Guiding Independence: Developing a Research Tool to Support Student Decision Making in Selecting Online Information Sources

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Critical thinking skills were emphasized in this lesson on evaluating websites for their usefulness in research projects.

Helping students become strategic and independent readers of information is increasingly challenging due to the proliferation of networked information, especially the Internet with its varied text structures and formats (Coiro, 2003). Determining which sources to select, which to trust, and which to avoid is essential in an age of information, especially when criteria for selecting sources of information seem to be in short supply (Alvermann, Swafford, & Montero, 2004).

As an upper elementary teacher, Rindi (first author) found herself repeatedly asking certain kinds of questions as students worked on research assignments. These questions typically encouraged students to consider the readability, trustworthiness, and usefulness of the sources of information they were using in their research. For example, she would often ask,

- Is that website easy for you to read and understand by yourself? Can you retell it in your own words?
- How can you be sure that the information you found for your research topic is accurate? Do you trust that the information is correct?
- Is that information helping you find answers to your research questions? Did you plan out questions about your topic to help you in the research process before you started searching for information?

Rindi's students generally approached research projects with enthusiasm, yet most lacked effective strategies for evaluating sources or finding resources that were "just right" for them to use in their research. They typically didn't have a plan in mind as to what they were trying to find in sources of information they encountered during their investigations. Most often students were willing to use any source they could locate (from the library, Internet, or home) that related to their topic and didn't carefully consider the reading level of the source. For notes, they often copied sentences or entire paragraphs they didn't fully comprehend. Pictures copied from other sources were often used to fill up space, and great care was especially obvious in the creative use of font and text color to make their work attractive.

The Internet increasingly is used in student research, and for even technologically savvy elementary students the process of researching can generally be summed up in one word: *Google*. For students, *Google* is both a noun and a verb. With Internet access, what more do they need to complete a research product? Many student "researchers" simply type in a keyword, get a list of websites, open a few, copy and paste information into a document, find a few pictures, and repeat the process. Then they move sections around, add color, use a fun font for the text, and use a customization tool in the word processing program for the title. As Kuiper, Volman, and Terwel (2005) noted, the Internet makes access to a great deal of information possible for students and allows them to become "authors" of information themselves.

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Core Challenges of Research With Elementary Students

Finding informative resources at appropriate reading levels is a challenge for teachers and students alike. Teachers often try to cut short this challenging and time-consuming process by finding resources for students or by sitting one-on-one with students to interpret information using vocabulary they can understand. However, trying to do this with each student pursuing a different research topic is difficult. To address these issues, teachers need to show students strategies for finding resources at their reading comprehension level, for finding "kid friendly" material, and for quickly checking to see that a source is trustworthy in the context of their research. Students need to learn systematic and strategic ways to make decisions about information they encounter in their investigations.

Students can learn these more systematic approaches at the elementary level. Can I use this source? Is this source what I am looking for? Can I understand this on my own? Do I trust this source? These are questions young students should be asking themselves as they peruse potential resources. Armed with effective strategies to guide their decision making, students are more likely to answer these kinds of questions in ways that help them become more independent and efficient readers and researchers.

This study investigates what happened when students were taught independent research strategies and the use of a research resource guide during a project on layers of the rain forest. On the basis of research that points to independent readers' abilities to evaluate sources of information by applying certain criteria and guiding questions as consistent reading practices (Burke, 2002; Duke, 2004), we examine the extent to which these students became more independent researchers through explicit instruction and the use of a set of guiding questions (the research resource guide).

Useful Perspectives

One core challenge young readers face in inquiry-based learning involves making decisions about what sources of information to use in their investigations. As Leu and Kinzer (2000) have argued, developing the strategic knowledge necessary for selecting sources of information needs to become a critical component of literacy curricula.

Especially when using the Internet to conduct research, the texts students encounter may be too difficult to read, unreliable, or inaccurate. Burbules and Callister (2000) pointed to several negative aspects of using the Internet: Students may come upon misinformation (e.g., wrong or incomplete information); "malinformation" (e.g., information that is harmful, such as pornography); "messed up" information (e.g., information that is badly presented, unorganized, and unusable); and useless information (e.g., information that is of little relevance or use). Our study points to the need to help students become more discerning readers of all texts, able to make judgments about the readability, trustworthiness, and usefulness of information.

To understand *how* students learn to become independent readers, we find it useful to view reading as a social practice. Drawing on ideas grounded in sociocultural perspectives of learning (Moll, 1994; Vygotsky, 1978), we feel literacy practices are more usefully understood as "existing in the relations between people, within groups and communities, rather than as a set of properties residing in individuals" (Barton & Hamilton, 2000, p. 8). Sociocultural theories emphasize that reading is done within a community of practice, such as a classroom, where learners use a repertoire of resources, such as the routines, tools, criteria, or concepts "that the community has produced or adopted in the course of its existence and which have become part of its practice" (Wenger, 1998, p. 83).

Vygotsky's (1978) notions of tool use also help us see literacy as an activity that can be guided through the use of certain tools, such as models or heuristics. In this sense, a research guide with guiding questions to help students decide whether or not to use a particular resource is a literacy tool. This study builds on other work that suggests students can develop literacy strategies through tool use (Damico & Baildon, 2007; in press).

Learning to be an independent reader able to evaluate information requires that students learn to apply criteria and guiding questions as consistent reading practices. Good readers are strategic readers (Duke, 2004), and according to Burke (2002) no other tools will help readers

> as much as the right questions, asked at the right time and in the right way.... By asking questions repeatedly and deliberately, students become thoughtful readers, developing 'habits of mind' that they can then generalize to other situations or tasks. (p. 38)

As Duke (2004) noted, explicitly teaching reading strategies supports students' emerging literacy skills. According to Duke, explicit teaching "should include information about *what* the strategy is, *when* it is used, *how* it is used, and *why* it is worth using" (pp. 40–41; italics in the original). This research suggests that explicitly teaching and guiding students to ask the "right questions" to make determinations of readability, trustworthiness, and usability can help them become more independent readers.

Independent reading consists of many different tasks and purposes in specific contexts. One of the first tasks students face is to make decisions about whether to read a text or move on to other texts. As Bean (2001) argued, a main problem in content literacy is deciding whether or not information is worthwhile. However, this problem and how students manage this reading task is not well documented through research. As the Rand Reading Study Group (2002) noted, "comprehension assessments that are widely used today focus heavily on only a few tasks and thus may inadvertently limit the reading curriculum to preparation for those few tasks" (p. xix).

Kuiper et al. (2005) provided a good review of research on using the Web as an information resource in K–12 education and the strategies that support students in searching for and processing information. Their findings suggest that young students don't work systematically to examine information, and that they make immediate decisions related to using information rather than take time to carefully read and evaluate it. Students often look at graphical elements, such as font styles and images, rather than the whole text. These findings also point to students' equating the quantity or amount of information with quality. Most don't question sources and assume most information to be "correct."

Kuiper et al. (2005) also stressed the importance of students' learning to make decisions on their own about their information needs. They point to the need for continuing dialogue with students about judging the appropriateness of sources, making good choices, and making sense of information. According to the body of work they reviewed, these practices are developed through explicit instruction; continual practice; and the use of tools, criteria, and guiding questions.

However, there is a lack of research about the ways specific tools can support students as independent readers and researchers. This lack of research is especially apparent with students 10 years old and younger (Kuiper et al., 2005). This study aims to contribute to understandings about the ways students might learn to become more independent readers and researchers and how explicit instruction and the use of a research guide as a literacy tool supported students' performance as independent researchers.

Methods and Contexts

Our study was conducted in Rindi's fourth-grade classroom in an international school in Singapore. The students in her class were 10 boys and 11 girls, 9–10 years of age, with diverse ethnicity (9 European American, 4 Indian, 2 Filipino, 1 Korean, 5 mixed ethnicity). All students were fluent English speakers with a reading comprehension range of third–sixth grade.

A Likert scale (Figure 1) was used to determine students' assessment of their own independence in doing research before and after the research project. Other data were collected through observations and anecdotal records throughout the study. Data were also gathered using a pre- and posttest of students' responses to a teacher-created website. Students were asked to preview the website and evaluate its information according to a scenario Rindi provided. Students had up to 45 minutes to peruse the site and complete the website review form (Figure 2). Their pre- and postresponses were scored using a rubric (Figure 3). We analyzed specific student language used to describe how they would determine whether to use the website.

Rindi also kept anecdotal records and a reflection journal with entries at the end of each activity and lesson. These data included her observations and student comments during one-on-one guidance, their work on the Research Resource Guide, and whole-class discussions. Students' final research reports provided further data.

We coded data using a constant comparative method of analysis to discern initial patterns and themes that were refined and modified to generate "descriptive and explanatory categories" (Lincoln & Guba, 1985, p. 341).

Instructional Approaches

To initially assess their independence and research strategies, students were given a scenario with the task of analyzing a website to form an opinion about

Figure 1
Likert Scale

Statements	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. Making and following a research plan makes my job as a researcher easier.					
2. I can easily find information that helps me complete my research plan, **on my own**.					
3. I know how to find resources at my reading level to use in my research, **on my own**.					
4. I am confident in reading, interpreting, and summarizing the information that I find, **on my own**.					
5. I know ways to check that resources are trustworthy and good to use, **on my own**.					
6. I feel it is important to find more than one resource that verifies the information that I have found.					
7. On the whole, I feel like I can research topics **on my own**.					
8. I like to do research.					

Figure 2
Website Review Scenario

Orangutan website review

You have been assigned to research orangutans. Your research questions include finding out about the orangutan's social habits and diet and about information about an organization trying to help protect the orangutan. When you did a Google search you came across this website (www.savetheorangutan). After taking a close look at this website you are to write down as many reasons as you can about why you would or would not use this website for your research project. You are to take only one position: **Yes, I would use this website** or **No, I would not use this website**. Provide as much detail as you can in your explanation **below**:

_____

_____

_____

the value of the site for answering specific research questions. The students were unaware that the site was teacher-created. Rindi purposely used text she considered beyond her students' reading levels, added fictitious information (overexaggerated and silly information), and removed any form of authorship from the site. We also made sure this fictitious site did not answer the research questions posed in the scenario and then gave the site a believable URL: www.savetheorangutan.googlepages.com/home.

Figure 3
Website Review Rubric

Score	Description	Example
4	Students state at least three reasons to support their decision to use/not use the website. Reasons identify most or all of the following: *readability* of the site, *trustworthiness* of the site, *usefulness* of the site (information answers research question), and their independence in the research process.	*The website is above my reading level. I need help to understand a lot of words. There are no authors listed anywhere on this site, so it might be incorrect information. I haven't ever seen the URL address, or recognize it from anywhere else. Seems a bit fishy to me. The article did not give me any information to answer my research questions, so it was not very useful to me. I don't think this is a very good website to use.
3	Students state two reasons to support their decision to use/not use the website. Reasons identify some of the following: *readability* of the site, *trustworthiness* of the site, *usefulness* of the site (information answers research question), and their independence in the research process.	**Same as above but with two identified reasons centered on readability, trustworthiness, usefulness and independence. May have other reasons, but they are for the opposite position.*
2	Students state one reason to support their decision to use/not use the website. Reason identifies either *readability* of the site, *trustworthiness* of the site, *usefulness of the site* (information answers research question), or their independence in the research process.	**Same as above but with one identified reason centered on readability, trustworthiness, usefulness and independence.* *May have one other reason, but it is for the opposite position.*
1	Students do not state a reason to support their decision to use/not use the website—or—reasons do not mention any of the following: *readability* of the site, *trustworthiness* of the site, *usefulness* of the site (information answers research question), or their independence in the research process.	*I would use this website because there are nice pictures and it has big words. It looks colorful and there is a lot of information.

* Reasons can be stated either for or against using the website. Directions for this website analysis were for the students to choose either position (use/don't use this website) and to defend their position. "Mixed" reviews were scored using the highest number of reasons for or against using the website.

Attached to the URL was the word *googlepages*, which could have been a clue about the site's authenticity.

Students were asked to evaluate the site as a source to find out about orangutans' social habits and diet and about efforts to protect the orangutan. They were prompted to record reasons for either using or not using the site. They were instructed to "take only one position: Yes, I would use this website; or No, I would not use this website" and to provide as much detail as possible in their explanation. No class discussion of the website followed the pretest.

To cultivate independence we planned a series of activities to highlight key concepts and strategies students would employ related to issues of readability, trustworthiness, and usefulness. Rindi had her students share the strategies they used when seeking resources for research assignments. Rindi made a list on an overhead projection sheet of their responses to the question, How would you go about researching the topic of orangutans, that included the following:

- Search on Google, using the keyword *orangutan*. Copy and paste the information found into a separate document.

- Ask the librarian or teachers for good books or resources on orangutans.
- Go to the research room in the library where all of the books for the unit have already been pulled off the general shelves and put in one place for fourth graders to use. Hunt for pictures on the cover or titles about orangutans.
- Take notes; copy as much information as you can.
- Rewrite it into a report, poster, or make a PowerPoint show using the information found. Add color, font, and pictures to make it look nice.

In this particular conversation with students, not one comment had to do with finding readable, trustworthy, or useful information that followed a research plan. Although website layout, font style, and use of graphics are important design elements selected to assist readers in certain ways, students did not comment on how design features influence their decisions when searching for or processing information. Rather, the focus was on finding information quickly and copying it into a finished product that was attractive.

Developing Criteria for Readability

To give students practice determining readability, the first set of activities had students determine the readability of three informational texts. Three different-level texts about rainforests were presented to them: *Ranger Rick* magazine at below grade level (numerous photos, easy text to read, minimal amount of information); *Nature's Green Umbrella* by Gail Gibbons at grade level (text supported with pictures, easy to read, some challenging vocabulary that could be figured out in context); and the *World Book Millennium 2000* encyclopedia on CD for above grade level (small print, difficult vocabulary not easy to figure out in context, encyclopedia-style format, no charts or photos to support text). Looking at one piece of literature at a time, students were asked to discuss in small groups the readability of each resource with regard to the need to do a research project about rainforest layers. Through guided discussion the class came up with the following questions centering on readability to keep in mind when considering sources of information:

- Can I read and understand this on my own?
- Can I understand most of the words and not lose meaning if I have to skip words?
- Is it a "just-right" read for me?
- Is the layout easy enough to follow?
- Can I stop and retell what I have just read in my own words?
- Are there pictures or charts that help me understand the text better?

Developing Criteria for Trustworthiness

To explore their abilities to assess a source's trustworthiness, students were shown a photo depicting a giant tsunami wave at its crest along a heavily populated beachfront. (See Figure 4.) As a class, Rindi and her students generated criteria and guiding questions that students could use to help them determine the trustworthiness of a source. Rindi led an open-ended discussion that began with the question, What do you notice in this photo? Students participated in a lengthy discussion of whether they trusted the photo, ranging from comments initially supporting the photo's trustworthiness at face value to students' questioning its accuracy at the end of the discussion. The progression of comments is illustrated by the following examples:

Figure 4
Tsunami Photo

An electronic copy of this image may be viewed at www.hoax-slayer.com/fake-tsunami-image.html. The original creator of the image is unknown.

"Wow...that's the tsunami that happened a couple of years ago in Thailand. So many people are going to be killed on that beach.

"Why aren't the people running away?"

"I wonder where the photographer was standing to get that picture."

"That wave is higher than the tallest buildings.... I didn't know the wave was that big...is that possible? Wait...my dad told me that the wave was about 7 stories high... this wave is higher than the building, which looks like it's about 25 stories high."

"Where did you get this photo, Mrs. Baildon? I never saw any like that before."

"Something doesn't look right at the top of this picture...the wave looks like it is crashing way out in the ocean.... I thought it sucked the water out before it could make that huge wave."

Students began the discussion with almost complete acceptance of the image as authentic and gradually raised questions about its believability. Several students referred to their prior knowledge (e.g., what parents had told them, other images they had seen) and began to question its authenticity. The discussion continued, ending with many students questioning if the photo was actually "real."

This discussion was a good segue to Rindi's asking, "Why do you think I'm showing you this photo?" Students began talking about how they determined whether they could trust sources of information and with guidance started relating these ideas to the research process in general. At this point Rindi and her students listed important ideas related to trustworthiness to keep in mind when looking at different sources of information:

- Is there an author or photographer identified with the source?
- Do I recognize the author or creator?
- Does the URL seem official or real?
- Have I found this same information in other books or websites?
- Does my gut feeling tell me that what I am reading and seeing is trustworthy?
- Does this information fit with what I might already know about this subject?

Developing Criteria for Usefulness

To explore the concept of usefulness, the class was first led through an activity on the importance of making a research plan before seeking resources. Because Rindi's students had knowledge and experience in working through the writing process, they came to understand how this was directly related to brainstorming ideas and making a story plan before embarking on a first draft. Using a graphic organizer in the form of a web, the class brainstormed possible questions that would go along with the topic of rainforest layers. In groups they came up with the following guiding questions:

- What are the layers of the rainforest?
- What animal and plant life can you find in each layer?
- What are the physical differences of each layer?
- Can you find the same plants and animals in some of the layers?
- What would happen if one of the layers were missing?

These questions point to the need for content specific questions to guide students' determinations of usability. As Green (1988) noted, literacy acts and events are not only "*context* specific [but also] entail a specific *content*" (p. 160). The students came to understand that once a researcher has an idea and a need for information, such questions become the researcher's focus when looking for that information in various sources. Referring back to the three texts used in the readability activities, the class discussed which sources would help them answer these questions or which resources would be *useful* in their quest for specific information. As a result of this activity, the group came up with the following questions to ask themselves as they searched for sources of information that would help them with their research:

- Does this resource have what I am looking for?
- Does it follow my research plan?
- Do I need it?
- Is this worthwhile, or am I wasting my time on this resource?

Developing the Research Resource Guide

As a culminating activity and to be certain students were asking the "right questions" to make determina-

tions of readability, trustworthiness, and usability, Rindi and her class synthesized the ideas they had developed in the previous activities into one Research Resource Guide that students agreed to use each and every time they considered using a resource. (See Figure 5.)

At this point, students chose topics on the rainforest that they would spend the next two weeks researching individually using their newly created Research Resource Guide and numerous resources from the library, classroom, and computer labs. These resources included websites and print resources, such as encyclopedia, magazines, and books.

Initially students utilized this guide sheet with frequent teacher reminders. Gradually the guide became an integral part of the research process, with students reading through the list more consistently as they considered a resource. By the end of the week, however, the sheets were tucked away, as a research note-taking sheet (Figure 6) took over, with its simplistic printed reminder of R-T-U (Readable-Trustworthy-Useful) to help students make decisions on their own about which resources to tap into. Students made use of this "softer" scaffolding by recording their ideas about readability, trustworthiness, and usability.

Findings

A statistical analysis of students' responses on the pre- and posttest Likert scales and website analyses revealed a significant difference in students' attitudes and independence with regard to researching. Students were much more likely to analyze websites according to basic readability, trustworthiness, and usefulness criteria after explicit instruction and the use of the Research Resource Guide during their research project on rainforests.

Students' improved ability to determine the readability, trustworthiness, and usability of resources is evident in their written responses in the website posttest. Eighteen out of 21 students made the decision to not use the proposed website, compared with 8 out of 21 on the pretest. They supported their decisions by referring to notions of readability, trustworthiness, and usefulness. (See Figure 7)

Figure 5
Research Resource Guide

Research Resource Guide Sheet

When deciding to use a resource for your research project, ask yourself the following questions:

Readable
- Is this a "just-right" resource for me?
- Can I understand the information on my own, or with a little help?
- Is it "kid friendly"?

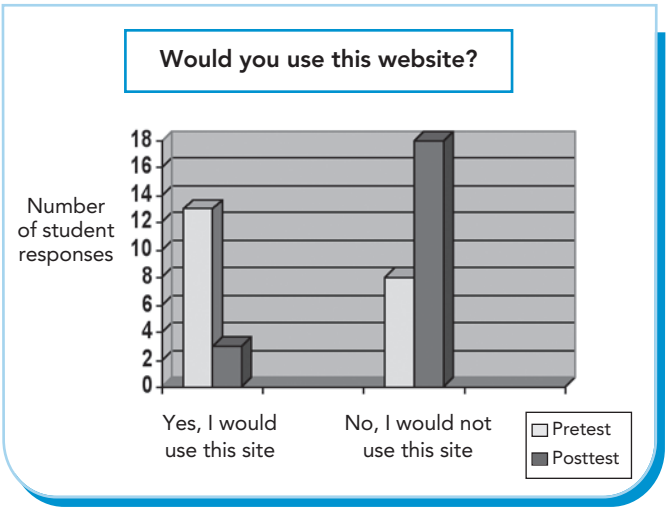
Trustworthy
- Can I find an author or a publisher name?
- Do I recognize the resource? (URL, publisher, author, name)
- Is the information current? What is the copyright date?
- Can I find at least one other source with the same information?

Useful
- Does this resource have what I am looking for?
- Does it follow my research plan?
- Do I need it?

Figure 6
Research Notes Using R-T-U (Readable-Trustworthy-Useful)

Research question	Resources (two per question)	Is it	Details
		R T U	
		R T U	

Figure 7
Pre- and Posttest results in Decision to Use or Not Use Website for Research



The use of specific language referring to the readability, trustworthiness, and usefulness of a resource was not evident in students' responses on the pretest. When looking at language used on the posttest written responses, it was obvious that students not only understood the meaning of the keywords of readability, trustworthiness, and usefulness, but also they were able to make decisions on their own about their information needs based on their understandings of these important concepts (see Figure 8).

Determining Readability

On the R-T-U sheets (Figure 6) students circled evidence of readability if they used the resource and often recorded that the source was "kid friendly," "easy to read," or "has information I understand." At the beginning of their research, every student identified encyclopedias as good research resources because "they have lots of information." However, only three students listed encyclopedias as sources on their R-T-U sheets, and students noted in discussion that encyclopedia entries weren't easy for them to understand. During the research project, Rindi saw few students using encyclopedias.

Information sources at lower reading levels, such as *Zoobooks* magazines, were initially deemed by students not to be good resources, but in class discussion

students acknowledged that lower-level reading materials could contain valuable information and help validate information from other sources.

For websites, students used the five-finger rule they learned in class. Generally, if students could read the site for a few minutes without coming across five comprehension problems, like difficult vocabulary, they considered it a readable source. Rindi also noticed that students commented on the layout of websites. Students noted whether websites looked "kid friendly," "easy to read," or "easy to navigate." Students didn't ask for teacher help as often when using sources at a suitable reading level.

Selected examples of students' posttest readability responses are as follows:

"Many of the words were too complicated to understand"

"Sentences were too long and difficult to read"

"I don't think it is *kid friendly* or *readable* because I can't read or understand the words""

"I would rather find a *trustworthy*, *readable*, and *useful* website to find better information about orangutans. And if you were a kid and you used this website you'll be hanging on the dictionary like forever to find all the difficult words that you really don't understand."

"I can't coax a meaning out, even using the *context*."

These comments indicate a range of decisions students made to reject sources based on vocabulary, sentence length, and degree of text difficulty.

Determining Trustworthiness

Examples of students' posttest determinations of trustworthiness included these:

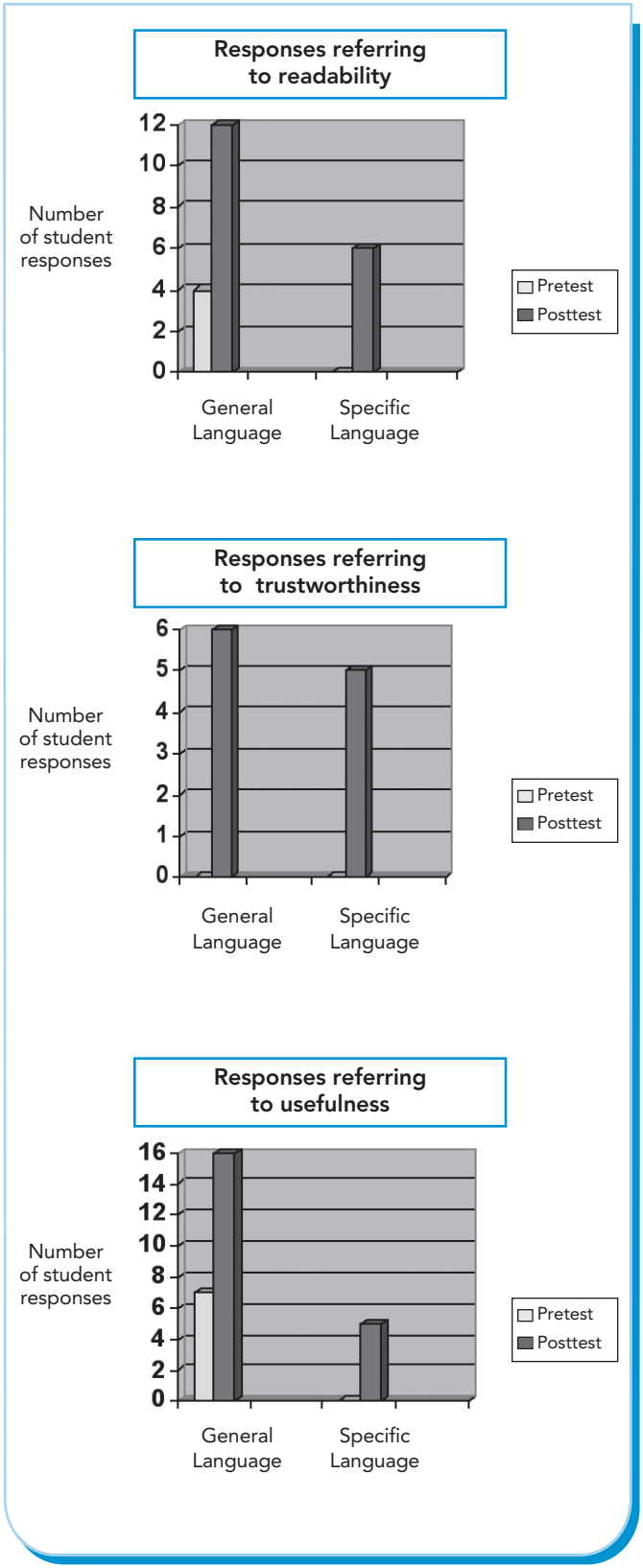
"I can not find where they got the information."

"this site is about 14 years old.... I would use newer information."

"The *address* is really short; it's hard to be able to tell if it's a learning website, 'cause a lot of them have 'org' in them, and it also has 'google pages' in the URL. All the websites I've found on Google don't have the word 'google' in them at all.... Since the *trustworthiness* is kind of iffy, I'd have to find the information on another website."

"I don't think [the site] is *trustworthy* because it does not tell you who wrote the website."

Figure 8
Pre- and Posttest results of Responses Referring to Readability, Trustworthiness, and Usefulness



Students were surprised that they had been "fooled" by the teacher-created site. This led to a discussion about how websites can be created by anyone and the importance of carefully considering whether information can be trusted.

During class discussions and their research, students were encouraged to verify facts by finding other sources that provided similar information. On their R-T-U sheets, students identified sources as trustworthy if they had found the same information twice, confirmed the information was up-to-date, or trusted the creator of the website.

Determining Usefulness

Students' research plans and guiding questions helped them make determinations of usefulness. Students quickly abandoned sources that didn't help them answer their questions. On their R-T-U sheets, some students commented, "This helps me answer my question[s]," "This tells me about..." and "This [source] gives me info I'm looking for."

Sample student posttest responses referring to the usefulness of the fake website included these:

"Although it has tons of information it doesn't tell the orangutan's social habits, diet, or anything about an organization trying to protect them."

"It doesn't have the info that I need. So it doesn't fit the *U* for *usefulness* or *R-T-U*."

The Effects of the Study

Teacher observations and anecdotal records supported pre- and postresponse data indicating greater student independence and use of strategies to determine readability, trustworthiness, and usefulness. It was interesting to note the progression of the use of the research guide. Initially students didn't use this guide sheet without frequent teacher reminders. Gradually this sheet became an integral part of the research process, with students reading through the list more consistently to consider resources. Eventually, students used the research note-taking sheet (Figure 6), with its simple reminder of R-T-U, to make decisions on their own about which resources to use. Students were able to make use of this "softer" scaffolding to record their ideas because they had become more practiced in using the questions from the guide sheet.

Students' final research reports on rainforests provided further evidence of student learning. Not only were the reports consistently written in the students' own words, but the reports were on the whole better organized and closely followed their research plans. Furthermore, a closer look at the resources students used provided a clear indication that they chose material more at their reading level and, in the case of citing website URLs, picked sites that were more familiar and "kid friendly."

Implications for the Future

It has been exciting for us as educators to observe improvements in students' confidence and independence as researchers. Not only do the results of the study reveal this, but also the diminished number of requests for individual assistance in interpreting material during research sessions supports this finding. Although our study doesn't investigate specific challenges individual students faced or different strategies they used for print and Internet sources, the findings suggest that the development and use of literacy tools such as the research guide can effectively focus and influence literacy instruction and students' literacy practices.

There is a need for continuing dialogue with students of every age about judging the appropriateness of sources, making good information choices, and making sense of information as they engage in the research process. Elementary students benefit from rich conversations about informational texts and opportunities for input about developing key criteria, guiding questions, and literacy tools such as the research guide. These guiding questions and tools spur ongoing conversations with students about issues such as readability, trustworthiness, and usefulness to help them become more independent readers and researchers. It is our hope that this exploratory study will encourage other teachers and researchers to investigate the development and use of literacy tools that have such practical classroom applications.

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