

FRIDAY FREEBIE

MARY FIORE | MARIA LUISA LEBAR

The Four Roles of the Numerate Learner

Effective teaching and assessment strategies to help
students think differently about mathematics



Understanding Critical Literacy

Understanding Critical Literacy

To better understand the role of critical interpreter in mathematics, it is important to review and reflect on the principles of critical literacy. According to Paulo Freire (1970), critical literacy focuses on issues of power and promotes reflection, transformation, and action. Freire developed the notion of *praxis*, which requires people to reflect on their social, economic, and political realities, and to act on the knowledge acquired to transform these current realities by making changes in their local and global communities (Freire, 1970).

Freire also challenged the dehumanizing banking approach to education, which viewed learners as empty bank accounts that need to be deposited with knowledge. He disrupted this way of thinking about teaching and learning by introducing a problem-posing approach that moved learners from being passive in the learning process to being active participants. Being critically literate is, therefore, about learning to read the world and engaging in practices that encourage learners to question and challenge the beliefs and value messages expressed by authors.

Being critically aware helps learners develop a critical stance to identify and interrogate ideologies, identities, and values that are presented in a variety of social, economic, or political contexts. Building critical awareness is connected to an individual's literacy identity, which is shaped by the person's social and cultural experiences (Anstey & Bull, 2006). This is why educators often think of ways to activate students' prior knowledge before introducing a new concept and/or skill. Students' social or cultural experiences may influence the way they think about an idea, read and interpret a text, or even execute a task (Anstey & Bull, 2006). Being critically literate is about interacting with knowledge and ideas in a reflective and active manner, as opposed to passively receiving and accepting information without questioning authority, purpose, authenticity, reliability, relevancy, and accuracy.

This notion of critical literacy certainly supports the idea that readers should not believe everything they read and that there is always another perspective that is missing. Texts are created with an intended purpose by an author who makes intentional choices about audience, style, format, language, text features, and the use of literacy devices to convey value-laden messages about a topic, issue, or concept. The ideas expressed are therefore biased, and perhaps only shared from one perspective.

In Luke and Freebody's *Four Roles of the Literate Learner* framework (1990), the role of "text analyzer" is intended to help readers examine the critical analysis process when using texts. Anstey and Bull (2006) affirm, indicating that being a proficient text analyst involves understanding how texts affect our view of the world and how they shape our behaviour and lives. It is, therefore, critical to engage students in focused conversations about texts that will help foster a mindset of transformation leading to action. We can ask questions to encourage discussions about critically examining the purpose of texts, as shown in Figure 5.2.

"Critical literacy helps us move beyond that passive acceptance and take an active role in the reader-author relationship by questioning issues such as who wrote the text, what the author wanted us to believe, and what information the author chose to include or exclude in the text."

McLaughlin & DeVoogd, 2004, p. 6

"We need critical literacy because it helps us: (1) to establish equal status in the reader-author relationship; (2) to understand the motivation the author had for writing the text (function) and how the author uses the text to make us understand in a particular way (form); (3) to understand that the author's perspective is not the only perspective; and (4) to become active users of the information in texts to develop independent perspectives, as opposed to being passive reproducers of the ideas in texts."

McLaughlin & DeVoogd, 2004, p. 7

FIGURE 5.2: QUESTIONS TO ENCOURAGE CRITICAL ANALYSIS

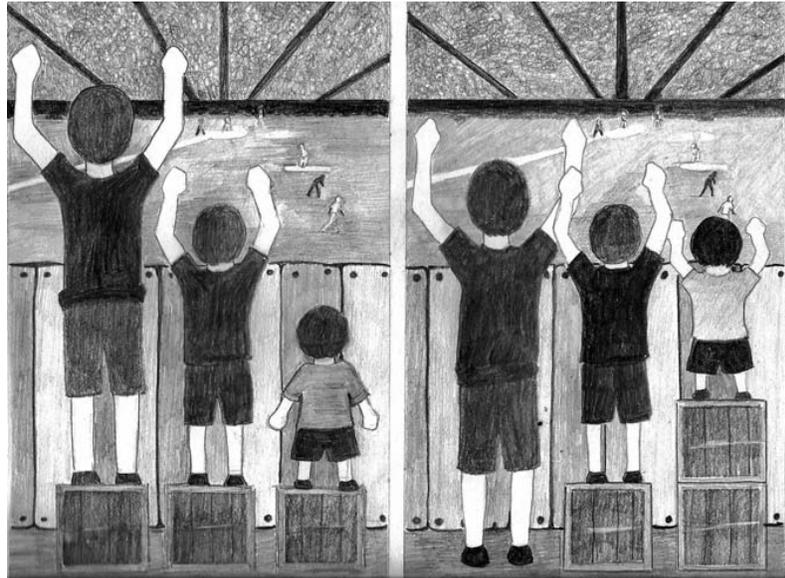
<p>Theory into Practice</p> <p>Questions about the LITERACY LEARNING TASKS:</p> <ul style="list-style-type: none"> • What is the purpose of this literacy learning task? What is the learning goal for this task? • Who is involved with this literacy learning task and with what interests and values? • Why am I involved—what are my purposes, interests, and values? • Is there social and cultural knowledge or experience that will help me in this situation?
<p>Questions about the TEXTS:</p> <ul style="list-style-type: none"> • What is the purpose of this text? What is it trying to achieve? • How does the purpose of this text shape the genre, form, structure, organizational pattern, use of language, and/or word choice? What can I expect to encounter? • What do I know about this genre and texts that will help me identify dominant positions and beliefs? • What do I know about this genre and texts that will help me identify beliefs and positions that are being silenced? • What is the origin of this text? Who is the author? What authority does the author have? • How does the origin of this text affect the way in which I should position myself when I read it?
<p>Questions about the TRANSFORMATION:</p> <ul style="list-style-type: none"> • What is my desired relationship with the participants involved with this literacy learning task, and how will I behave? • How will this affect my use of language (e.g., choice of vocabulary)? • What do I think about this text and the implied ideas/messages? • What is the text trying to make me believe, think, or do? • Whose voice is represented in this text? Whose voice is missing? • Who is being advantaged? Who is being marginalized? • What alternatives are there to the beliefs and ideas presented in this text? • How might I reconstruct or modify this text as I use it for this learning task? • What actions will I take as a result of my text analysis?

Teaching and Learning Multiliteracies, *Anstey & Bull, 2006, p. 52.*

If students are going to be actively involved in creating change in their local and/or global communities, then they must develop a repertoire of literate practices that include the dimension of critical analysis. These practices will require them to question the status quo, consider alternative perspectives, and take actions that will positively affect their social, economic, and political futures.

An Opportunity for Reflection

How could the following image be used to support a text analyst discussion about transformation and taking action?



Connecting Critical Literacy to Critical Numeracy

“Critical numeracy sets out to encourage students to see that mathematical practice is always morally and politically loaded—and that when mathematics is used in practical situations, students should understand and reflect on the world position of those using it.”
Stoessiger, 2002, p. 48

If literacy can be used to make the world a better place, can numeracy be used in the same way to change the way we view the world? Numeracy can support and enhance how we function and participate actively in society. Calculating discounts when shopping, measuring and estimating when cooking, calculating tips and taxes at restaurants, creating budget plans based on earnings and expenses, and banking and managing finances (including investing, saving, exploring mortgage rates, and understanding interest rates) are just a few examples of how numeracy applies to real-world contexts. But how do mathematical knowledge and skills foster a critical mindset? How might this be possible, and what are the implications for the teaching and learning of mathematics? How can the dimensions of critical literacy be applied to support critical numeracy?

By reflecting on the characteristics of critical literacy, we can conclude that the ideas that shape the notion of being critically literate can be used to build an understanding of what it means to be critically numerate. After all, adopting a critical stance is an attitude—a way of thinking and being—that allows students to actively and consciously participate in the learning process. This would mean that using a critical analysis approach to teaching and learning is cross-curricular and interdisciplinary, as described in Chapter 1. Figure 5.3 shows how to begin unpacking the dimensions of critical numeracy.