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IDEAS OF SCIENCE AND NATURE IN BIOGRAPHIES FOR FILIPINO CHILD READERS

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Abstract

Many biographies for children are written to teach their readers social values and acceptable patterns of behavior. But even when no such pedagogical aims are stated, biographies for children perform an ideological function. Since they narrate a “true story,” they direct young readers to think of the world and its people in the way these are presented in the text. The Bookmark Inc.’s *Women of Science Series* comprises ten books, each narrating an episode in the life of a living Filipino woman scientist. The Series’ aim is to encourage more Filipino girls to consider careers in science. Its author, Didith T. Rodrigo, herself a scientist, completed writing the series through a grant from the Philippine government. Using an ecofeminist lens, I analyze the Series to answer the following questions: What political view point or interests do these biographies serve? What patterns of behavior do they motivate children to emulate? What social relationships, and relationships between the human and non-human, do they tend to reify? I argue that the Series generally promotes anthropocentric views of science, consistent with Philippine policy pronouncements on science. However, tension points between this ideological frame and the words and practices of scientists featured in the series can be gleaned from the Series itself. I demonstrate how these tension points can lead to fruitful discussions on scientific practice informed by ecological understanding.

Keywords: children’s literature, literary criticism, ecofeminism

Introduction

Children are naturally curious about the world around them—including the social world. Biographies, being true stories about people, naturally pique their interest. Arguing for the construction of more biographies written with a child reader in mind, Grace Miller Heriot pointed out that biographies have the added value of “inspiring” children with “ideals” (1948).

Today, many biographies for child readers are published aiming to inspire young people to follow model exemplars. Tahanan Books’ *Great Lives Series*, for example, consists of 12 books recounting the life stories of 12 important Philippine historical figures and heroes. The Bookmark Inc.’s *Modern Heroes* for

The Philippine Youth, consists of 24 books about the lives of contemporary Filipinos, many of whom were alive when the books were published. These books are written to teach them social values and acceptable patterns of behavior.

The most recent example of biographies for children is The Bookmark Inc.'s Women of Science Series—10 books narrating an episode in the life of a living Filipino woman scientist. The Series' aim is to encourage more Filipino girls to consider careers in science. As I will show in this presentation, Women of Science accomplishes this by portraying successful women scientists as exemplars of behavior that ensure success in the scientific field.

These biographies, which all aim to motivate children to behave in certain ways, perform an ideological function. According to Daniel Bell (1960), ideology is an action-oriented system of beliefs. Being "true stories," biographies direct young readers to think of the world, its peoples and cultures, in the way they are presented in the text. Accepting this portrayal of the world, children act according to what they believe is expected of them—that is, in a manner consistent with what the text suggests is correct and true. But precisely because its purpose is political, ideologies often operate to obscure reality, so that certain social institutions or interests may be served, and specific points of view, affirmed.

For example, it has been argued that The Great Lives biographies were what Louis Althusser called an "ideological state apparatus," a state-approved tool that reified existing class relations. Francis Ang noted, for example, how the books highlighted fairly minor life events, but omitted controversial incidents—points of contention between the state-supported narrative and counter-narratives about the hero and about Philippine history. In this way, Ang concluded, the biographies reified "a clear mainstream narrative that supports the existence of the [Philippine] nation" (2016).

Bearing in mind that biographies perform an ideological function, what mainstream narratives do the life stories in the Women of Science Series support? What political view point or interests do they serve?

What do they teach our children about our world? What patterns of behavior do they motivate our children to emulate? What social relationships, and relationships between the human and non-human, do they tend to reify?

Method

The Women of Science Series and Philippine State Policy on Science

The Women of Science Series stands out among contemporary Filipino children's books. Re-leased in 2017 by The Bookmark, Inc., each of the ten books in the series consists of 20 fully illustrated pages that narrates an episode in the life of a living Filipino woman scientist. Award-winning children's author, Didith T. Rodrigo, who is herself a scientist, obtained a grant from the Gender Committee of the National Book Development Board's Trust Fund Grant Program to interview and write about ten of the country's "most respected female scientists" (Rodrigo, 2017b, p. 19). She then recounted incidents from the lives of her interview-ees, focusing on how they became scientists, or on narratives that described what it was like to do scientific work in the Philippines.

Rodrigo's aim was to encourage more Filipino girls to consider careers in science. Each book contains an afterword which states that "[w]omen and girls opt out of STEAM fields not because of a lack of talent" but because of "a lack of

encouragement.” Consequently, “relatively few women and girls enter the fields of science, technology, engineering, agriculture, and mathematics” (19). Statistics from the Commission on Higher Education for 2016-2017 bear this out. Out of 448,550 students enrolled in engineering and technology courses at the tertiary level, 317,152 (70.7%) were male, and 131,398 (29.3%), female.

Ecofeminist critique

Ecofeminists draw connections between anthropocentrism in scientific practice and the capitalist mindset, which is perpetuated by dualistic hierarchies of domination, premised upon an ontological divide between human/non-human; culture/nature; man/woman; man/child; mind (soul)/body; heaven/earth, etc. As Alice Curry discusses this in *Environmental Crisis in Young Adult Fiction: A Poetics* (2013), in a capitalist patriarchy, women, nature, and body are all correlated, coded as fecund, nurturing, and nourishing— but also primitive and non-human; men, on the other hand, are viewed as the dominant force in politics, economics, and culture, the embodiment of reason; harbingers of human civilization, progress and development.

Just as women are thought of as having a natural, physiological connection to the earth, children are traditionally viewed as “mere products of heredity and the environment,” and embodiments of innocence and imagination, qualities that are replaced by sophistication and rationality in adults. In turn, nature has been viewed as possessing qualities associated with children: “immediacy, wildness, uncultivated simplicity” (Curry 2013).

These cognitive biases have serious material effects. The Asian Development Bank Gender Hub reports that only 49% of women of working age in the region participate in the labor force compared with 80% of men; and a woman receives, on average, only 77% of what her male counterpart is paid. To this day, only around 10% of women in developing Asia own land (2018).

In certain countries around the world, more boys than girls enroll in school. For example, 78 girls in Chad and 84 girls in Pakistan are enrolled in primary school for every 100 boys (UNICEF 2020a). This, despite the fact that increasing the number of girls in school has not only proven to increase girls’ earnings throughout their lifetime, but has also coincided with drops in child marriage, child mortality, maternal mortality, and child stunting (UNICEF 2020b). Until today, ILO reports, there are around 265 million child laborers around the world, unable to enjoy the right to education (Ortiz-Ospina et al. 2016).

Ecofeminists point out that the same global corporate practices that use science as a means to extract more profit from exploiting the natural world, are the same ones that tolerate, if not encourage, women’s exploitation and child labor.

Because of the problems’ ontological roots, ecofeminists call for the eradication of the false divides between the categories man/woman, culture/nature and human/nonhuman, using “the underlying association between women and the natural world...as a source of both subjugation and resistance, exploitation and inspiration” (Curry 2013). Where the mainstream narrative emphasizes division and alienation, ecofeminism encourages community, creaturely feeling, embodiment and embeddedness. Where texts or practice tend to subordinate women and children, ecofeminism seeks readings that amplify their humanity and agency, and promote their empowerment. Where nature is presented as nothing

more than resource for human consumption, ecofeminism raises the possibility of nature's (that is, non-human) autonomy, agency, even culture (Plumwood 2001).

Findings and Discussion

That Bookmark Inc.'s *Women of Science Series* aims to inspire young girls to study science and aspire to become scientists seems consistent with ecofeminism's empowering objective. The books do the work of raising women's representation in what is perceived as a male-dominated field, thereby breaking this particular gender stereotype. Some stories foreground the fact that their subjects worked in prestigious or otherwise important institutions, and occupied leadership positions:

Jurgenne Primavera was a scientist working in the aquaculture department of a research center in Iloilo (Rodrigo, 2017f, p. 4).

Giselle is a chemist who works at the University of the Philippines Diliman. She studies the bacteria found in turrids, a family of snails found in the ocean (Rodrigo, 2017j, p. 4).

Nida never pictured herself as a botanist, but there she was, one year later, at the Smithsonian working on the seagrasses and seaweed collection. (Rodrigo, 2017e, p. 13).

Evelyn formed a team made up of engineers and scientists from different fields. They set up a food waste research program. (Rodrigo, 2017i, p. 5).

Nina and her assistant, Toto, had been hiking up the mountain for over an hour (Rodrigo, 2017b, p. 2).

Other stories presented their subjects as being at home with scientific concepts and jargon—emphasizing their ability to live the life of the mind:

Jinky Bornaes studied the random walks of something called polymers (Rodrigo, 2017g, p. 6).

When Ninette looks at a mat, she sees what is known in geometry as symmetry or rigid motion" (Rodrigo, 2017h, p. 5).

Moreover, the subjects are represented as plucky and resourceful, unafraid to go head-to-head with government officials, company owners, and other authority figures, who, in all of the stories, happen to be male:

"Cap, please don't kill the mangroves."

"Ma'am Jurgenne," Cap relied, "I need to create jobs for the people in my community."

Jurgenne had to think quickly. "But I have a research project in that forest."

"Is that so?" Cap frowned (Rodrigo, 2017f, p. 10-11).

"Well," the captain said, "We can't really stop people from going there. This is their area after all..."

“We don’t have to prevent people from going to all the caves,” Ging replied. “We just have to conserve some so that the birds and the bats have places to live” (Rodrigo, 2017c, p. 13-14).

Some stories begin with the subjects persuading a reluctant male in a gatekeeper or custodian’s role to allow for the scientific study of some property:

Mr. Palma was unconvinced. “We have experts who know how to do this already. All they have to do is look at a mat and they can tell where it’s from” (Rodrigo, 2017g, p. 11).

Some people had doubts. Mr. Rex, the owner of a large mango processing plant, did not believe that Evelyn’s team could make something useful from the mango wastes (Rodrigo, 2017i, p. 7).

But in the end, the men admit they were wrong:

Mr. Palma approached her after the talk and said, “I always knew that our mats were beautiful, but I never realized how complex they were until I listened to you” (Rodrigo, 2017g, p. 14).

One day, Evelyn was surprised to receive a call. It was Mr. Rex. “I’ve been keeping up to date with your work,” Mr. Rex said. “It’s been fantastic, really! Congratulations!” (Rodrigo, 2017i, p. 16).

Male community leaders ask the subjects’ advice, banking on their scientific expertise:

Turning back to Gemma, the mayor continued, “Is this still related to the weather somehow? Is this something that could come again?” Gemma paused for a moment. “Let me look at the data and get back to you” (Rodrigo, 2017a, p. 13).

Instead of emphasizing childhood passions or a natural inclination for the sciences, the stories foreground qualities and values to which success and excellence in the sciences are attributed. For example, the stories communicate the message that the success of a scientist is the outcome of consistent, patient work, innovation, and attention to detail—all of which are qualities that are identified as valuable to science, rather than attributed as the natural inclination of one sex:

Decades of patience, concentration, and effort made her a true master of her craft. Procedures that used to take two years now take only two weeks. Before, she required hundreds of kilos of plants and gallons and kilos of chemicals to do her work. Now she can work with a sample as small as 10 grams...She has also mastered scientific writing. It took her literally years to finish her dissertation paper. Now, once she has her lab results and the data interpreted, she is able to finish writing a single scientific paper in about one day (Rodrigo, 2017d, p. 13-14).

Nida...learned how to identify the different grasses and seaweeds. She learned how to make technical drawings of each species. She learned how to photograph the

specimens and develop the pictures. When they received a specimen, she asked herself: Was it something they had already catalogued? Was it something completely new? She had to compare it against all the other specimens to find out. Nida quickly learned that details were essential. Knowing details was the only way to know science (Rodrigo, 2017e, p. 13).

These qualities are emphasized as key to a child's future professional success in the sciences. The story *Chemical Romance*, for example, begins with: "What does it take to be a world-class scientist? Read this story and find out" (Rodrigo, 2017d, p. 2). But this drive to achieve success is not for purely personal reasons; it is presented as advancing the country's position as well:

Researching on our own sea creatures could bring local science up to international standards. We could stand shoulder to shoulder with leading scientists from other countries (Rodrigo, 2017j, p. 14).

Moreover, the Series takes pains to show how their subjects use their knowledge of science to solve human problems such as illness, poverty, and climate change:

There were many new organisms that were stronger and more resistant to current drugs. Studying organisms like the bacteria in turrids might help scientist find new treatments.(Rodrigo, 2017j, p. 13).

Connie focused her studies on dilang baka, a common weed that thrived in the UPLB campus. Some people used dilang baka leaves to heal wounds and to reduce swelling, but no one knew for sure if or why the plant worked. If the compounds that Connie found turned out to be good for human beings, people could then invest in more research to determine how this plant could be used as medicine (Rodrigo, 2017d, p. 6).

What was most important to Evelyn, though, was that the work she was doing was helping poor people. Evelyn, her team, and their partners set up a company called Green Enviro Management Systems (GEMS), Inc...In its first two years, GEMS employed 36 people from Jansenville, people who would otherwise be picking garbage from the dumpsites (Rodrigo, 2017i, p. 14).

Gemma stood at the podium and looked at the crowd. A strong typhoon had recently hit this small rural town. Many of the farmers lost their crops. The fishermen lost their boats. Some people lost their homes. Would they really listen to a university professor speak about climate change? (Rodrigo, 2017a, p. 7).

It is not difficult to see how the narratives serve to make the science an attractive career option for the Filipino girl child. A career in science, these stories suggest, does not necessarily call for extraordinary talent or smarts—but for hard work and discipline. Jobs in science are equal-opportunity environments, where girls can succeed, and even become leaders in the field. Pursuing scientific knowledge is presented as desirable, not just for its own sake, but because it can help solve social problems. Science allows the child to imagine herself being useful to society, and presents the ability to contribute to human flourishing as desirable.

Questions from an ecofeminist lens

It is not enough that the Series raises female representation in the sciences; ecofeminists would ask how such representation is raised. Might it be asserted, for example, that although the stories propose that women, like men, can be scientists too, they also suggest that success in the sciences requires the adaptation to patterns of behavior expected from, and values held by, male scientists?

Disembodied subjectivities

Although (as previously mentioned) values and behavior patterns that are identified as important to success in the sciences are not explicitly coded as male- or female-specific, one cannot help but notice that the female-ness of the subjects—for example, information about their marital status, or whether or not they have children—are pointedly ignored. It may be argued that these questions are not often asked of male scientists (if at all). But most men are not interrogated about these matters because these responsibilities are so commonly expected to be borne by women. To downplay these issues in the lives of women scientists closes the door to questioning the status quo.

What's missing here is the sense that the scientists portrayed in the series are not embodied subjectivities. The female body that is perceived to be so closely related to the Earth, is mentioned only in one story—that of a scientist who doesn't have children:

Nida has spent much of her life caring for the environment and teaching others to do the same. She has no children of her own, but she has had many, many students (Rodrigo, 2017e, p. 15).

What emerges is the message that a successful scientist is, first and foremost, a thinking, observing subject—a brain. It is as if the woman's body is so closely tied to ideas of the primitive, the backward, the underdeveloped, that one must efface it altogether so that one might better claim parity with men in science. Ironically, therefore, equality is sought (if not obtained) by reinforcing the mind/body duality.

Acquisitive materialism and specie dominance

De-emphasizing human embodiment denies how embedded we are in nature. To imagine oneself as disembodied subjectivities makes it easy for us to treat nature as an object of consumption—and this, too, facilitates the human tendency to take and use what nature gives until it runs out.

There is an acquisitive quality that the stories seem to privilege: many of the subjects are praised for possessing curiosity, a spirit of inquiry, and a strong desire to know—in fact, a strong, overriding desire to possess knowledge:

People send her new plants for analysis all the time. When they do, she is always challenged, but never daunted. After a few preliminary tests, she immediately has a hypothesis about what it contains. “I know what you're made of!” she say and then proceeds to her laboratory to prove it. (Rodrigo, 2017d, p. 16).

Because nature is the object of scientific study, this unquenchable thirst for knowledge transforms into an unrelenting quest for rare creatures so that they might possess new knowledge:

After four nights of netting bats, Nina and Toto walked down the mountain. Their arms and backs ached, their stomachs grumbled, and their clothes were muddy. In Nina's notebook, though, was *information that no one else had before*, and this was enough to make them smile (Rodrigo, 2017b, p. 17).

There is even something pleasurable but also transgressive in the acquisition of knowledge, as suggested by the following passage: "These tiny creatures had finely tuned survival skills. How did they continue to exist after ages and ages? She was prying into the secrets of nature" (Rodrigo, 2017j, p. 13).

The scientist's study of non-human creatures is an exercise of power, and possibly, a claim of dominion. What these, in turn, suggest is a reinforcement of patterns of human domination over other species.

A number of the stories justify the acquisition of knowledge to be essential to the survival of the human specie; to eradicate poverty or sickness. But these only tend to demonstrate the anthropocentric thrust of scientific practice today. In one story, the conservation of forests, mountains, and caves was asserted to be important "for future generations to enjoy" (Rodrigo, 2017c, p. 16).

Representations of nature

Despite the preponderance of stories about conservation, the texts invariably suggest a landscape of abundance, one that is rarely matched elsewhere in the world:

The variety of life in Philippine oceans was so abundant, few other places in the world had the same diversity.

The Series suggests that scientists practice in this natural environment teeming with life:

When she returned to Mindanao, she focused her research on cataloguing the rich animal life in forests, mountains, and caves...After hours on rough road, they camped near streams or rivers so that they always had fresh water (Rodrigo, 2017c, p. 6).

The lush landscapes depicted in the Series might make a child wonder why nature needs to be conserved in the first place. Shouldn't humans—especially those struggling with poverty and who live in countries suffering from underdevelopment— have the right to take what they need from nature—including space—since nature is so abundant anyway? Such stories take as given that human society and nature occupy separate spaces. In a world of finite resources, humans will inevitably wrest space and resources from nature. Science enables this human mastery over nature and wilderness, or at its least aggressive form, polices the two separate realms strictly (for example, humans are entitled to use certain caves, but leave the rest to non-human life).

Filipino scientists have the privilege to work in one of 18 mega-biodiverse countries in the world. The country is believed to contain 2/3 of the earth's biodiversity and between 70 to 80 percent of the world's plant/animal systems. This notwithstanding, the Philippines, like all other countries on earth, is threatened by climate change and environmental degradation. There is, however, a curious silence as to this crisis of planetary proportions, and the role human activity has played in bringing it about.

One story, *Beyond the Storm*, describes how Dr. Gemma Narisma helps a community hit by a typhoon understand how to minimize risks brought about by natural calamities (Rodrigo, 2017a). Although the text is a straightforward account of Dr. Narisma educating the community during a meeting, illustrator George Vincent Bien portrays Dr. Narisma as a sword-and-shield bearing warrior fighting against threatening anthropomorphized rain clouds on the book cover (Figure 1). Another illustration shows the same rain clouds attempting to blow down a set of anthropomorphized houses (Figure 2). These illustrations suggest that humans are at odds with nature; nature is the enemy; and nature must be defeated by human.

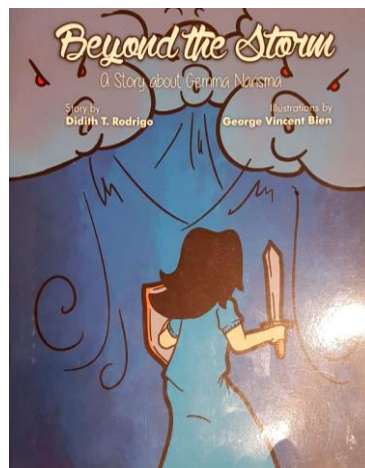


Figure 1. Cover of *Beyond the Storm* by George Vincent Bien (D. Rodrigo, *Beyond the Storm*, 2017; The Bookmark Inc.).



Figure 2. Illustration from *Beyond the Storm* by George Vincent Bien (D. Rodrigo, *Beyond the Storm*, 2017; The Bookmark Inc.).

In portraying nature as human society's enemy, the illustrations do *not* tell an important part of the story: that the effect of many natural disasters today are exacerbated by climate change. Human activities around the world, such as the burning of fossil fuels, are touted to be the reason behind it.

Although Dr. Narisma is a climate change expert and was likely called to speak to the community because of her expertise, climate change is not mentioned in the story. Admittedly, it is difficult to explain how a scientist and her team can defeat, not just nature, but climate change—widely touted to be the biggest threat to life on the planet today.

One might argue that there is no space in a children's book—especially one that aims to *encourage* young girls to get into the sciences—to discuss the structural and material causes behind the modern human's drive to maximize extraction of value from nature (capitalism, for example). This, however, speaks of what we, authors and scholars, assume about child readers—and these assumptions may very well be wrong. We may assume, for example, that child readers would not be able to understand complex social issues—and thus leave these out of a text. But perhaps it is we—parents, publishers, authors—who have difficulty thinking through and communicating our own convoluted assumptions about reality to our children. That we face wicked problems is an altogether different issue from what child readers can, and cannot understand.

It is important to remember that pre-modern societies lived *with* nature, rather than separately from it. Once, the human occupied a place *within* nature, rather than outside it, a place that was in *harmony* rather than conflict with it. What changed things? How might things change again? How does the modern human, the scientist who sees nature primarily as object of study and as resources re-embodied herself in nature, restore relations between herself, her community, and the non-human? These are questions that are both interesting and relevant to adults and children alike. Our search for answers may very well ensure the survival of all creatures on earth, including ourselves. We would do well to introduce such questions to our young.

Counter-narratives in the Women of Science Series

To sum up: there is a danger that discourses of individualism and species dominance in human/non-human relations are strengthened by narratives that do not emphasize human embodiment and ecological embeddedness. To imagine nature as an aggressor makes it easier for us to destroy it. Conversely, to imagine oneself as part of nature leads to the realization that to preserve nature is to preserve the human self. We need to cultivate our imaginations in this direction so that we might develop an ethics of care.

Fortunately, there are stories in the series that demonstrate a healthy tension between anthropocentric scientific practice and views and a more ecological understanding.

The story *Capturing Flight: A Story about Nina Ingle*, suggests, on the one hand, the pursuit of scientific research for the sheer and individualistic pleasure of finding—and possessing—“information that no one else had before” (Rodrigo, 2017b). However, the story itself actually goes into painstaking detail about how Dr. Ingle and her assistant Toto put into operation a scientific protocol that allowed them to study bats without having to hurt or kill them. After tagging

them, Dr. Ingle would set them free. The protocol speaks volumes about the respect Dr. Ingle had for the bats. It is the respect one accords a fellow creature.

It is *Mangrove Warrior: A Story about Jurgenne Primavera*, that portrays most eloquently how a scientist—a human being—pays attention to nature, not as an object of study but as a fellow creature (Rodrigo, 2017f).

Unlike the other stories in the series, *Mangrove Warrior* foregrounds the strong emotional connection Dr. Primavera felt toward the Ibajay Mangroves in Aklan. It was “close to her heart.” It enchanted her. She “instantly falls in love” with it (Rodrigo, 2017f, p. 5). Lost in the mangrove, she notices with concern that the bark of some trees had been deliberately removed—a practice, she is told, preparatory to killing them off. When she learns that the barangay captain had decided on replace them with bakhaw, which could be cut down and sold (Rodrigo, 2017f, p. 8), she resolves to “do something to save their trees.” And it is at that moment, we are told, when she and her companions find their way out of the forest.

Instead of viewing or talking about the trees as though they were her objects of study, Primavera recognizes nature’s sentience, and accords it a kind of agency: “Were there indeed spirits watching them as they walked? Did they test her heart, find that her intentions were good, and then lead them back to the highway?” (Rodrigo, 2017f, p. 9).

Once out, Primavera meets with the mayor and insists she needs the trees for her research—despite the fact that she had not yet secured any grants to fund it. To save the forest from human degradation, she embarked on mangrove research. Nowhere else in the series does a scientist undertake research as a strategy to ensure that the nonhuman be protected from human encroachment. The story is interesting in its portrayal of its subject—the protagonist—as a scientist who relates to nature as a being of equal status and dignity.

A similar sentiment is expressed in *Gardener of the Sea: A Story about Nida Calumpong*. At the end of the book, Dr. Calumpong expresses that all her efforts to teach people to restore and rehabilitate underwater areas was to allow *all* life to flourish:

When I die, plant a tree and bury me under it
The tree will bear fruit and the cycle of life will continue.
The purpose of life is to give life. *It doesn’t have to be of the same species* (Rodrigo, 2017e, p. 16, emphasis supplied).

Conclusion

If ideology both constitutes and obscures reality through the reification of ideas and ideals that form the basis of our actions, one way of resisting ideology is to question these ideas, their representations, our received values and meanings—not so much that we might possess the answers, but to clarify our desires. Questions create space for us to view things differently, thus enabling the possibilities for living differently, and more deliberately.

Although we can never completely escape ideology, questioning can help us live with it more intentionally, as individuals and as a collective. Even texts that tend to reify mainstream narratives contain seeds of possible counter-narratives; but unless one inquires into the former, these counter-narratives might never even be identified.

Beyond questioning a text, one might wish to inquire into what child readers think about issues and concerns that are frequently de-emphasized in mainstream narratives.

For example, one might ask a child who has just read one of the books from the Woman of Science series to imagine what kind of childhood the subject of the book had. This might lead to an investigatory project and possible interview and interaction with one of the subjects of the biography series—for all are living scientists. This project would provide the child with a context to ask the scientist about an early childhood experience with the natural world. Such an interaction might yield an account left out in the book, one that may very well reveal the scientists' direct and embodied responses to nature.

Children may also be asked about their own embodied experience in the world and in nature. They might be asked to describe where they live, their "natural habitat," the home, and what creatures, other than human, shelter in the same place. One might even ask them to imagine themselves as one of these creatures: how would you now see the world from that creature's point of view? Such questions and activities can be springboard for further discussions and inquiries that serve to unify, rather than divide human/non-human; woman/man, etc.

Finally, one may ask child readers to ask about issues such as climate change, poverty, gender discrimination, and social inequality, and, together with the rest of the class pursue a joint investigation on how these issues are all connected to the way we envision ourselves in the world.

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