Nanotechnology—Today and Tomorrow

Far East Readers   Book 6
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Introduction

• Text Difficulty: High-intermediate
• Mode(s) of Writing: Exposition
• Teaching Focus: Logical expression and flexibility using transitional words
• Teaching Procedure as follows:
Opening Reading & Writing Connection

A. Modelling Open Reading Process (from Collaboration to Individual)
1. Highlight ideas of interest while reading
2. Select one of the ideas in the text
3. Explain why the idea is interesting
4. Share this with classmates and the teacher
Opening Reading & Writing Connection

B. Shapes in the Writing Process
1. Paraphrasing idea of interest from reading
2. Writing responses to the text
3. Rewriting for share one’s opinion
I. Raising Students’ Awareness

- Tennis balls longer, tennis rackets are stronger, and golf balls fly straighter
Medicine for Tomorrow

- Tiny monitor robots cruise around our body recording and transmitting information so doctors can easily determine what treatment is needed.
Humanizing Nano-computers

- Apart from this, scientists aim to use nanotechnology to create nanorobots that will serve as antibodies that can be programmed. This will help to protect humans against pathogenic bacteria and viruses that keep mutating rendering many remedies ineffective against new strains. Nanorobots would overcome this problem by reprogramming selectively to destroy the new pathogens. Nanorobots are predicted to be part of the future of human medicine.
No Side-effect Pill

• Nano-sized capsules can deliver medicine directly to the target site and limit unwanted side effects on other parts of the body
Nano-treated Shirts

- Nano-treated materials can repel liquids, resist wrinkles, dry fast, and breathe.
You could say I wear my food well. I've stained shirts with everything from chocolate to wine to pasta sauce -- if it's delicious, I'll somehow ruin an expensive outfit with it. Thankfully, nanotechnology is here to help klutzes like me stay splotch free. Nano-Tex's science-meets-style fabric treatment is designed to repel liquids and messy edibles. In the laboratory (at the WIRED kitchen),

- http://nanobot.blogspot.com
Portrayal of Nano-shirts

- I slopped coffee and soy sauce on my dapper blue-and-white striped button-up (available in other colors and styles). I let the splashes set for 10 minutes, then used a moist rag to easily whisk away the muck. The happy result: not a single stain remained. I was a little less lucky with ink -- the scribbles I penned on my sleeve wouldn't come out with a simple soap-and-water scrub in the sink, but a quick round in the washing machine and the marks vanished without a trace.
II. Presenting the Text

- Central to student-centered approach
- Based on students’ choice of what to discuss
- Being collaborative exploration process
- Giving students practice in critical thinking
A. Opening Reading Demonstration

1. Read through the article
2. Select one interesting idea from the reading
3. What do they think the sentence(s) they have select mean?
4. Why does this idea interest them? What does it make them think about?
5. Be ready to share their thinking
B. Teaching Tips

1. The goal of the pre-reading is to help:
   - Connect one group’s idea to another’s
   - Paraphrase students’ ideas for clarification
   - Whole class conferencing for correctness in writing
   - Guide how to conduct pair-conferencing
2. Group work

2.1 We think that nanotechnology can also be used in windows which have bullet-proof function and nana-paper diapers which can be used more long time (much longer) and breathable. In addition, antiseptic masks-for medical using (use) as well as the sanitation (used) in the hospital are able to kill microbes and remove organic compounds.
Individual response

• 2.2 We are interested in products that use by (using) Nanotechnology, like stain-resistant clothing, LCD and cell phone. We feel interested in it because we think the idea is very convenience (creative) and we don’t (won’t) have to wash our clothes one (some) day (if clothes can always keep (be kept clean), and also, our LCD will not so easily be broken, so (neither) does (will) cell phones.
C. Mapping the Information of the Text

Definition of nanotechnology: The breadth of a meter, or about a hundred thousandth the width of a human hair.
The goal of nanotechnology: Manipulating individual atoms in order to engineer materials products at molecular level.
Category the nanotechnology now and future

<table>
<thead>
<tr>
<th>Now</th>
<th>Products and their positive benefits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) computer</td>
<td>(1) computer: Scientists are researching the limit of how small could computer be by nanotechnology,</td>
</tr>
<tr>
<td></td>
<td>and the limit of storage. It let people easy to take the computer to everywhere and store more</td>
</tr>
<tr>
<td></td>
<td>information than now.</td>
</tr>
<tr>
<td>(2) medicine</td>
<td>(2) clothes: The clothes used nano-sized titanium dioxide particles to resistant from stain or</td>
</tr>
<tr>
<td></td>
<td>repel liquids, so people don’t need to wash clothes too often.</td>
</tr>
<tr>
<td>(3) clothes</td>
<td>(3) medicine: The Medicine made by nanotechnology could detect the problems that human don’t, and it</td>
</tr>
<tr>
<td></td>
<td>could protect the human’s body from the bacteria.</td>
</tr>
<tr>
<td>(4) Environment</td>
<td>Products and their disadvantages:</td>
</tr>
<tr>
<td></td>
<td>Everything made by nanotechnology maybe is not that perfect to us. For example, if we don’t</td>
</tr>
<tr>
<td></td>
<td>need to wash clothes anymore, we must become lazy, or maybe the nano-tech medicine might</td>
</tr>
<tr>
<td></td>
<td>make us force to protect our body from bacteria. So, I think the nanotechnology could be in a</td>
</tr>
<tr>
<td></td>
<td>good way but not too rely on it!</td>
</tr>
<tr>
<td>(5) cosmetics</td>
<td>Benefits in life: The nanotechnology products could enhance our life convenience. Like things could</td>
</tr>
<tr>
<td></td>
<td>faster, lighter, smaller, cleaner.</td>
</tr>
</tbody>
</table>
Outlining the Writing

• What are the advantages and disadvantages of nano-tech?

**Advantages**
- saving time
- effective
- convenient

**Disadvantages**
- killing creatures
- polluting water
- environment problem
III. Bridging Practice to Writing

A. Rewriting the Text

B. Intensive Training

1. How to read the article
2. How to get a precise idea
3. Talk about it
4. How to spread ideas
Mapping and Rewriting

- Discuss with a graphic organizer
- Rewrite to share one’s point of view

*How the author shows his points of view*

- shape
- parts
- flesh
- seed
- taste
- rind
- watermelon
Intensive training—work of writing

- Which part of a watermelon is green and what is it used for?
- Which part of a watermelon is red and how does it taste?
- Which part of a watermelon is black and what is it used for?
Intensive Training—organizing ideas

- Students rewrite to share their opinion, at the same time, give a brief description of the target reading.
IV. Students’ Work

- High-level learner:

- Some teenagers may think that getting a part-time job is an unwilling thing for them, but I do think every teenager should do a part-time job at least once before they enter their fields.

- First, doing a part-time job can learn how to respect others, and know how to treat others smoothly, because customers are always right no matter what they do is insensible or whatever.

- Second, you can learn how to manage money and time, and learn some practical skills. You may haggle over every once your spent because you work for it hard. Finally, you can learn how to manage time because you cannot delay any thing during working; you have to tight up the schedule for yourself.

- Based on the two ideas, though doing a part-time job is not easy and sometimes tiresome, we can learn many things that we cannot learn in the school. (140)
• Low-level learner

• I favorite of fruit is watermelon. It’s summer fruit. I taste it make me feel sweet and happy. It has various shapes. For example” cube and pyramid. Watermelon not only eat sweet but look happy, watermelon include of 92% water and it fresh has many color, like red, yellow, orange. Watermelon is green and it can stir-fry, stew, and pickle. I have not ever eaten stew watermelon, but I believe it tasting good. Moreover, I think pickle or stir-fried watermelon would more devious than stew watermelon, I hat its black seed, it let me not enjoy in the sufficient water’s fresh. When I ate watermelon’s seed, I always feel disgusting. But almost people not understand, black seed it can become nutritious snack. I don’t know how to do, but I must not to eat snack. (135)
V. Conclusion and Suggestions

1. A Spiral Approach
   High level learners
   Low level learners
2. Code in Writing
<table>
<thead>
<tr>
<th>Code</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S/V (Subject/Verb)</strong></td>
<td>Error: Three girls walks along the street. Corrected: Three girls walk _ along the street</td>
</tr>
<tr>
<td><strong>T (Tense)</strong></td>
<td>Error: Tom visits his uncle in the hospital yesterday. Corrected: Tom visited _ his uncle in the hospital yesterday.</td>
</tr>
<tr>
<td><strong>SP (Spelling)</strong></td>
<td>Error: Nancy is a _ blight girl. Corrected: Nancy is a <em>bright</em> girl.</td>
</tr>
<tr>
<td><strong>(Something in missing)</strong></td>
<td>Error: Around the corner is Italian restaurant. Corrected: Around the corner is <em>an</em> Italian restaurant.</td>
</tr>
</tbody>
</table>
## Correction Symbols in Writing

<table>
<thead>
<tr>
<th>Code</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>C (countable)</td>
<td>Error: There are some person in the classroom. Corrected: There are some persons in the classroom.</td>
</tr>
<tr>
<td>UC (uncountable noun)</td>
<td>Error: We need some sources to make the food more delicious. Corrected: We need some source to make the food more delicious.</td>
</tr>
<tr>
<td>V (vocabulary)</td>
<td>Error: Metro brings our life a lot of conveniently. Corrected: Metro bring our life a lot of convenience</td>
</tr>
<tr>
<td>X (delete)</td>
<td>Error: There is nothing left in here. Corrected: There is nothing left in (x) here.</td>
</tr>
</tbody>
</table>
Modelling Correction

• It will broke some rules of our environment that we depend on.
• They can record and transmit information though our body.
• They can make our life more convenience (V)--convenient.
• The discovery also save (S/V) saves a lot of source (V)--resource and time.
• When the nanotechnology use (T) is used in this product, our life will be more convenience (V)-convenient.
The tiny monitor robot will recording and transmitting information about our body so doctors can clearly know what treatment is needed.

The nanotechnology brings a lot of convenience to our life, like breathable, repelling-liquid clothes, mini computers and more storage devices of 3C products.

If computer can be associated with nano-tech, today’s fastest supercomputer can be very tiny and can be put in our hands.

The technology in the environment would operate in much the same way as they would in human body—fighting harmful pollutants at the atomic level, make (making) our environment cleaner.
Read well, write better, 
Write better, read smartly