lifelong Learning Skills in Higher Education: A Cautionary Tale

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Enhancing Lifelong Learning Skills in SP1541

- **Strong emphasis on the intrinsic rather than the instrumental value of education;**
- **A shift in emphasis from learning substance to learning process, from teaching to learning, and from supply to demand in educational provisions;**
- **Nurtures a critical thinking disposition in learners**

(Aspin & Chapman, 2000; Kehm, 2001).

Redesigning Pedagogy (Before)

3. The language of a synthesis

There are a few language strategies to indicate the degree to which you are endorsing (agreeing with) or distancing yourself from the sources. Generally, you will use endorsing strategies for the sources that support your stance and distancing strategies for those which contradict your view (in a counter-argument paragraph):

1. Choose your reporting verbs carefully to express your stance and your evaluation of the source you are reporting
   … (Examples) …
2. Use adverbs and adjectives to intensify your stance
   … (Examples) …
3. Use 'limiters' (adjectives, adverbs or prepositional phrases) to lessen the impact of the source reported.
   … (Examples) …

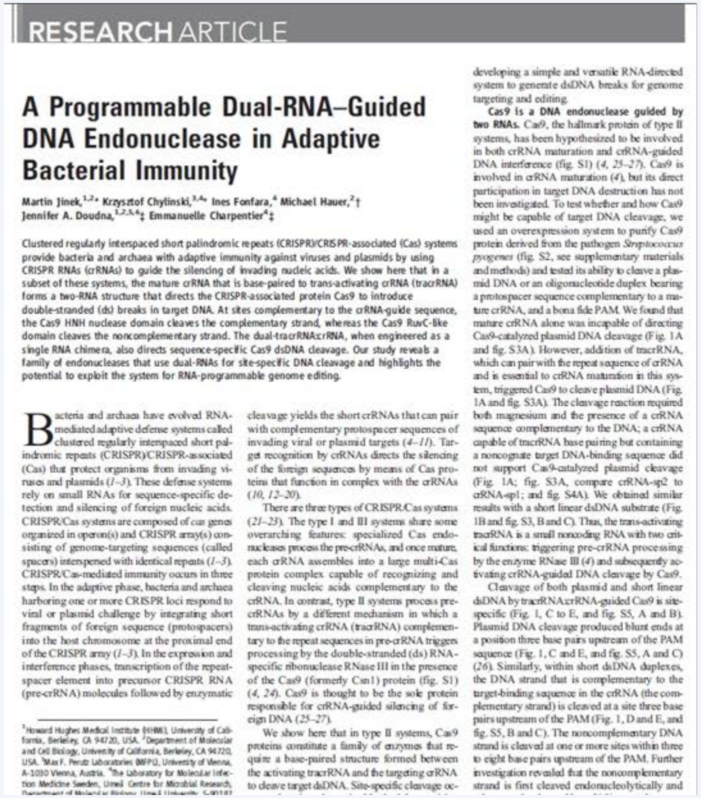
… …

Text Analysis Activity:

Read the short passage below taken from a student's essay and highlight the strategies used to endorse or distance from the sources. Find the reporting verbs, the intensifiers and limiters, hedging, concessive clauses as well as passive forms.

Also, find where the voice of the writer is heard clearly- in other words, where the writer clearly combines, compares and interprets the sources to suit his/her purpose.

Redesigning Pedagogy (After)



RESEARCH ARTICLE

A Programmable Dual-RNA–Guided DNA Endonuclease in Adaptive Bacterial Immunity

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Clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated (Cas) systems provide bacteria and archaea with adaptive immunity against viruses and plasmids by using CRISPR RNAs (crRNAs) to guide the silencing of invading nucleic acids. We show here that in a subset of these systems, the mature crRNA that is base-paired to trans-activating crRNA (tracrRNA) forms a two-RNA structure that directs the CRISPR-associated protein Cas9 to introduce double-stranded (ds) breaks in target DNA. At sites complementary to the crRNA-guide sequence, the Cas9 HNH nuclease domain cleaves the complementary strand, whereas the Cas9 RuvC-like domain cleaves the noncomplementary strand. The dual-tracrRNA:crRNA, when engineered as a single RNA chimera, also directs sequence-specific Cas9 dsDNA cleavage. Our study reveals a family of endonucleases that use dual-RNAs for site-specific DNA cleavage and highlights the potential to exploit the system for RNA-programmable genome editing.

'The more we looked into the mystery of Crispr, the more interesting it seemed'

Scientists have known about the technique for years, but always assumed it was junk. Then Jennifer Doudna began to study it. Her findings could transform medicine

Steve Connor | @SteveAConnor | Thursday 7 November 2013 | 0 comments

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I. Analysing moves

1. Study the headline and lead of the news article (i.e. Connor, 2013). What information about the study do they present?

2. "Her findings could transform medicine." In what ways? Where do you find this information?

II. Analysing explanatory strategies and clarifying techniques

3. In the paragraphs reproduced below, Connor (2013) explains the concept of Crispr. Describe the explanatory strategies and clarifying techniques that he uses to demystify Crispr for readers.

Crispr stands for "clustered regularly interspaced short palindromic repeats", a devilishly contrived acronym which just about sums up why it was ignored for so long. For nearly two decades after Japanese researchers first discovered Crispr in bacteria in 1987, scientists mostly dismissed it as "junk DNA".

In fact, the apparently nonsensical sequences within Crispr, which were repeated in palindromic order (the same backwards as forwards), did have a purpose and were far from

4. ◊ Compare how the result of the study is explained in the news story (Connor, 2013) and its source article (Jinek et al, 2012). Describe the changes in vocabulary, syntax and text that occur, and discuss the effects of these changes on readers.

From Connor (2013)	From Jinek et al (2012)
Both professors... published what is now considered the seminal paper showing that CAS9 was an enzyme capable of cutting both strands of a DNA double helix at precisely the point dictated by a "programmable" RNA sequence – in other words, an RNA molecule that could be made to order. "We found that CAS9 has the ability to make a double-stranded break in DNA at sites that are programmed by a small RNA molecule. What was so important was that we could really show how the CAS9 protein worked," Professor Doudna said... Professors Doudna and Charpentier had found the holy grail of genetic engineering – a method of cutting and stitching DNA accurately and simply anywhere in a complex genome.	We show here that... Cas9 proteins constitute a family of enzymes that require a base-paired structure formed between the activating tracrRNA and the targeting crRNA to cleave target dsDNA. Site-specific cleavage occurs at locations determined by both base-pairing complementarity between the crRNA and the target protospacer DNA and a short motif [referred to as the protospacer adjacent motif (PAM)] juxtaposed to the complementary region in the target DNA. Our study further demonstrates that the Cas9 endonuclease family can be programmed with single RNA molecules to cleave specific DNA sites, thereby raising the exciting possibility of developing a simple and versatile RNA-directed system to generate dsDNA breaks for genome targeting and editing.

Data analysed

- **Students' course evaluation***
- **Assessment validation (Yuen & Sawatdeenarunat, 2017)**
- **Discourse analysis of students' metalinguistic reflections (Tang & Sawatdeenarunat, 2017)**
- **Tutors' feedback on the course**

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*Main focus of the present paper

Findings from course evaluation

- Students perceived the course to engage them highly in both learning and the composing process.
- Students felt the course raised their rhetorical awareness.
- Students valued the transferability of their learning.
- The potential of a rhetorical approach for developing learners' rhetorical awareness and meta-knowledge about writing that can help them transfer their learning to new contexts (Graff, 2010) appears to be confirmed by this study.

Students reported tensions in regard to perceptions of prescriptivism

- ***Assignments were restrictive and do not allow for creative freedom.***
- ***The moves taught restricts a little on how the writer wants to convey his/her message in a science article.***
- ***I felt the template for writing was quite restrictive***
- ***Why is a module that is encouraging writing restricting a student on his/her writing style? [So long as] the student's writing style is clear and understandable, the tutor shouldn't be biased just because the writing style disagrees with hers.***

Discussion: Enhancing Lifelong Learning Skills… A Cautionary Tale

Despite the beliefs of many politicians and senior educational bureaucrats that they can set curriculum content and control its transmission, curriculum development, implementation and enactment are by definition untidy and unruly processes. Official curriculum and syllabus documents are translated, resisted and locally remediated… by teachers and students in their everyday exchanges in classrooms… The enacted curriculum of teaching and learning in fact reshapes and remediates official knowledge into forms of everyday experience and pedagogical exchange.

Luke (2015)

***Strategies such as student empowerment and dialogue give the illusion of equality while in fact leaving the authoritarian nature of the teacher/student relationship intact*.**

Ellsworth (2013)

To nurture and sustain a teacher-student relationship built on egalitarianism and solidarity, it is necessary that the students, not just the teachers, are made aware of the value of talk as a tool for learning… [Students] need to be guided in an explicit and systematic manner rather than simply left on their own to discover what constitutes effective collaboration and good discussion. More fundamentally, the ground rules that govern the way teachers and students interact in class must change.

Teo (2013)

Implications: A Discourse-Intensive Approach to Teacher Professional Development

- **More effective teachers could be distinguished by the following characteristics (Mercer, 2002)**
  - They used question-and-answer sequences not just to test knowledge, but also to guide the development of understanding.
  - They taught not just 'subject content', but also procedures for solving problems and making sense of experience.
  - They treated learning as a social, communicative process.

- **Teachers' discourse practices that support students' development of lifelong learning skills (and have been shown to result in more equitable educational outcomes for diverse populations of students) emphasize the following norms of discourse:**
  1. Accountability to the learning community
  2. Accountability to accepted standards of reasoning
  3. Accountability to knowledge

Mercer (2002); Michaels, O'Connor, & Resnick (2008)

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