CRITICAL TRANSDISCIPLINARY MULTILITERACIES

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Please note...

This research was completed in collaboration with:

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A background problem

- The SARS outbreak (West Nile Encephalitis)
- A confused student…
- A fundamental misunderstanding about interdisciplinary instruction

Research Questions

We propose a shift towards transdisciplinarity; a model based on alternative ideas of disciplinary knowledge, subject area literacies, and student subjectivities. Given our move to transdisciplinary curriculum, we address two major questions:

- **How can inquiry into disciplinary knowledge facilitate student learning in different subject areas?**

- **What kinds of tools do students need to move from learning critique to learning though design**

Project Background: The School

- We explored curricular examples of transdiciplinarity in the context of a three-year long action research collaboration at a small public middle school in New York City's Chinatown involving 180, urban, predominately 1st and 2nd Chinese-American, mixed ability grade eight boys and girls in a small middle school. (Sponsored by the Spencer Foundation)

- As an indicator of the socioeconomic status of the school's students, 92% of them received free or reduced price lunch.

This study demonstrates how a transdisciplinary curriculum can promote students' learning in humanities, science, and math classes. Inquiry into disciplinary structures as a central part of the 8th grade curricula in the core subjects developed a pedagogical stance toward work in English, social studies, mathematics, and science. At times, this stance was characterized by confusion and ambiguity among students, as they developed the ability to question texts in social studies and English but had trouble to do the same kinds of work in science. ..

Questioning notions central to interdisciplinarity, we challenge the assumption that knowledge is a *thing*—that exists outside of the interactions and contexts that create it. This assumption seems to underlie ideas of theme-based interdisciplinary instruction, in which students learn different bits of information, but are left on their own to make sense of these bits. This information appears to be separate from its own formation, from its use and applications. Contrast this with Foucault's (1972) notion of knowledge as practice in his study of medical discourse:

> What one must characterize and individualize is the coexistence of these dispersed and heterogeneous statements; the system that governs their division, the degree to which they depend upon one another, the way in which they interlock or exclude one another, the transformation that they undergo, and the play of their location, arrangement, and replacement. (p. 89)

For curriculum theory and practice, Foucault's argument implies that knowledge should be conceptualized in terms of disciplinary power. The epidemic project failed to front the production of knowledge, because while students produced engaging and effective writing, and students may have learned some interesting and important facts, they had little sense of the ways to organize these facts—the knowledge necessary to design and create productions that work as public documents.

Shifting to transdisciplinarity...

Inter-, multi-, trans-, and cross-disciplinary descriptors are employed to describe a wide spectrum of curriculum planning (Scott, 1979). But these terms are used in common to redefine the relation between specialization in one discipline and common work across disciplines (Glasgow, 1997).

Interdisciplinary teaching depends not so much on the existence of several disciplines as it depends on the existence of a point of view toward the subject matter and toward knowledge in general. Frequently, then, interdisciplinary curriculum is organized around a topic, issue, period, institution, or place, focusing on a theme rather than a particular body of knowledge or skill and on collaborative teaching.

Critics of interdisciplinary curriculum have argued that discipline based standards are weakened by interdisciplinary approaches. Students need to be introduced to disciplinary practices and concepts before they can make interdisciplinary connections. Further, disadvantaged students' unfamiliarity with discipline-centered discourses is often overlooked in interdisciplinary education. Wineburg and Grossman's (2000) work points to these issues:

> What tends to happen with such curricula is that disciplines become storehouses containing topics for classroom activities; typically, however, only one part of the disciplinary storehouse is raided while another is systematically ignored. . . . [T]he "disciplined" part of the disciplinary tends to fall away, leaving a body of information without the tools for evaluating its quality or warrant. (p. 129)

If this is the case then researcher/practitioners should re-examine disciplines as lenses for reading the world--different ways of knowing that are ideological in terms of their particular objects, meanings, and values. They are resources that foster but also shape students' learning. Transdisciplinarity attempts to provide an overarching framework of meaning to thematically related disciplines (Davis, 1995; Kockelmans, 1979).

Transdisciplinarity

- Transdisciplinarity's attraction lays in the meaningful integration of knowledge and has been associated with general systems theory and addresses questions of theoretical understanding.
- Transdisciplinarity in practice:
  - International Centre for Transdisciplinary Research (CIRET)
  - Academy of Transdisciplinary Education and Research (ACTER)
  - Queensland New Basic (Rich Tasks)

Currently UNESCO's Education for Sustainable Development Program links changes in ways of thinking about the challenges and changes facing the world with transdisciplinary and inter-sectoral approaches that provide people with the tools to confront and adapt to the changes taking place around them; decision-makers with the information, skills, and will to make future-oriented choices; and the international community with a global commitment to a world of socially just and peaceful development.

Transdisciplinary Multiliteracies

A transdisciplinary model provides a way of structuring curriculum that takes into consideration school disciplines and their corresponding social fields. We consider Multiliteracies curriculum to be fundamentally transdisciplinary, because it emphasizes the importance of critical language skills and social semiotics in school subjects.

Multiliteracies became a means for our collaboration to work together constructing new transdisciplinary curricula.

Multiliteracies provided an initial framework for curricular theorizing and practice that includes Situated Practice, Overt Instruction, Critical Framing, and Transformed Practice. This framework helps students locate themselves in texts, learn the tools and "grammars" for understanding meaning-making, and eventually use this learning to (re)construct texts and act on the world.

Situated Practices

Raising issues whenever possible that relate to students' social locations and the employment of a wide variety of texts and simulations from these spaces

Overt Instruction

Systematic, analytic, and conscious introduction of explicit metalanguages or "grammars," which help students describe and interpret the different ways in which meaning is made.

Critical Framing

Interpreting the social and cultural contexts and values of particular ways of making meaning, developing a critical distance on ways in which knowledge is structured and used.

Transformative Practice

Students using what they have learned to reconstruct texts and knowledge practices in new ways and in different contexts.

Connecting critical multiliteracies with transdisciplinarity

Moje and O'Brien's (2001) collection of case studies is useful in connecting critical multiliteracies work with transdisciplinarity. As Luke (2001) notes in the Foreword, some of the studies demonstrate how taking up new practices helps students engage with and contest disciplinary language, practice, and ideology.

He writes that students like ours live in economies and cultures that are. . . complex, multiple, and characterized by rapid change, uncertainty, and complexity. The teaching of [multi] literacy is an introduction to semiotic economy where identities, artifacts, texts, and tokens are exchanged in predictable and unpredictable ways. (Luke, 2001)

Critical Practice(s)

What makes this work critical?

- **Viewing texts as representations open to change and manipulation permits critique and productive use for change.**

- **Teachers and students come to see themselves as active in reconstructing texts as social practices.**

- **A curriculum of critical transdisciplinary Multiliteracies assists teachers and students become actively responsive to their own peculiar social locations.**

Connecting these two strands—critical multiliteracies and transdisciplinarity—helped us think broadly of the challenges faced in conceptualizing this curriculum as transdisciplinary.

For instance, considering constructivist pedagogies in subject English and science as similar is problematic.

Morgan (1997) points out that instruction "tend[s] to de-emphasize the positions of students as subject to discourses and knowledge and the power these produce" (p. 110). Re-reading "traditional" progressive pedagogy and critical pedagogy, we see a rationale for rethinking educational disciplines as multiple literacy practices having different kinds of discursive power, and demanding multiple classroom approaches.

Critique and Design

In the humanities and science curriculum—and to a smaller extent in mathematics—we introduced critical semiotic perspectives and modes of analysis. To connect the work in different disciplines, we cobbled together analytical strategies and approaches for purposes of "critique" and "design."

Techniques such as reading strategies that make up "critique" are connected with "design" in the curriculum, as students apply strategies to their own productions, taking into consideration, for example, ideas about genre and audience.

Design

We conceptualize design as an integral part of assessing the kind of transdisciplinary Multiliteracies work we are theorizing. In a transdisciplinary curriculum, design can be a way of assessing and understanding students' critical reading. The New London Group's (1996) explanation is helpful:

> The notion of Design recognizes the iterative nature of meaning-making, drawing on Available Designs to create patterns of meaning that are more or less predictable in their contexts. . . . It is also important to stress that listening as well as speaking, and reading as well as writing, are productive activities, forms of Designing. (p. 22)

In a curriculum that privileges the role of language and discourse in shaping the school subject, the measure of students' work is really in their design of various texts—encompassing a variety of spoken and written discourses. That students are incredibly creative, able to draw on diverse uses of language in order to create cultural "productions," is a foundation of cultural studies and media studies work in education (Buckingham & Sefton- Green, 1994; Willis, 1990). The usefulness of the Multiliteracies notion of "design" is that it makes the idea of production relevant for work in school Subjects that might not seem on the surface to be related to popular culture

The toolbox: Tactics of textual analysis using systemic linguistics and critical semiotics

- Identifying: participants, processes, circumstances, collocations
- Nominalizations: events and entire clauses that appear as complex participants
- Mood and Modality: cues about credibility…
- Gaps and silences
- Theme and rheme
- Agency
- Register
- Visual grammars: e.g. vectors, foregrounding, anchoring…

Cross-disciplinary Work	Critique Examples	Design Examples
Critical language work, for example: -nominalization -modality and mood -collocations -ordering	In science, students looked at the use of collocations in texts about penguins. They moved from language analysis to a consideration of how language is used in different science genres. In social studies, students considered the gaps and silences in texts around Chinese immigration and exclusionary legislation.	In humanities, students did argumentative writing about historical events (such as Japanese internment), using nominalization and modality to produce effective academic writing.
Investigating genres and intertextuality, for example: -gaps and silences -construction of authority -register and modality -degree of nominalization		In science, students drew on understandings of position and vectors to design water cycle diagrams. Through these diagrams, students communicated positions about water resource use, through their choices of information, placement of processes, use of size and color, and organization of vectors.
Visual and media grammars, such as: -vectors and positioning in visual texts -anchoring; relation of visuals to print texts	In social studies, students represented ways of reading propaganda from the Spanish-American War. They analyzed the use of vectors and placement of participants in the posters to front certain ideas of war and position the viewer.	
Multimodal work	In humanities and science, students investigated the ways in which textbooks, like online sites, invite particular ways to navigate, and thereby generate particular narratives and ways of reading.	In science, students adapted PowerPoint presentations about plate tectonics to interactive, non-linear websites that could be navigated by readers. In social studies, students wrote history textbook chapters about Chinese immigration history and racism Responding to readings from common history texts, they integrated photos, images, and print texts to create paper and online chapters/sites that were critical of dominant representations of the Chinese experience in the United States.

An example of the toolbox in humanities

Intertextuality in Humanities to identify gaps and silences in texts and how the texts position readers differently

Example:

Chinese Immigration/Exclusion

Critique in Humanities

Japanese immigrants arrive in San Francisco.

A **depression** is a pit or sunken area. "Depression" also describes an emotional state of deep sadness and melancholy. But neither of those meanings has much to do with U.S. history. The *economic* meaning of depression does. A depression is a time when the nation's economy goes into drastic decline and there is much unemployment, low prices, and not much business activity.

"Welcome to the United States, the temple of liberty," said this cartoon—"unless you are Chinese."

122

inventions were the wonder of the world. A Chinese philosopher named K'ung-fu-tzu (Confucius), who lived from 551 to 479 B.C.E., taught ideas about honesty, fairness, and loyalty that were similar to the ideas most Americans believed in. He also taught about the need for balance in life: between work and pleasure, between consideration of oneself and consideration of others. This led the Chinese to respect learning (especially the study of the past and its lessons), and to have strong family ties.

Now you might think they would be welcomed when they arrived in California, especially since they came seeking opportunity (which meant jobs). The same reason brought others to California, too.

But in the 1860s and '70s, when times were difficult in China, it happened that they were difficult in the United States, too. There was a depression, and during depressions there usually aren't enough jobs to go around. Since the Chinese were willing to work hard for very low wages, they usually found work. That angered many white workingmen. Mobs attacked and killed Chinese people; hoodlums burned Chinese homes and laundries.

The Workingmen's Party demanded a law to end Chinese immigration. Congressmen in the East, needing political support from Californians, helped pass that law. Most Americans on the East Coast didn't know any Chinese. They had heard terrible—and untrue—stories of Asians; many people believed the stories because they didn't know any better.

Most Chinese men braided their hair into a long pigtail. That seemed strange to people who weren't Chinese. Prejudice against those who look different from you is *racism*. Racism is found in almost every nation in the world, and it always leads to evil action. In 1882, American racists got a Chinese Exclusion Act passed. It stopped most Chinese immigration into the United States. It was an especially unfair act considering that it came after Chinese had toiled and died to build railroads and dig mines and labor on farms. Asian immigration was restricted until the 1950s.
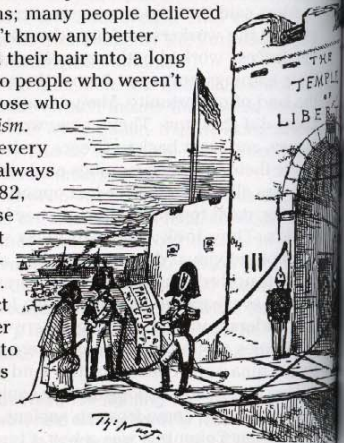
Critique in Humanities

laws banning immigrants from holding certain jobs and denying them other rights. Jewish immigrants, for example, were denied admission to certain universities. In addition, immigrants faced physical attack. In 1880, for example, white citizens of Denver, Colorado, attacked Chinese residents and destroyed many of their homes and businesses. Calls for restrictions on immigration mounted.

New Immigration Laws

Lawmakers responded quickly to the tide of anti-immigrant feeling. In 1882 Congress passed the first law to limit immigration—the **Chinese Exclusion Act.** This law prohibited Chinese workers from entering the United States for 10 years. Congress extended the law in 1892 and again in 1902.

In 1908 the federal government and Japan came to a "gentleman's agreement." The Japanese agreed to limit the number of immigrants to the United States, while the Americans pledged fair treatment for Japanese Americans already in the United States.

Other immigration laws affected immigrants from all nations. An 1882 law made each immigrant pay a tax and also barred criminals from entering the country. In 1897 Congress passed a bill requiring immigrants to be able to read and write

in some language. Although President vetoed the bill as unfair, some years gress passed the **Immigration Act of 1** included a similar literacy requirement

Immigrants' Contributions

Despite some anti-immigrant s many Americans—including **Grace A Julia Clifford Lathrop,** who helped fou migrants' Protective League—spoke o port of immigration. These Americans r that the United States was a nation of ir and that the newcomers made lasting tions to their new society.

The new immigrants supplied the growing industries with the workers necessary for economic growth. At the s the new immigrants and their children old immigrants before them—help American life. They gave the nation its gious groups—Protestants, Catholics, While becoming part of the society aro they enriched that society with their ow and cultures, language and literature.

The effects of immigration were m in the cities, with their fast-growing eth borhoods. The flow of immigrants was factors that transformed America's ci late 1800s and the early 1900s.

★ ★ ★ ★ ★ ★ Section 1 Review ★ ★ ★ ★ ★

Checking for Understanding

1. *Identify* Emma Lazarus, Ellis Island, Angel Island, Chinese Exclusion Act, Immigration Act of 1917.
2. *Define* emigrate, ethnic group, steerage, sweatshop, assimilate.
3. *Explain* how the pattern of immigration changed in the 1880s.

Reviewing Themes

4. **Culture and Traditions** What were some of the cultural differences that immigrants had to adjust to in the United States?

Critical Thinking

5. **Identifying Central Issues** Why do think some Americans blamed the ' immigrants for many of society's problems?

Activity

Making a Collage Create a collage the origins of immigrants who came t ed States after 1880. Clip photogra advertisements and newsmagazine your collage.

Critique in Humanities

CHAPTER 12

★★★

Imperialism
1867–1908

▼ RED LEATHER BOOTS AND BUTTON HOOK

Setting the Scene

Focus

Foreign policy before the late nineteenth century had been by two ideas. The first was President Washington's isolation against entering into "entangling alliances." The second was Monroe's warning to Europe against interference in the Ame with Spain, however, resulted in a more aggressive foreign p the acquisition of overseas colonies. Suddenly, the United St become a major world power.

Journal Notes

Why did the United States become involved in the affairs of other countries? Record each country and the reasons for each as you read this chapter.

Concepts to Understand

★ How increased United States **economic and political pow** the acquisition of an overseas empire

★ How **confrontation** with Spain resulted in war over Cuba

Read to Discover . . .

★ why Americans moved away from a policy of isolationis

★ the problems and responsibilities that victory in the Span American War brought the United States.

CULTURAL
- 1880 "General" William Booth organizes the Salvation Army
- 1891 University of Chicago f
- 1893 World's Columbian Exp is held in Chicago

| 1875 | 1885 |

POLITICAL
- 1882 Chinese Exclusion Act is passed
- 1893 Queen Liliuokalani of H is overthrown

368   UNIT 4 Entering a New Century: 1867–1920

An example of the toolbox in science

From, *The Moon by Whalelight* by Diane Ackerman

"A heat lamp, attached to each crib, bathed them in red light. In each crib, six chicks huddled together—gawky, rubbery, scruffy….They needed the heat lamp and their collective body heat to stay warm. In the wild, hundreds of baby penguins huddle, with those at the outer edges frantically trying to push their way into the middle….

- **In this naturalist essay, the processes by which the penguins stay warm and survive in the Arctic is explained through descriptive language and active voice.**

Critique in Science
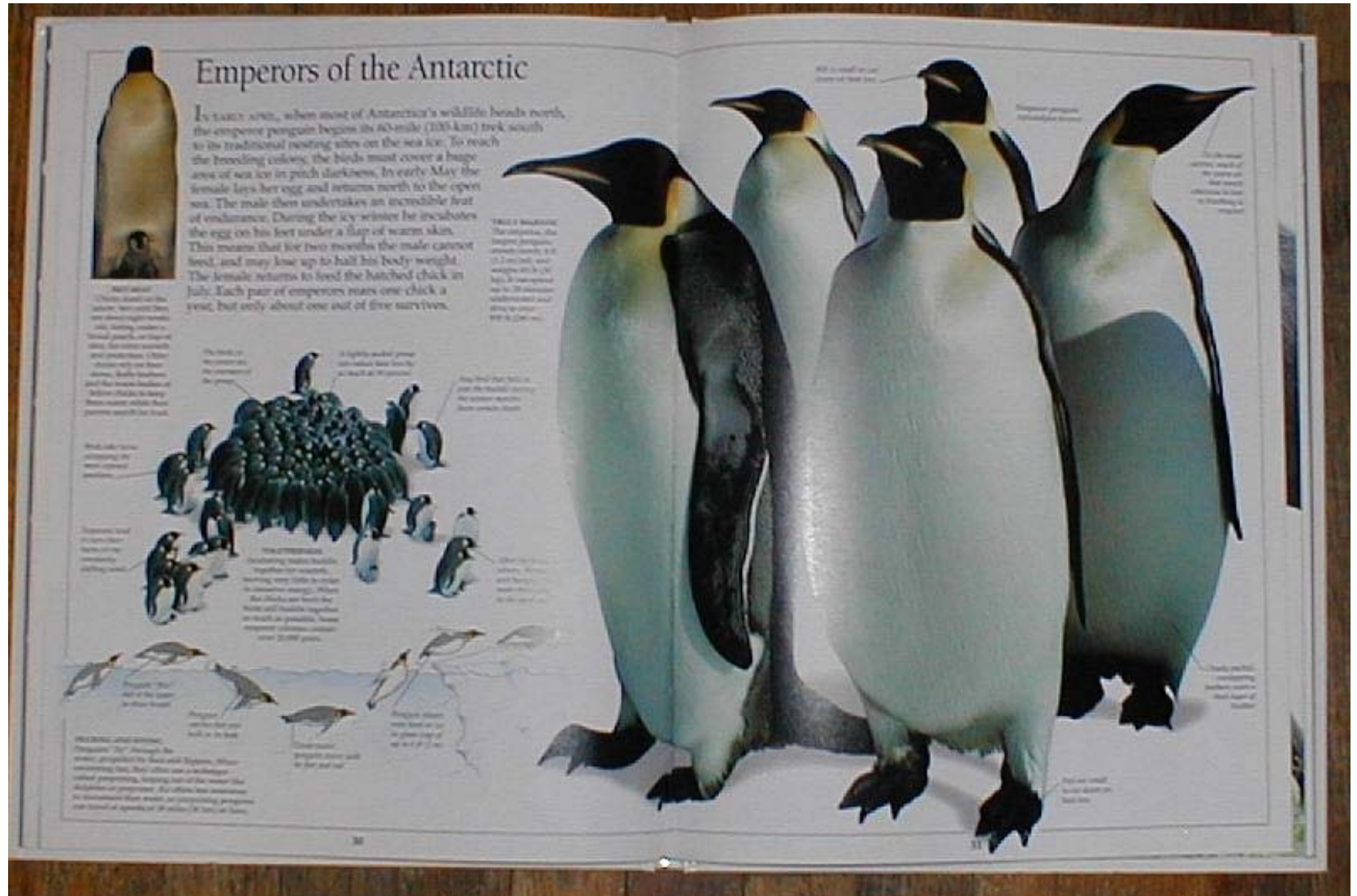
- **In this trade book, on the other hand, the emphasis is on diagrams and photos that explain the same concept. The emotional language is absent, and instead the penguins are referred to impersonally.**

Critique in science

In doing a critique of these two texts, we worked with the students to determine the positions of the texts through the language used, but also through the ideas not taken up. The trade book left out any mention of penguin survival or endangerment, instead taking up a more "neutral" position. But anthropomorphizing the penguins, and discussing their care and management in a wildlife centre, the Ackerman essay created a different perspective. Often in science curricula, the emphasis is so heavily weighted towards "getting information" out of a text that students do not learn the critical reading skills that utilize language and narrative analysis.

Visual Representations of Critique
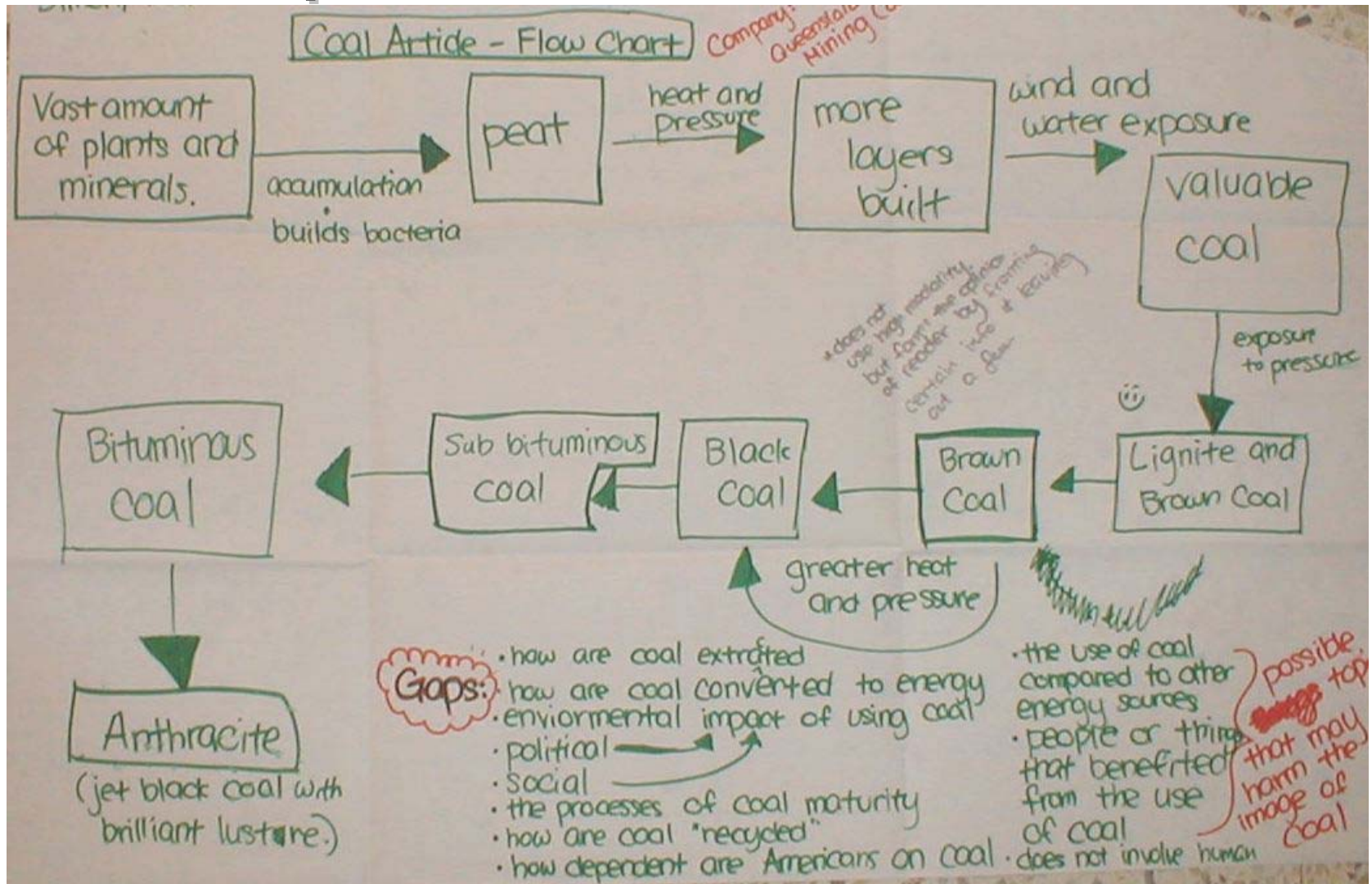
In both classrooms, we often had kids develop some kind of visual representation in order to demonstrate what they were critiquing in a text. The flowcharts show how students were representing the information from coal sites. They're not really *working* with the information, just re-presenting it so as to get a better perspective on critiquing it. This one shows a way of reading the info on the Queensland Coal Mining site. By making a flowchart of the processes in this article, students can determine, where the gaps are, and possible reasons.

Visual Representations of Critique

Visual Representations of Critique

From critique to design

Design rests on a chain of processes of which critique—as Distanced analytical understanding—is one: it can however no longer be the focal one, or be the major goal of textual practices. Critique leaves the initial domain of analysis to the past, to past production (and Design) of whose processes are to be subjected to critique. It leaves the design and definition of the agenda to those whose purposes are to be the subject of critique…the task of the critic is to perform analysis on the agenda of someone else's design…Design takes the results of past production as the resource for new shaping and remaking. Design sets aside past agendas and treats them and their products as resources insetting an agenda of future aims, and in assembling the means and resources for implementing that. (Kress, 2000, p. 160-161).

Design – Understanding the Reader

"…I have found myself very fond of doing a timeline with links. I think this is the best structure because it's exactly what we are doing, we are examining the rocks and trying to figure out the geological history of New York City."

How the Timeline should look

event

Event- [Link]

Event- [Link]

event

Event- [Link]

event

event

Event- [Link]
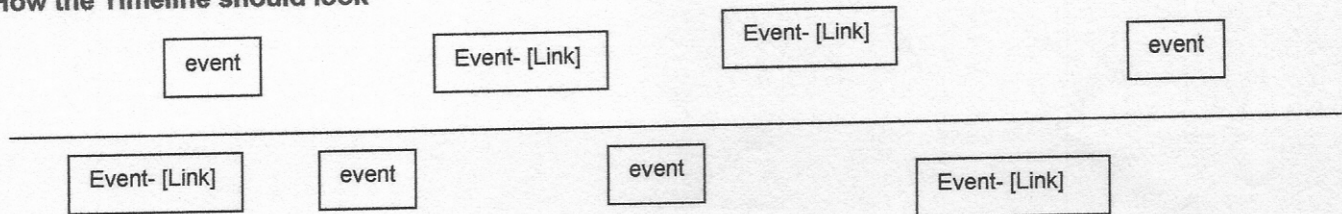
These "website proposals" are examples of students thinking of different ways to design an interactive space for people to learn about NY state geology. This is important because they had to consider the science content, *as well as* the issues of a reader accessing a webpage. Instead of presenting a linear table of contents, then, students proposed different ways of interacting with the material .

Design – Understanding the Reader

Land forms
•Mountains •Rivers •ETC.

•Timeline
of NYC events
geological

Map of NYC
or central
that people
click and will
bring them to
a different page

•Picture of
Rocks.

•Types of rocks.

•Bibliography.
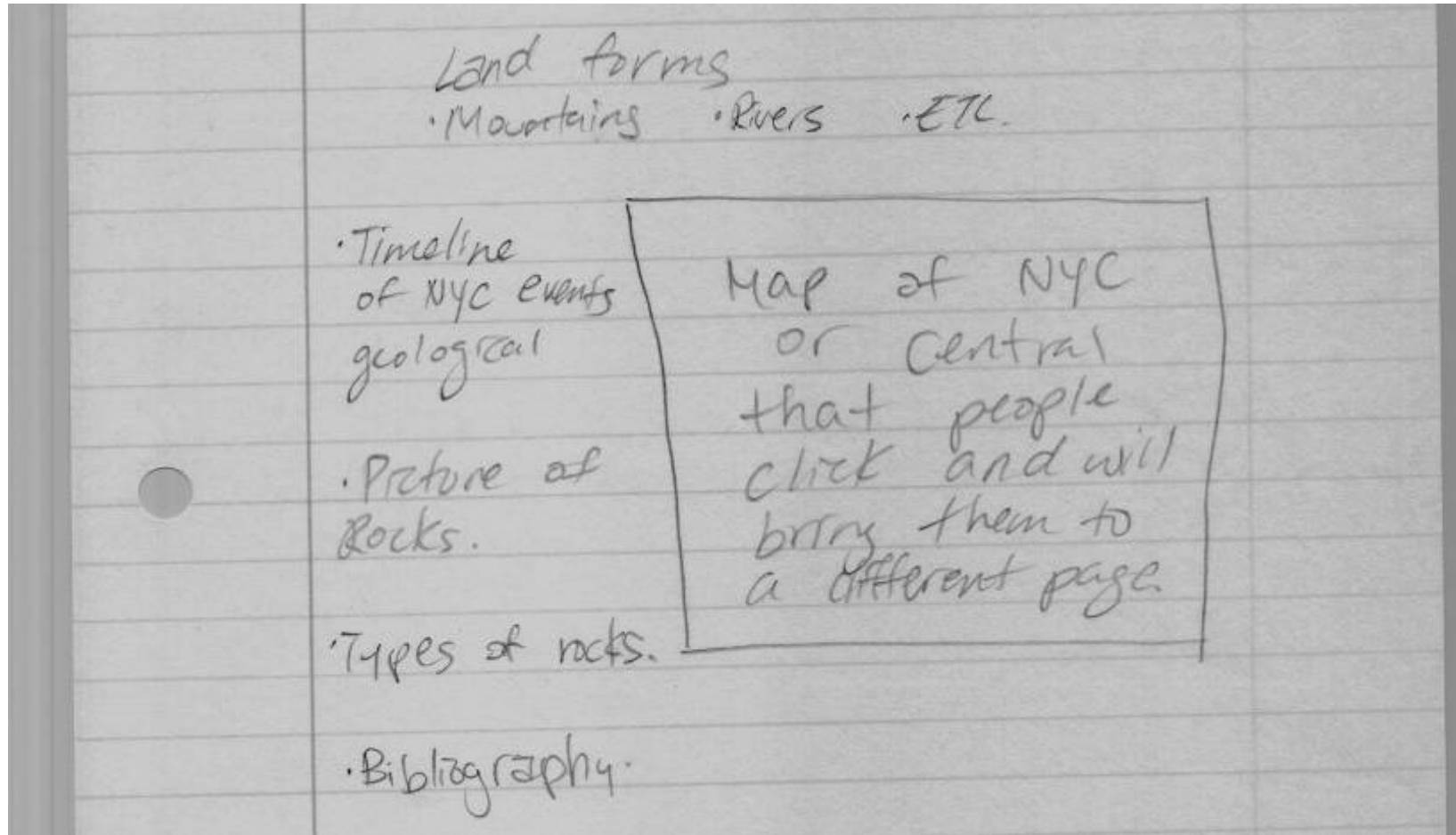
This is the idea of using a map as the central navigation device (instead of an index page that's just a table of contents).

Design as Assessment or a way of judging the ways students understand critique

Multiliteracies as a theoretical framework connects this concept of redesign to *transformed practice: "Transfer in meaning making practice, which puts the transformed meaning (the Redesigned) to work in other contexts or cultural sites" (The New London Group, 1996, p. 35).*

What does transformed practice look like in school? A group of students involved in this research designed a website as a part of a competition (the *ThinkQuest Challege); in this website they worked with modes of analysis and critique they had used in school social studies (the Available Designs). They took the Available Designs that they had learned from working with school texts, and particular ways of thinking about social history, but they put them to work in a new, web-based context. For instance, they re-located popular musicians (like Naz and Eminem) within discourses of protest in social history.*

Assessing critical understanding through design

- Putting critique into practice through design/production

- Not just doing reproduction or mimicking; requires using aspects of critical reading practices (grammar, ordering, how pictures anchor texts, visual grammars, etc.)

- Looking at how students incorporate the idea of design into their own texts, and how this demonstrates what they know

Remaining questions …

- What kinds of new demands does this sort of instruction place upon teachers in different disciplines?

- How do we deal with the fine line between critique/design and ritual performance/reproduction**?**

Conclusions

- **Value of using systemics of all kinds (multimodality) allowed for a greater variety of pedagogical practices employing a Multiliteracies perspective as the focus for students' re-representation of curricular knowledge.**

- **Implications for curriculum theorizing about textual practices and disciplinarity in schools**

- **Implications for changing assessment practices**

- **Implications for teacher education and professional development.**

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