

Text Complexity Analysis

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EDU 742 Study Skills and Content Literacy

Text Complexity Analysis of: *Refuge in White* By: John L. Eliot

Part One Choose an informational text

Text used for readability: This piece of text would be used to supplement information in a science unit.

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By John L. Eliot
National Geographic Staff
Photograph by Norbert Rosing

Refuge in White

Global warming has shortened the ice season in the Arctic, and the white bears of Canada's Wapusk National Park are feeling the heat.

The bears start to move in October, when longer nights chill Hudson Bay and snow starts to fly. Along the stony western shore, they head north over the salt marsh toward Cape Churchill. Hunting season is about to begin, after a four-month fast since the annual ice breakup in July. Almost all summer the bears have been in "walking hibernation," sleeping in dens and occasionally wandering through a vast boggy lowland called Wapusk National Park, living mainly off their fat reserves.

But soon shoreline ice will form. By walking north, the bears know they will find it and their staple prey—ringed seals—faster. In November when the ice usually thickens enough to walk on, hundreds of male bears and nonpregnant females roam far from shore, scanning and sniffing breathing holes of unwary seals. About 200 pregnant females remain behind, for Wapusk offers them excellent nurseries.

"More than half of Wapusk is peat bog, and some of the peat is 12 feet thick," says Cam Elliott, superintendent of Wapusk. "It's perfect for polar bear maternity dens. Females have dug more than 1,200 in the area, one of the largest concentrations in the world."

Land and ice are bound together for the polar bears of Wapusk, "white bear" in the Cree language. But the 4,431-square-mile park (nearly the size of Yellowstone and Yosemite combined) also holds plenty of other species. "It is the ecotone, the transition zone, between the boreal forest and the open tundra," says Andrew Derocher, a University of Alberta biologist who studies polar bears. "There are few places where polar bears, black bears, the occasional grizzly bear, moose, caribou, red fox, arctic fox, beluga whales offshore, and others overlap. The biological diversity of the area is huge." Almost 200 bird species breed here, or migrate through, including boreal owls, hawk owls, snowy owls, gyrfalcons, and peregrine falcons—a bonanza for bird lovers.

Yet visitors to the area, more than 15,000 a year, stay west of Wapusk, in or near the town of Churchill. Fewer than a hundred visitors a year have come to Wapusk since it was created in 1996, partly for the protection of the bears and their denning habitat. "The two areas are right next to each other, yet they're so different they might be two separate countries," says Elliott.

Simply put: The Churchill area, which lies along a bend of the coast running west from Cape Churchill, is underlain by bedrock near the surface, which makes it much firmer than Wapusk to the south (where the bedrock is deeper). So the Churchill area is terra firma, easier to walk on, drive on, even build a town on (they did). Since the retreat of the last continental glacier some 8,000 years ago, the land has been springing upward. This is some of the youngest land in Canada—and some of the soggiest. There are thousands of lakes and ponds in Wapusk. Bog, bog, bog. There is peat bog, or muskeg, dangerous if you take a misstep and fall into a muskeg hole. All of this is seasoned with an enormous and aggressive population of biting invertebrates.

In Wapusk there are no roads, no trails, no motels, indeed no tourist facilities of any kind. The terrain is too daunting, the bears too dangerous, and the liability too high for Parks Canada, Wapusk's overseer, in case of attack. A few people pay a thousand dollars (U.S.) an hour for a short helicopter flight in summer to view an unoccupied den, or visit a small temporary camp in the fall to watch the bears, or ride snowmobiles in late winter hoping to glimpse newborn cubs.

But these bears are in trouble. Hudson Bay polar bears, some of the southernmost in the world, are feeling the heat of global warming. The region is about two degrees (F) warmer in winter than 50 years ago. The bay's ice is breaking up in early July rather than late July, says Nick Lunn of the Canadian Wildlife Service. The earlier the ice disappears, the less time bears have to feed on seals. Pregnant females need to gain at least 200 pounds to sustain them through the long fast in their dens, where they may spend eight months. In the past they've been able to kill many seal pups being weaned by their mothers in early July. Now, with the ice melting sooner, the bears can't hunt and must forsake that nutrition. Such deprivation leads to fewer cubs surviving to adulthood.

"For every week that the ice is breaking up earlier, the bears are coming ashore more than 20 pounds lighter," says Lunn. He and his colleagues—including Derocher and Ian Stirling of the Canadian Wildlife Service—estimate that the bears are 15 percent smaller than they were 20 years ago. And Lunn says the latest census shows that in just ten years the bears' population has declined from 1,200 to less than 1,000. It doesn't seem like a temporary drop. "Until recently the numbers have been stable. The last two censuses, in the mid-1980s and mid-1990s, both showed 1,200 bears," says Lunn.

By 2050, southern Hudson Bay may be ice free year-round. Will Wapusk's bears move north? "There are already 2,000 polar bears in northern Hudson Bay," Lunn says. "The area probably can't take any more. The environmental changes in Hudson Bay are happening so fast that one day the bay may no longer be able to support polar bears."

Wapusk's bears will have to stay ashore longer and longer, marooned in the park created for them, watching and waiting for the ice. To the north the rest of the world's polar bears, about 25,000 of them, roam the Arctic. As the climate warms, what about them?

Part two:**Engage in a Three Part Analysis on this text****Part Two: phase one- Quantitative Measures**

- Choose a quantitative analyzer tool (Flesh- Kincaid)
- Run a readability on your text

Flesh Kincaid Readability analyzer results:

Grade Levels

Readability Formula	Grade		
Flesch-Kincaid Grade Level	8.1	Character Count	4,447
Gunning-Fog Score	9.8	Syllable Count	1,443
Coleman-Liau Index	10.1	Word Count	1,011
SMOG Index	7.4	Sentence Count	58
Automated Readability Index	8	Characters per Word	4.4
Average Grade Level	8.7	Syllables per Word	1.4
		Words per Sentence	17.4

Part Two: phase two- Qualitative Measures**Qualitative Measures****Further information regarding placing on rubric in table below.**

- **Levels of purpose-** Middle Low-Purpose: implied, but easy to identify based upon context or source.
- **Structure-** middle low
- **Language conventions and clarity-** middle low to middle high
- **Knowledge demands-** middle high

Part Two: phase three- Reader and Task Considerations**Reader and Task Considerations- Please see table below**



Text Complexity Analysis of Refuge in White *(title)* by John L. Eliot *(author)*

Qualitative Measures

Meaning/Purpose: *(Briefly explain the levels of meaning (Literary Text) or purpose (Informational text.)* Medium to low level of purpose. Purpose is clearly stated in beginning of article. Global warming has shortened the ice season in the Arctic, and the white bears of Canada's Wapusk National Park are feeling the heat.

Text Structure: *(Briefly describe the structure, organization, and other features of the text.)* The structure is middle low. The organization and main idea of the text are clear somewhat complex, easily implied, and sequential in order. Structure has good flow with main ideas building upon previous ideas.

Language Features: *(Briefly describe the conventions and clarity of the language used in the text, including the complexity of the vocabulary and sentence structures.)* Meaning is middle to low, largely explicit and easy to understand with some complexity. In terms of register, I would grade this text medium to high as the language is occasionally subject specific and academic. I would not say it is archaic. Some complex sentences, select difficult vocabulary. Some subject specific.

Knowledge Demands: *(Briefly describe the knowledge demands the text requires of students.)* Student's needs to have a knowledge of our Country and what global warming is as well as the effects it is having. Students will need some geographical knowledge. Middle to high knowledge demands are required for this text. There is reference to other text; as well, it requires moderated knowledge of the topic. Theoretical knowledge will assist with understanding.

Text Description

Briefly describe the text: Non-fiction informational text in a magazine. Part one of an article on global warming's effects on polar bears in Northern Canada.

Quantitative Measure

Complexity Band Level (provide range): 6-8 band level

Lexile or Other Quantitative Measure of the Text: Flesh-Kincaid

Considerations for Reader and Task

Below are factors to consider with respect to the reader and task (See attached guiding questions to assist each teacher in filling out this section for his or her own class):

Potential Challenges this Text Poses:

Students may not possess the necessary background knowledge required and will have to be given further instruction.

Major Instructional Areas of Focus for this Text: This text would be used to supplement the science textbook in a curriculum unit about habitats or environmental global warming. This text would not be used in my classroom for all learners instead it would be one of many pieces of text I supply to supplement instruction in the class providing text at students instructional reading levels.

Differentiation/Supports for Students: This is a text I would use to meet different students' needs. Using supplementary materials at the student's instructional reading level.

Students need to actively engaged and self-motivated to use this text as it would not be used with the whole class. Students would need to be at or above grade level reading comprehension to fully benefit from this text.

Recommended Placement

Briefly explain the recommended placement of the text in a particular grade band. Mid to late eighth grade. Using the information gained through the qualitative, quantitative and consideration for reader tasks it is my recommendation this text best be utilized in the mid to end of grade eight.

Part Three: Text Complexity Assignment

What did you learn about the text that you chose?

The text I chose was an information piece of text from a magazine. It is part one of a two-part article. The text that I chose was one I was interested in because I am always trying to find short articles that coincide with curriculum outcomes I am trying to instruct in core subject areas but is effective in literacy instruction. This article fits well with science outcomes in our curriculum. It can be used in my small guided group instruction during literacy time. I work hard to utilize non-fiction informational text that relates to other subject areas. I learned through the text complexity project that I would use this piece of informational text with a group of readers that are reading at or above grade level. This text supplements other information given while students are working on an inquiry project in science.

In addition, I became aware through reading the text it relates well to students, as it is about a place that most students have background knowledge of, and can make connections with because of its close location to our residence.

Upon first glance and skimming of the text, I thought it to be a very simple read that many of my students would comprehend it easily. With further inspection and analysis of the text, I found it to be at a level that would be above many of my students' comprehension level. I learned that it takes more than just a quick glance and skim to clarify if the text is at the appropriate grade level.

What did you learn about the process?

One thing I learned throughout this process is that it is very time consuming and takes one to be very critical of their background knowledge to make effective qualitative decisions about the text. I also learned that it could be very subjective to the person making the text complexity assessment. The qualitative rubric is very helpful when trying to decipher where to set a text's measure. I am of the opinion that it would be more reliable to moderate it with more than one person.

The quantitative process is simple as it is just a matter of putting the text into a computer-generated program and voila, it spits out all the information you need. I appreciate learning about these online text analyzers. I have never heard of or utilized a program such as this before. I believe I will continue to use the analyzer tool in the future. It is one of those things that once you're introduced to it you cannot imagine your life without it.

In the area of consideration of the reader and task I find can be the most personalized part of the text complexity. I found this to be the most personalized section of the text complexity. It is where you look at the purpose of using the text and how you would best work with it.

How does knowing about text complexity help you make instructional decisions (individual vs. whole class)?

By using the text complexity, it will allow me to differentiate between texts that would be best suited for whole group, small group, or individual use. By working through the text complexity process and closely analysing, the text (instead of just skimming) I will

be better able to make a professional judgement call in how the text would be utilized best within the classroom.

What challenges do you see with this process?

The biases in who is completing the text complexity. Each person has their own unique set of background knowledge that definitely would be a factor in their assessment of a piece of text. As professionals, we are aware of our background knowledge but, can one be truly aware of every aspect of it when trying to look at a piece of text and view it critically. It came to my attention that without even realizing it I had chosen a piece of text that not only suited my curriculum outcomes but also was geographically very close to home. Thus giving me knowledge of the article, someone living in another area or another country would not possess.

It would be great if all teachers had the time to do a text complexity on every piece of text they introduce in the classroom. That however is an unreasonable demand, one could benefit from using a text complexity complete by another but in the area of reader and task this may need some fine-tuning by the teacher whom works directly with the students. If I were to continue the process of doing text complexity on pieces of text, I would ask a colleague to work through the process together, thus reducing the risk that our own personal bias will influence our decision-making.