

Using Rubrics to Assess Student Skills: Successful Strategies & Lessons Learned

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Goals

- To define and describe rubrics.
- To clarify theoretical support for using rubrics for assessment.
- To outline the benefits and limitations of rubrics.
- To identify common mistakes in rubric development.
- To provide steps for using rubrics for assessment.
- To convey an example.



What is a Rubric?

- A chart that describes student work or behavior according to “**outcomes**”.
- Rubrics outline the essential parts of student work or behavior (known as “**criteria**”).
- Rubrics describe what good and poor “**performances**” look like.



Types of Rubrics

- Checklists vs. “Full Model”
- General vs. Task-Specific

“Should a rubric be task-specific or more general? ... Somewhere in between really. We face a dilemma. Reliability is served by having a rubric unique to each task. But we have a feasibility and maybe reliability problem: it takes too much time and energy to design a rubric for every task. Furthermore, a specially designed rubric for each task may not be necessary.” --Grant Wiggins

- Holistic (single judgment) vs. Analytic (judgment of component parts)



Theoretical Support

- Based on Constructivist & Social Constructivist Educational Theories
 - Knowledge is constructed in context, not passed from instructor to student fully formed.
 - Learning is an active process that causes a change to occur in the learner.
 - Learning comes from activities, consequences of those activities, and reflection.
- Aligned with “Assessment for Learning” Theory
 - Assessment and learning are inseparable.



	Poor	So-So	Good
Criteria 1	Description of doing a poor job on Criteria 1	Description of doing a so-so job on Criteria 1	Description of doing a good job on Criteria 1
Criteria 2	Description of doing a poor job on Criteria 2	Description of doing a so-so job on Criteria 2	Description of doing a good job on Criteria 2



Benefits of Rubrics

Students

- Rubrics add meaning to grades and allow students to understand the expectations of their instructors.
- Rubrics provide feedback to students about what they have learned and what they have yet to learn.

Agreed Upon Values

- Rubrics allow stakeholders to discuss and determine agreed upon standards and values.

Data

- Rubrics promote consistent scoring.
- Rubrics provide rich, descriptive data that can be used to improve instruction.

Focus on Standards, Transferability, Cost

Bresciani, Marilee J., Carrie L. Zelna, and James A. Anderson. *Assessing Student Learning and Development: A Handbook for Practitioners*. National Association of Student Personnel Administrators, 2004.



Limitations

- Poor Construction
- Time



Common Mistakes

- Too general or too vague
- Too focused on requirements of one assignment
- Too long
- Inconsistency or unclear distinctions (across performance descriptions)
- Emphasis on quantity rather than quality
- Negative tone



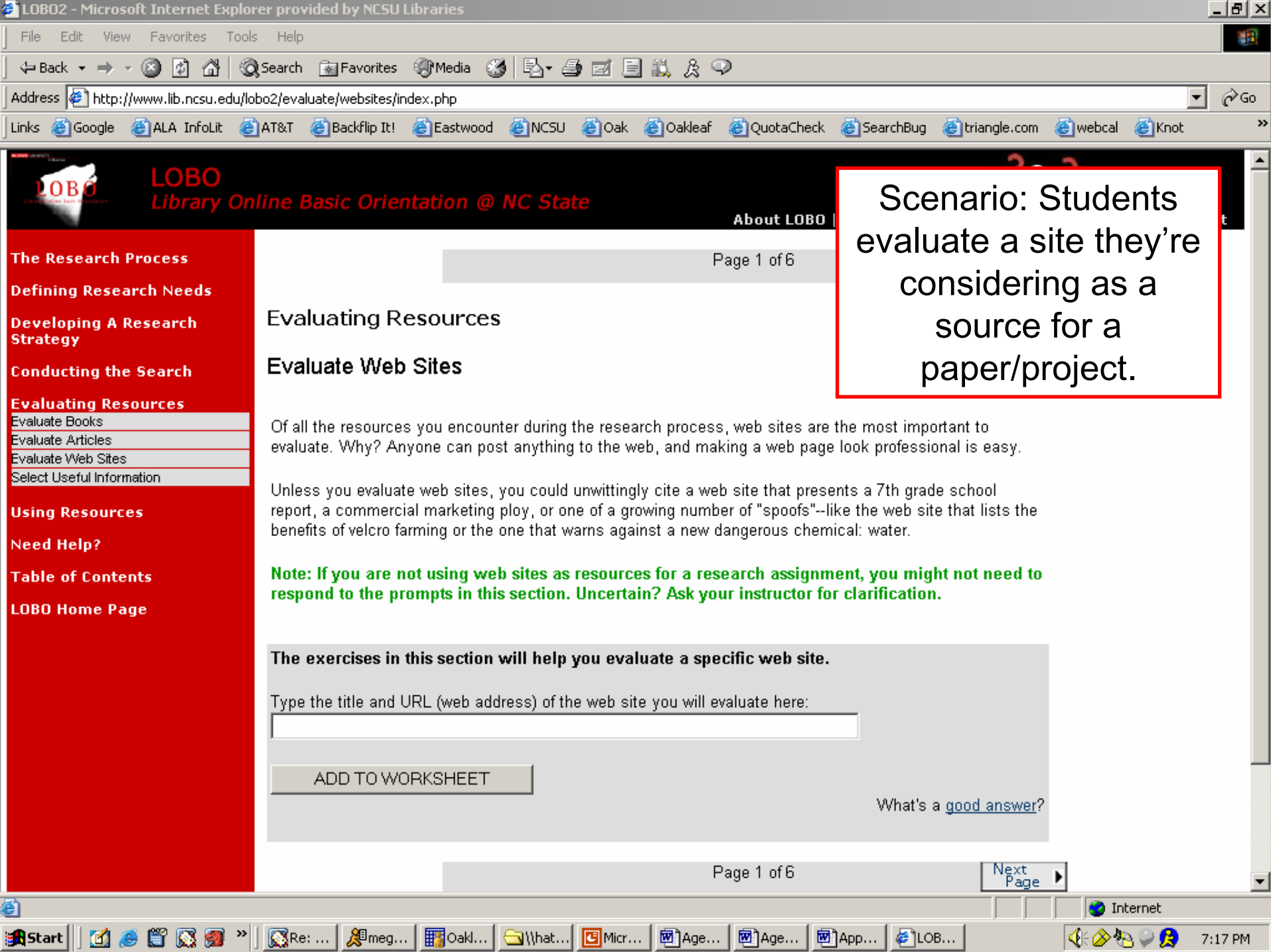
Steps for Creating Rubrics

- Form a 4-8 member team.
 - Acknowledge goals and purposes of assessment.
 - Determine common language
 - Acknowledge political realities.
 - Review what's already been accomplished.
- Articulate the outcome to assess.
- Determine what meeting the outcome looks like.
- Determine a plan for collecting evidence.
- Articulate criteria for evaluation.
- Articulate the number and levels of performance description.

Bresciani, Marilee J., Carrie L. Zelna, and James A. Anderson. Assessing Student Learning and Development: A Handbook for Practitioners. National Association of Student Personnel Administrators, 2004.

Council for Higher Education Accreditation. "Student Learning Outcomes Workshop." CHEA Chronicle 5.2 (2002): 1-3.





Scenario: Students evaluate a site they're considering as a source for a paper/project.

- The Research Process
- Defining Research Needs
- Developing A Research Strategy
- Conducting the Search
- Evaluating Resources
 - Evaluate Books
 - Evaluate Articles
 - Evaluate Web Sites
 - Select Useful Information
- Using Resources
- Need Help?
- Table of Contents
- LOBO Home Page

Evaluating Resources

Evaluate Web Sites

Of all the resources you encounter during the research process, web sites are the most important to evaluate. Why? Anyone can post anything to the web, and making a web page look professional is easy.

Unless you evaluate web sites, you could unwittingly cite a web site that presents a 7th grade school report, a commercial marketing ploy, or one of a growing number of "spoofs"--like the web site that lists the benefits of velcro farming or the one that warns against a new dangerous chemical: water.

Note: If you are not using web sites as resources for a research assignment, you might not need to respond to the prompts in this section. Uncertain? Ask your instructor for clarification.

The exercises in this section will help you evaluate a specific web site.

Type the title and URL (web address) of the web site you will evaluate here:

ADD TO WORKSHEET

What's a [good answer?](#)

LOBO
Library Online Basic Orientation @ NC State

[About LOBO](#) | [View Worksheet](#)

Page 2 of 6

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Evaluating Resources

Evaluate Web Sites - Authority

The URL (web address) and author information for a web site reveal a lot about site reliability. Determining who created a web site is critical in being able to judge its quality. Generally, anonymous information should not be used for academic research.

Consider the following questions when you're evaluating the authority of a web site:

- 1. What type of domain does the site come from?**
Government sites use **.gov** and **.mil** domains. Educational sites use the **.edu** domain. Non-profit organizations use **.org** and business sites use **.com**. Generally, **.gov** and **.edu** sites are considered more trustworthy than **.org** and **.com** sites.
- 2. Who "published" the site?**
The name between **http://** and the first **/** usually indicates what organization owns the server the web site is housed on. Learning about the organization that hosts a site can give you important information about the site's credibility.
<http://www.wired.com/news/news/technology/story/17273.html>
- 3. Is it a personal web site?**
Look for the names of companies that sell web space to individuals, like AOL or GeoCities. Also look for a tilde (~). Tildes are often used to signify a personal web site. Personal sites are considered less reliable than sites supported by organizations.
- 4. Can you tell who (person or institution) created the site?**

???

Other Criteria:

- Purpose
- Currency
- Content
- Bias/POV

LOBO Library Online Basic Orientation @ NC State

About LOBO | View Worksheet | Ask A Librarian | Logout Guest

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The Research Process

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- 4. Can you tell who (person or institution) created the site?**
Look at the very top or bottom of the web page for a **name**, **email address**, or **"About Us"** or **"Contact Us"** link.
- 5. Are the author's credentials listed on the site?**
If you can't find these details on a site, try typing an author's name into a search engine like [Google](#) to get biographical information.

Respond to the following prompts in the space below, using complete sentences:

- Identify the "domain type" of the site you're evaluating and explain why that is acceptable or unacceptable for your needs.
- Identify the "publisher" or host of the site and tell what you know (or can find out) about it.
- State whether or not the site is a personal site and explain why that is acceptable or unacceptable for your needs.
- State who (name the person or institution) created the site and tell what you know (or can find out) about the creator.
- Look for the author's credentials on the site. List his/her credentials and draw conclusions based on those credentials. If there are no credentials listed, tell what conclusions you can draw from their absence.
- Using what you know about the AUTHORITY of this web site, explain why it is or is not appropriate to use for your paper/project.

ADD TO WORKSHEET

[How might an instructor score your answer?](#)

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Ask a Librarian | Copyright | Disclaimer

Last Modified: 01/07/05 12:06pm
Questions/Comments to [LibWeb Team](#)
URL: <http://www.lib.ncsu.edu/lobo2/evaluate/websites/eval-sites1.php>

Information
about
Authority

Questions

Full Rubric

5.3.2 Authority

Evaluation Criteria	Beginning	Developing	Exemplary	Student Learning Outcomes
Articulates Criteria	0 - Student does not address authority issues.	1 - Student addresses authority issues, but does not use criteria terminology such as: author, authority, authorship, or sponsorship.	2 - Student addresses authority issues and uses criteria terminology such as: author, authority, authorship, or sponsorship.	LOBO 3.1.1 The student will articulate established evaluation criteria. (ACRL 3.2.a)
Cites Indicators of Criteria	0 - Student does not address authority indicators.	1 - Student refers vaguely or broadly to authority indicators, but does not cite specific indicators such as: domain, server, or ~ in URL; presence of personal or corporate author name, email, "About Us" or "Contact Us" links; or author credentials.	2 - Student cites specific authority indicators such as: domain, server, or ~ in URL; presence of personal or corporate author name, email, "About Us" or "Contact Us" links; or author credentials.	LOBO 3.1 The student will apply criteria to analyze information, including...authority...to information and its source (ACRL 3.2.a, 3.2.c)
Links Indicators to Examples from Source	0 - Student does not cite examples of authority indicators from the site.	1 - Student refers vaguely or broadly to examples of authority indicators from the site under consideration, but does not cite specific examples.	2 - Student cites specific examples of authority indicators from the site under consideration.	LOBO 3.1 The student will apply criteria to analyze information, including...authority...to information and its source (ACRL 3.2.a, 3.2.c) LOBO 3.1.2 The student will investigate an author's qualifications and reputation. (ACRL 3.2.a)
Judges Whether or Not To Use Source	0 - Student does not indicate whether or not the site is appropriate to use for the purpose at hand.	1 - Student indicates whether or not the site is appropriate to use for the purpose at hand, but does not provide a rationale for that decision that cites authority issues and/or indicators.	2 - Student indicates whether or not the site is appropriate to use for the purpose at hand and provides a rationale for that decision citing authority issues and/or indicators.	LOBO 3.2 The student will evaluate sources (e.g., article, web site, book, journal, database, catalog) for use. (ACRL 3.4.g) LOBO 3.2.2 The student will indicate whether or not a specific, individual source (e.g., a particular web site, article, book) is appropriate for the purpose at hand and provide a rationale for that decision based on established evaluation criteria (see LOBO 3.1). (ACRL 3.2.c)

Outcomes

5.3.2 Authority

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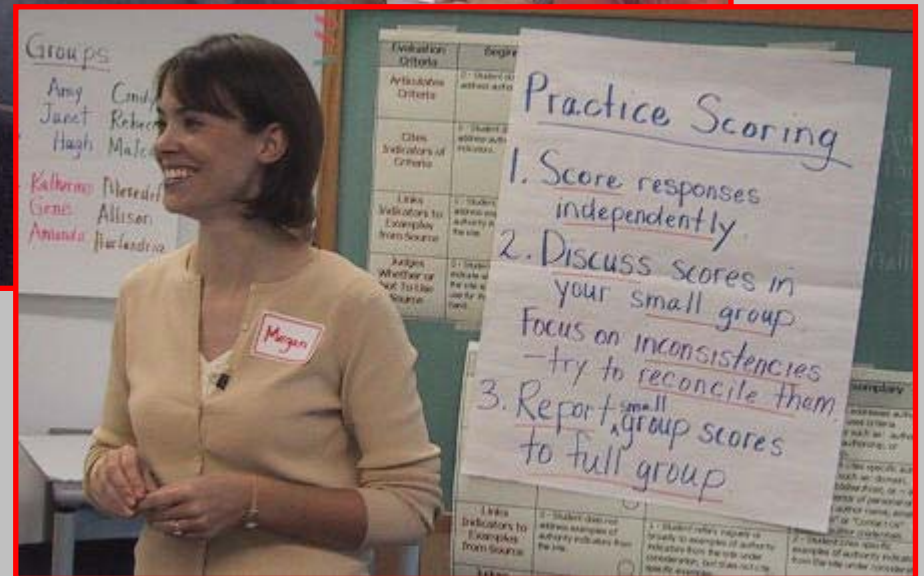
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Training Raters to Use Rubrics

1. Model rating behavior using “think aloud” techniques
2. Ask raters to independently score a set of student samples (“anchor papers”) that reflects the range of texts students produce in response to a direct method.
3. Bring raters together to review their responses to identify patterns of consistent and inconsistent responses.
4. Discuss and then reconcile inconsistent responses.
5. Repeat 1-3.
6. This process is repeated until raters reach consensus about applying the scoring rubric. Ordinarily, two to three of these sessions calibrate raters’ responses.

Steps 2-6: Maki, Peggy L. Assessing for Learning: Building a Sustainable Commitment across the Institution. Sterling, Virginia: Stylus, 2004.





After the Training

- Pilot the rubric on sample student work.
- Consider statistical analysis.
- Revise the rubric.
- Use the rubric to score student work.
- Document findings.
 - Focus on outcomes.
 - Express findings in ways that are most appropriate for stakeholders.

Bresciani, Marilee J., Carrie L. Zelna, and James A. Anderson. Assessing Student Learning and Development: A Handbook for Practitioners. National Association of Student Personnel Administrators, 2004.



Statistical Analysis

Reliability – Cohen's Kappa

- Estimates the degree of consensus among multiple raters on nominal data after correcting for the amount of agreement that could be expected by chance alone.
- A value of zero on kappa does not indicate that the two judges did not agree at all; rather, it indicates that the two judges did not agree with each other any more than would be predicted by chance alone.



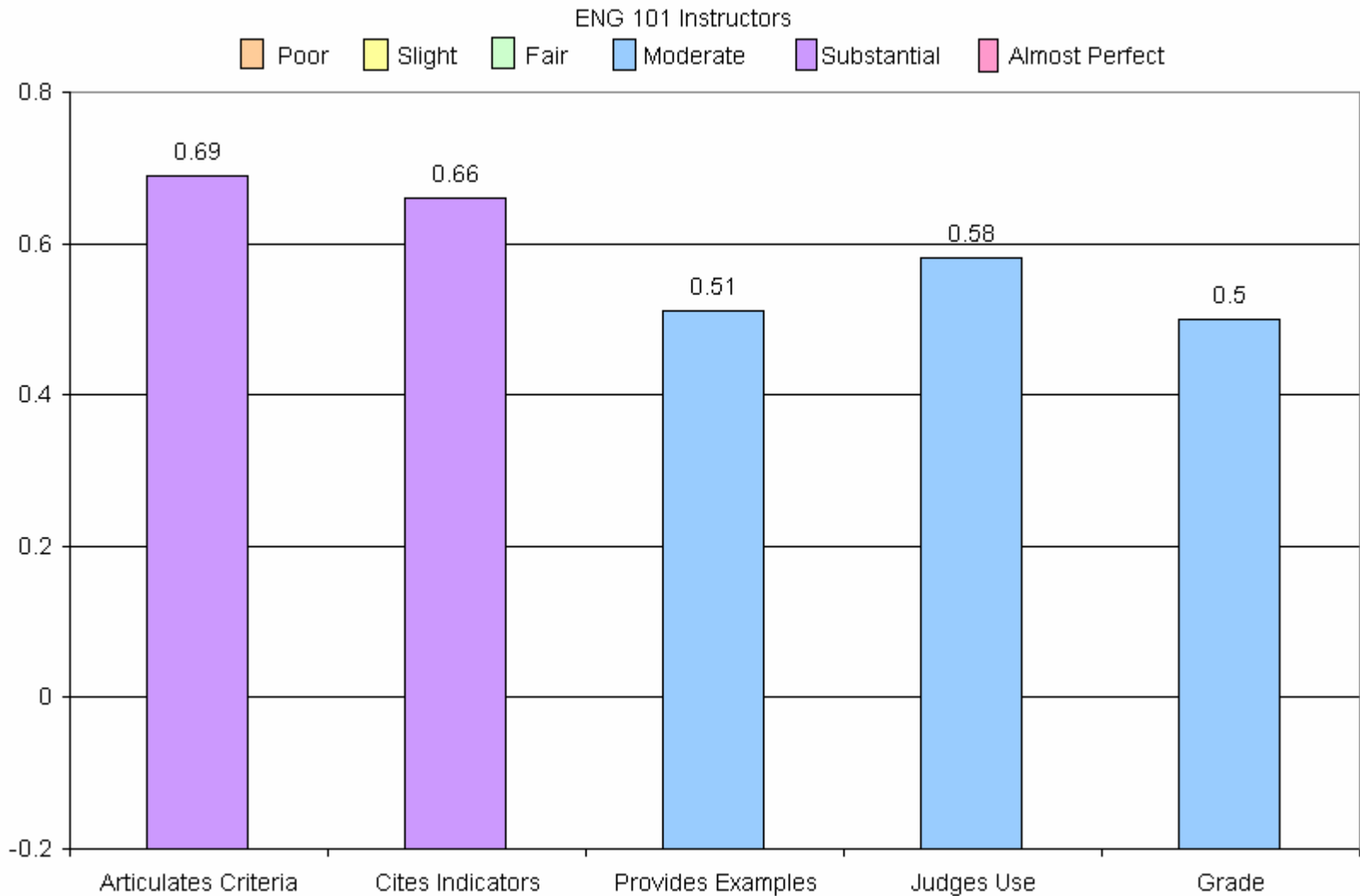
Kappa Statistics

Kappa Statistic	Strength of Agreement
<0.00	Poor
0.00-0.20	Slight
0.21-0.40	Fair
0.41-0.60	Moderate
0.61-0.80	Substantial
0.81-1.00	Almost Perfect

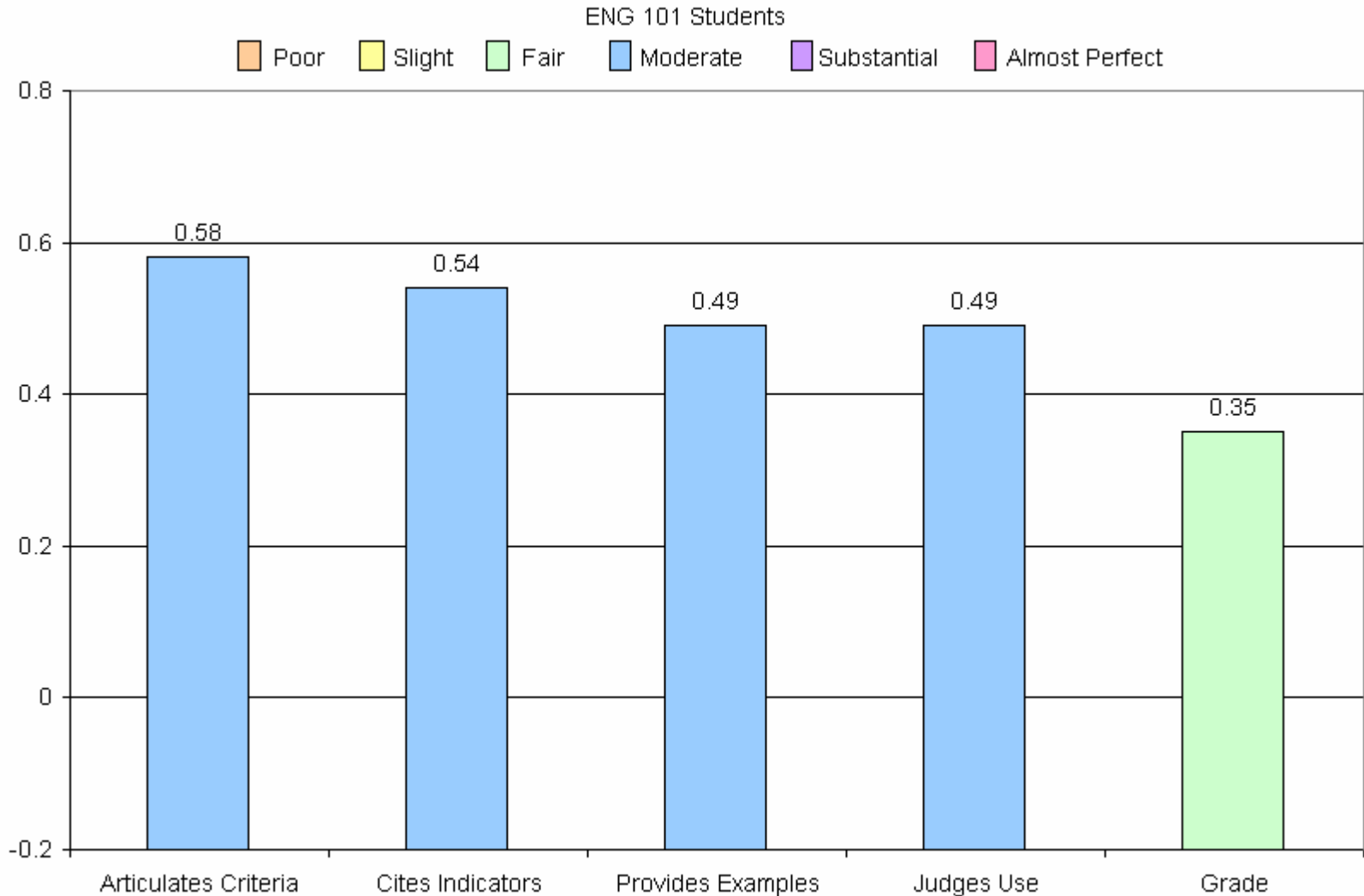
Strength of Agreement Color Codes



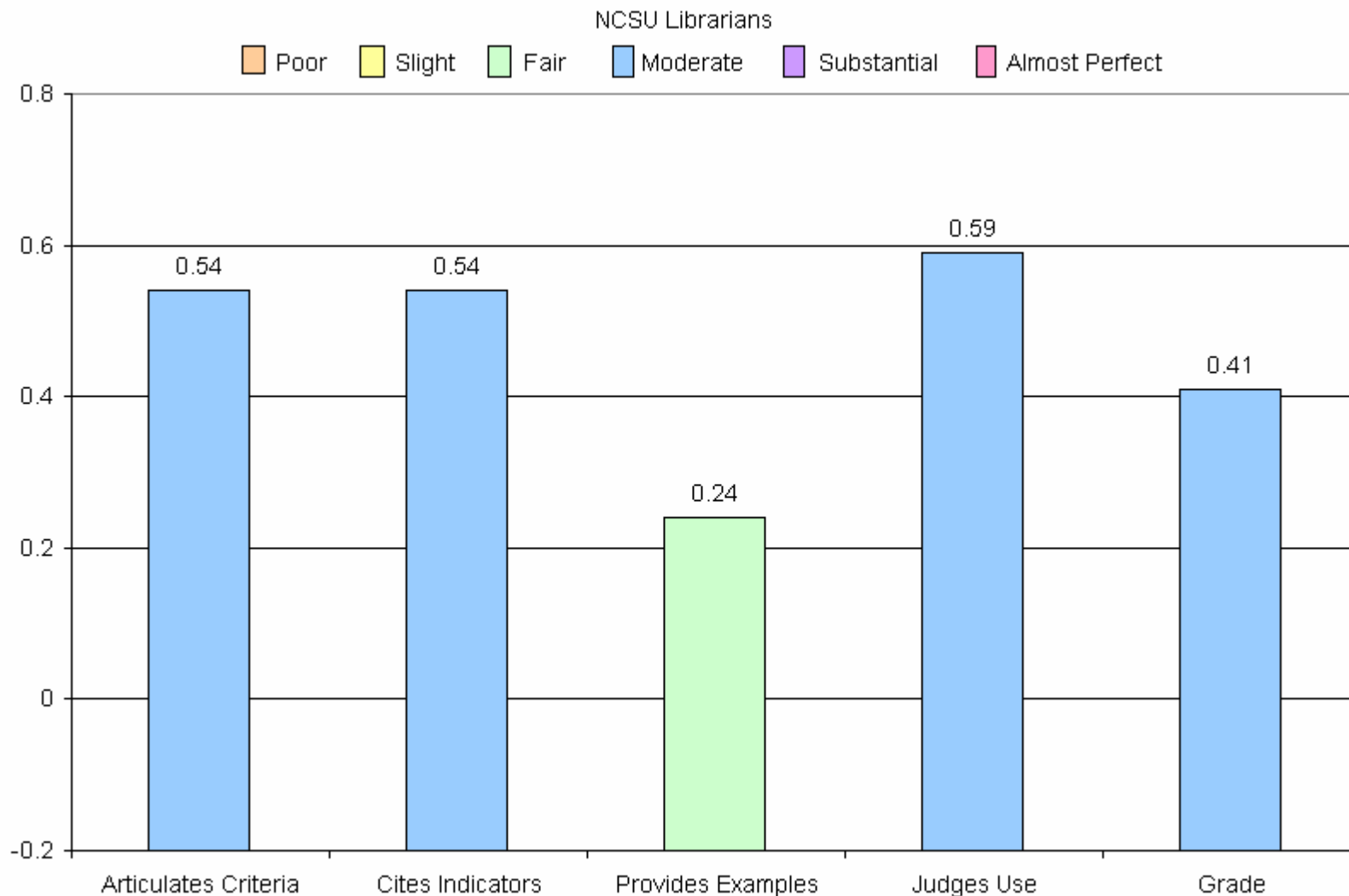
✓ENG 101 instructors produced more reliable scores than any other group.



✓ In nearly all areas, the ENG 101 instructors produced higher levels of reliability than the ENG 101 students.



✓ There was little statistically significant difference between the reliabilities of NCSU librarians and ENG 101 students.



Statistical Analysis

Validity – Cohen's Kappa

- It is an accepted practice to compare a group of raters to a “gold standard” to check for validity.
- The gold standard is the “correct classification of subjects made by an experienced observer.”
- Gwet explains, “The question that the researcher wants to answer is whether the...raters agree with the standard. Instead of evaluating the extent of agreement between raters, the researcher wants to know how truthful are the observers' ratings.”
- Using Cohen's kappa, you can compare each rater's scores to the gold standard set by a researcher/rubric developer.

Gwet, Kilem. Handbook of Inter-Rater Reliability: How to Estimate the Level of Agreement between Two or Multiple Raters. Gaithersburg, Maryland: STATAXIS, 2001.

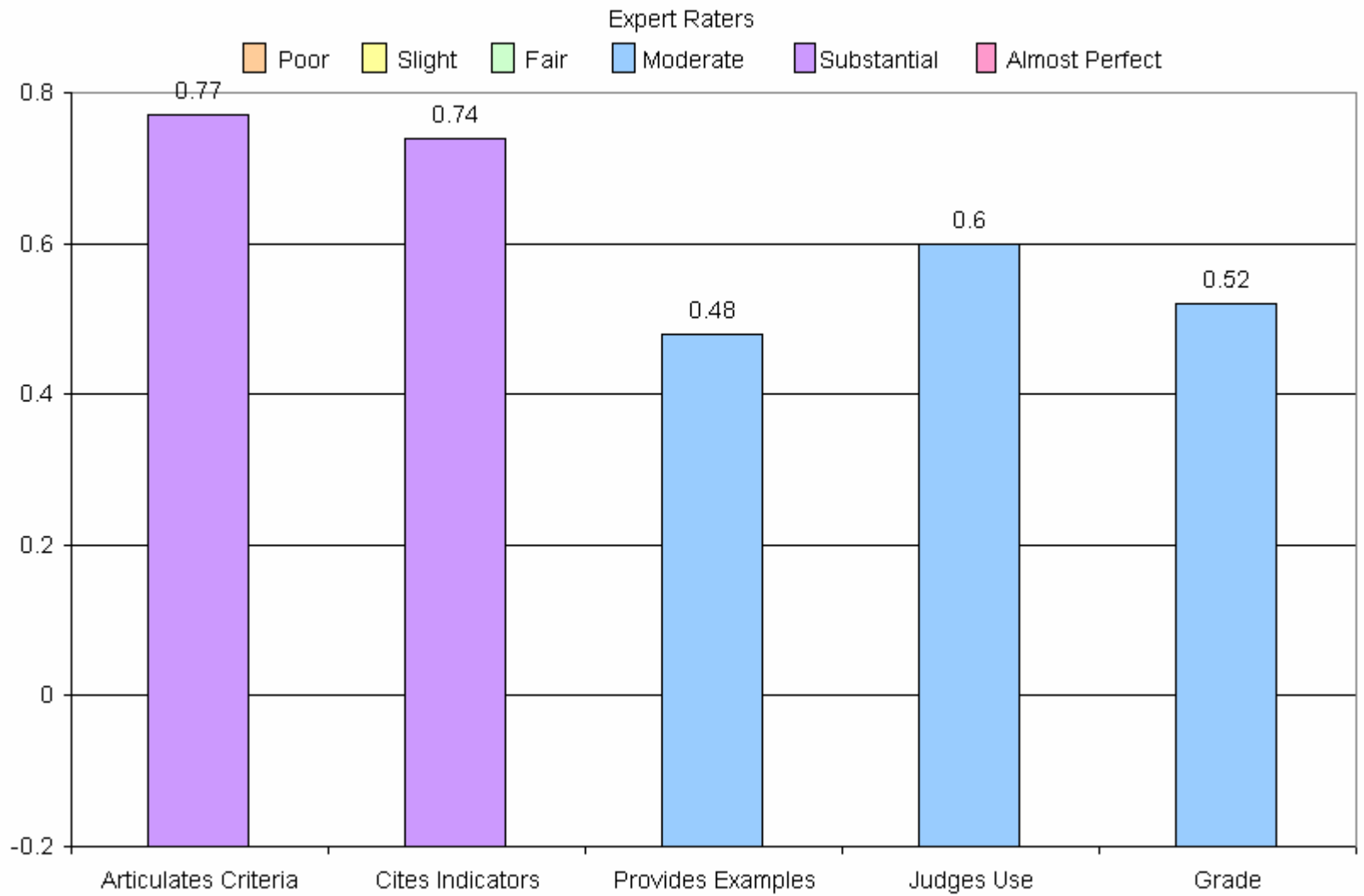


**Rank Order of Raters by Kappa
When Compared to Researcher
(Top 5 Declared "Expert" Raters)**

Rank	Rater Group
1	NCSU Librarian
2	Instructor
3	Instructor
4	Instructor
5	NCSU Librarian
6	Instructor
7	Instructor
8	Student
9	Student
10	NCSU Librarian
11	Student
12	Student
13	Student
14	NCSU Librarian
15	NCSU Librarian

} Experts





Barriers to Expert Status

1. Difficulty Understanding Outcomes-Based Assessment
2. Tension Between Analytic and Holistic Approaches
3. Disagreement with Assumptions of the Rubric
4. Difficulties with Artifacts of Student Learning



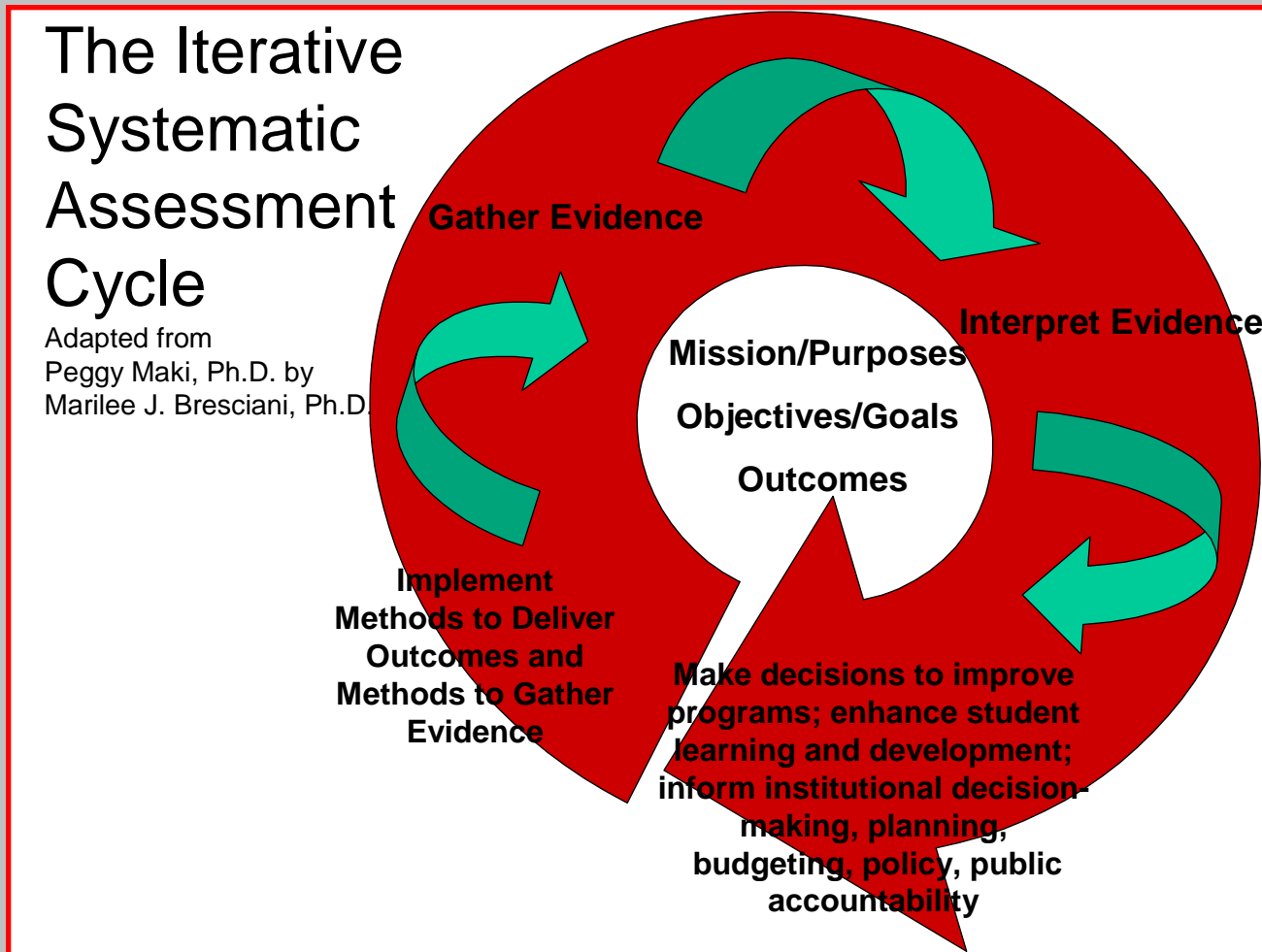
How well can students use authority to evaluate web sites?

Distribution of Students' Scores According to the Expert Raters

Evaluation Criteria	Beginning	Developing	Exemplary
Articulates Criteria	0 5.9%	1 64.5%	2 29.6%
Cites Indicators of Criteria	0 5.9%	1 19.7%	2 74.4%
Links Indicators to Examples from Source	0 1.9%	1 6.7%	2 91.5%
Judges Whether or Not To Use Source	0 27.7%	1 19.2%	2 53.1%



Closing the Loop



References

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