

Teaching and Learning about Rubrics Using RubiStar

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Abstract: Rubrics are commonly used, but can be difficult and time consuming to create. RubiStar is a free, Web-based tool designed to help teachers quickly and easily develop quality rubrics. It is also a tool that can be used to teach others about rubrics. When teaching others about rubrics using RubiStar, instructors can benefit their students by modeling all the features of RubiStar, modeling different ways to use rubrics, and modeling different ways to engage students in the process. Research has shown that it saves teachers time and effort to use RubiStar to develop rubrics (Merrillat, 2008a).

Introduction

A rubric is a scoring guide that provides students with a clear description of proficient student work (Markham, Larmer, & Ravitz, 2003). It lists the criteria for what counts in an assignment, and provides gradations of quality from excellent to poor for each criterion (Andrade, 2005). Yoshina and Harada (2007) have observed that rubrics “encourage students to shift their thinking from ‘What have I learned?’ to ‘How well have I learned it?’” (p. 11).

Rubrics are commonly used, and, in some cases, are mandated. When current and past users of RubiStar were surveyed, Merrillat (2008a) found that almost half of the respondents were required to develop or make rubrics. Although rubrics are becoming more commonplace, they are not always easy to create. Popham (1997) identified four flaws commonly found in rubrics:

1. Evaluative criteria that focus on a specific task-
In this case, the teacher establishes criteria that is limited to a specific task in a specific assignment. It does not have a broader meaning or use beyond given task.
2. Evaluative criteria that is too general-
When a teacher uses general words to describe the work, like superior or average, but does delineate the actual behavior associated with that description, the effectiveness of the rubric is lost.
3. Too much detail or excessively long-
In this scenario, the teacher attempts to include in the rubric rather than focusing on the most important items. Another way to confuse students is to try and include too many items to be evaluated in one row. A single row in the rubric should focus on one trait.
4. Equating the skill test with the skill-
The rubric is a tool that can be used to evaluate the overall performance or skill level of the student. It is possible for a student to perform within the constraints of the rubric, without fully understanding or assimilating the purpose or meaning behind the activity.

Rubrics are also not easy to use. Andrade (2005) points out students need to learn how to use and apply a rubric. Rubrics are not self-explanatory, and need to be introduced within the context of the broader instructional objectives. Rubrics are also subject to issues of validity, reliability, and fairness. In general, rubrics should be devised that align with reasonable standards and the curriculum being taught. Ratings based on rubrics should be similar when they are used by different instructors, and ratings should not be influenced by the student’s gender, race, ethnicity, or socioeconomic status. According to Andrade (2005), “rubrics improve when we compare them to published standards, show them to another teacher, or ask a colleague to co-score some student work” (p. 30).

Andrade (n.d.) proposes a six step process for creating rubrics:

1. Looking at models that illustrate examples of good, and not-so-good work.

2. Discuss the models and list the criteria that matters for quality work.
3. Determine gradations of quality for work from poor to excellent.
4. Practice using the rubrics on samples of work.
5. Encourage students to use the rubric to evaluate themselves and each other.
6. Allow students to revise their work based on feedback from applying the rubric.
7. Use the same rubric as the students to evaluate the rubric as the instructor.

RubiStar is a free, Web-based tool designed to help teachers develop quality rubrics. It is one of several tools developed by ALTEC (<http://www.altec.org>) through the High Plains Regional Technology in Education Consortium (HPR*TEC), a ten-year initiative funded by the U.S. Department of Education (U.S. Department of Education, 2005). Other tools developed by ALTEC through this initiative include TrackStar, QuizStar, NoteStar, and Web Worksheet Wizard. Like RubiStar, these tools are available at www.4teachers.org.

RubiStar was developed at a time when project-based learning (PBL) had just started being widely advocated as a teaching strategy. PBL is a method of teaching that engages students through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks (Markham et al., 2003). One aspect of PBL learning is the use of performance-based assessments, and rubrics are essential to this process. At the time, teachers were adopting PBL as a teaching strategy, but were unskilled in the development of rubrics. RubiStar provided scaffolding until they could become proficient themselves.

RubiStar is set up so teachers can access the site and easily put together a rubric on a specific topic based upon proven exemplars. RubiStar was not developed by one person or even a small team of individuals. The heart of RubiStar is contained in the exemplar rubrics in different subject areas. These exemplars were developed over the years and were based on teacher input about what actually works. Once a teacher has developed a rubric using the tool, he or she can then print it or download it to their local computer. To save the rubric for later use, the teacher must register with the system. As of spring 2007 there were about 300,000 individuals registered and over 220,000 saved rubrics. Teachers can also choose to share their rubrics, which are then made available to the public through the application's search engine. This form of collaborative sharing helps to promote a unique type of online learning community. The tool is available in both English and Spanish.

RubiStar is but one example of technology being used as a tool to help teachers do their jobs. As a tool, the application was designed, created, and implemented by a group of individuals, and the process used reflects how the design of interactive systems has changed over time. The staff at ALTEC wanted to develop tools “designed to address problems teachers encountered on a daily basis” (Wexford Inc., 2000, p. 9). Through the years, the staff learned that the most successful resources shared a set of common characteristics. The resources were based on solid content, were based on curriculum standards, were easy to implement, were adaptable, and were applicable across content areas, standards, and educational levels. Most importantly, a teacher did not have to login to get results. They could save their work with an account, but they did not have to register to use the tool. They found that “make it simple” as a development guide was best. Rather than trying to build complex tools that did a lot of things that required a steep learning curve, they chose to develop several easy-to-learn tools that focused on a specific task. The resources they developed promoted a “community in which individuals have the option to interact with others having similar problems or solutions, or use resources created by others” (Wexford Inc., 2000, p. 10). A major feature of their tools was the creation of templates that could then be customized.

RubiStar was created with the teacher's mindset. The goal was to help teachers create better rubrics. The developers of RubiStar wanted teachers to find a way to evaluate the quality of their rubrics. Poor rubrics are ones where students find their work falling between the lines—they can't easily categorize themselves based on the descriptions provided. RubiStar was developed over a period of several years. A simple idea was presented, and then continually improved based on teacher's feedback. The use of formal and informal focus groups of teachers helped guide the tool's development (Wexford, 2000).

Beyond just developing the tool, ALTEC has developed a sophisticated professional development model through the years. A cornerstone of their approach is to develop tools that are easy to use, and which provide the users with an immediately useful artifact. As the artifacts are saved, and made publicly available, they build a repository from which others can learn. Behind the scenes, the staff often works with contributors on a personal basis to continually update and improve the tool. Specific features have been added to RubiStar to make it easier to use for professional development, and to support a community of online learning.

RubiStar is easy to demonstrate, and teachers, or other professionals, can quickly tell their colleagues about the tool. As a result, the tool is continually promoted by non-ALTEC individuals at conferences, at professional development sessions, in articles, and added as a link to Web sites.

Research Findings

A mixed-method study (Merillat, 2008a) was completed that explored the process used to develop RubiStar and to gain an understanding of why the tool was so popular. The study was conducted in three phases. The first phase of the research investigated the history of the development of the tool. Next, a group of RubiStar users was asked to participate in a qualitative study. To validate the findings of the qualitative study, a survey was administered to a random sample of all current and past RubiStar users.

On a ten point scale, with ten being positive, the average level of feeling toward RubiStar was 9.1 (Merillat, 2008a). None of the respondents replied with a level of feeling of less than five. From a technology point of view, common software packages such as Word or Excel could be used, but many teachers have found that they prefer RubiStar. The respondents also held strong or very strong positive beliefs about the tool (Merillat, 2008a):

- Allows me to make and use more rubrics in my classroom (95%)
- Helps me develop better quality rubrics (93%)
- Helps me be more effective in my job (93%)
- Improves my students' self-awareness (86%)
- Improves my teaching (82%)
- Makes a difference in my students' attitudes toward learning (62%)
- Makes it easier to develop rubrics (97%)
- Makes it easier to implement project-based learning (89%)
- Makes my job easier (94%)
- RubiStar was developed by teachers for teachers (81%)

Feelings about RubiStar were moderately or strongly correlated with the beliefs, but feelings and beliefs were not strongly correlated with specific features or attributes of the tool (Merillat, 2008a). This led the researcher to conclude that what the respondents valued was what the tool could do for them—the results of using the tool—and not the specific attributes or features of the tool.

Other findings from the study (Merillat, 2008a) revealed that RubiStar is often used as a teaching and learning tool. It showed that RubiStar is used differently when it is used to teach others about rubrics rather than simply being used to create a rubric. An instructor is more likely to use the whole range of features available when they are teaching others about RubiStar.

The power of the tool's flexibility stems from its ability to scale across the user's level of experience with rubrics. It scales by being useful to those who are just learning about rubrics, by being adaptable to a variety of uses for rubrics for more experienced users, and by having features that make it easy to use as a teaching tool. One of the insights gained through the interviews with RubiStar users and through the survey is how influential RubiStar has been in some key areas (Merillat, 2008a):

- 82% were strongly or very strongly influenced by RubiStar in learning how to create rubrics.
- 88% were strongly or very strongly impacted in how they create rubrics.
- 72% were strongly or very strongly impacted in how they use rubrics.
- 90% were strongly or very strongly impacted by what they include in a rubric.

It has been used to teach pre-service teachers how to create rubrics, and as a result, some teachers learn about rubrics through RubiStar. About one-fifth of the respondents learned about RubiStar through a course they took, and 36% of the respondents have been using RubiStar for the same length of time that they have been using rubrics (Merillat, 2008a). Early on, the developers recognized this use for the tool and put in features to make it easy to demonstrate. The interaction of the tool encourages one to look and explore. Users have reported that it's an engaging way to learn something new.

Additional statistical analysis (Merillat, 2008b) examined the differences between users and past or non-users of the tool. The analysis revealed these significant differences between current and past users of RubiStar:

1. Current users are more likely to use rubrics to communicate requirements to students than past users.
2. Current users are more likely to use rubrics for large projects than past users.
3. Current users are more likely to engage students by designing the rubric and showing models that illustrate various proficiency levels to students than past users.
4. Current users are more likely to use more individual or unique rubrics throughout the year than past users.

When asked why they quit using the tool, Merillat (2008a) found that about one-third of the respondents reported that the tool didn't match their needs, or it was easier to create their own rubrics. About one-fourth of the

respondents were happy with the rubrics they already had, or didn't have a need for it at this time. Another question posed to the respondents was to explain how they decide when to use a rubric. The most common results are summarized in Table 1 below.

Category	Currently Uses RubiStar	Used RubiStar in the past, but not now
When understanding the exact criteria was important	16%	23%
For projects	15%	14%
For larger projects	9%	4%
For projects based on subjective criteria	9%	6%
Always use a rubric	9%	10%
Depends on the assignment	8%	11%
Complexity of the project	7%	7%
For long-term projects	3%	0%
When students need to be self-directed	2%	4%
When performance is being evaluated	2%	1%
When assessment needs to be differentiated	1%	0%
Other	17%	20%

Table 1 - Deciding When to Use a Rubric
(Merillat, 2008b, p. 6-7)

Conclusion

As individuals gain more experience using rubrics, they tend to use rubrics more, and in broader, more varied ways (Merillat, 2008a). Paradoxically, individuals were not more likely to use a wider range of the features of RubiStar as they gained more experience with the tool. By modeling all the features of RubiStar, the different ways to use rubrics, and ways to engage students in the process, instructors can accelerate the learning and experience curve for their students.

1. Model all the features of RubiStar.

In talking with teachers that used the tool, Merillat (2008a) found that very few used all the features that were available, and in some cases, were completely unaware that the feature was available.

- **Logging into the tool**

It is not required to create an account, and to login to RubiStar to use it. However, an account is required if a teacher wants to permanently save the rubric in the RubiStar database. Once they are stored in the database, they can be shared with others, analyzed, and copied. It is easier for a teacher to manage their rubrics if they create an account, and save their rubrics under that account. Once logged in, the teacher can access their rubrics through the 'Teacher Home' link in the global navigation at the top of the page. Otherwise, the teacher must write down and track the Rubric ID# for each rubric.

- **Selecting and using template as is**

The exemplar rubrics in RubiStar can be used as is. It is very easy to pick a template, and then pick and choose what criteria to include. The process of creating a rubric in this way as been described almost like a "treasure hunt." The templates were a part of an extensive on-going improvement process, and the current language reflects the feedback for dozens of teachers.

- **Selecting and using a template's categories, but entering own wording into cells**

Most teachers like the ideas or concepts expressed in the default criteria cells, but prefer to reword them to more closely match their instructional objectives, or level of student expertise. This is the most common way to customize RubiStar to meet a teacher's specific needs. The names of the

columns can also be changed, but this feature is often overlooked.

- **Selecting a template and adding new categories**
The criteria provided in the RubiStar templates is very generalized. In general, they do not contain subject specific criteria. Teachers will often add new rows to the rubric to address criteria specific to the subject or the content of the assignment.
- **Creating a rubric from scratch**
It is possible to create a rubric from scratch using RubiStar. When a template is presented, it is blank. Values can be added to all the cells. It is not required to use any of the criteria that is provided with the template. For some teachers, it is easier to use RubiStar for this task than other software packages like Word or Excel.
- **Print rubrics**
The most common way to use RubiStar is to simply create the rubric, customize the wording, and then to print it (Merillat, 2008a). Many teachers do not save the rubric in the database, or download it to their local machine.
- **Downloading rubrics to computer**
Some teachers like to personalize the format of the rubrics for their students. In order to do this, they must download it to their computer. At this point, the rubric format can be changed. Teachers will often add additional columns, heading and footing information, or change the presentation of the font styles.
- **Saving rubrics permanently in RubiStar**
Some teachers prefer to save their rubrics permanently in RubiStar. This allows them to access and view them online, return later to edit them, share them with others, copy them, and to analyze them. When saving rubrics in RubiStar, it is helpful to develop a method for recording the rubric ID#. This number is needed to open the rubric from the database for later editing or analysis without logging in. If the teacher is logged in, a list of rubrics created with that account is accessible by clicking on the 'Teacher Home' link from the main navigation at the top of the page.
- **Searching the database to view others' rubrics**
The database can be searched using keywords in the rubric title, the author's name, or the author's e-mail address. Some searches can return thousands of rubrics. The results of the search are divided into pages, with ten rubrics appearing on each page. It is necessary to page down past the box with all the page numbers to actually see the list of results. Some teachers will scour the database, review several rubrics, and then pick the best elements to include in their own rubrics.
- **Looking at Featured Projects**
Another way to find out how teachers are using rubrics, is to look at the Featured Projects. From the main page, the Welcome box has three tabs. The second tab is for Featured Projects. Each month, a different project is highlighted. The project is described, and tips are provided by the author on making the rubric work in the classroom. The link to the Inspiration Page on the Featured Projects provides a list of some of the best Featured Projects.
- **Analyzing a saved rubric**
Once the rubric is saved, overall results from the student evaluations can be entered to provide insight into areas that might need more instruction, practice, or support. To analyze a rubric, the teacher must be logged in. The rubric can then be accessed either by typing in the Rubric ID# on the main page, or clicking on the 'Teacher Home' link in the global navigation at the top of the page. The analysis function allows a teacher to enter the number of students that received each rating. When completed, RubiStar returns a report that shows the percentage of students that received each rating.

- **Integrating rubrics with Waypoint**

Teachers can further analyze their results by integrating their rubrics with Waypoint. Waypoint is a subscription service that allows teachers to take their rubrics from RubiStar, and then enter results for individual students that can be permanently stored, reviewed, and analyzed.

2. **Model different ways to use rubrics.**

Merillat (2008a) found that rubrics were used in a wide variety of ways. The most frequent use of rubrics was to evaluate large projects (83%) and projects (80%); however, the respondents also used rubrics to evaluate assignments 48% of the time. The respondents in the study reporting using rubrics as a way to communicate requirements to students (69%) and for grading (64%) most frequently. The next most frequent ways to use rubrics were for formative assessment (53%) and student self-assessment (52%). The least common way to use rubrics was for peer evaluation (41%) and for customizing assessment for individual students (41%). The rubrics developed with RubiStar can be adapted to model different strategies.

- **Grading**

The exemplar rubrics in RubiStar do not have a column for assigning a point value or a weight to the specified criteria. Many teachers will download the rubric to their computer, and then add additional columns to provide this information.

- **Tracking and documenting skill development**

When integrated with Waypoint, teachers can record and track evaluation results for individual students over time. When the same rubric is used repeatedly, it can be used to show improvement.

- **Customizing assessment for individual students**

The features of RubiStar can be used to make it easy to customize assessment for individual students. A teacher can create a rubric that contains the common elements for all students. Once the rubric is saved, the teacher can access it by clicking on the 'Teacher Home' link in the global navigation at the top of the page. From the list of rubrics, the teacher can duplicate, and then edit the saved rubric. As an alternative, the rubric can be downloaded to the local machine, and then copied and edited using other software tools.

3. **Model different ways to engage students in the process**

One of the benefits of rubrics is that as students become more actively involved with the assessment process, their thinking shifts from merely doing, to evaluating what they are doing.

- **Designing the rubric and going over it with the students early in the assignment**

Andrade (2000) has found that students perform better when they are provided a rubric before they complete the assignment. It provides an opportunity for teachers to emphasize what aspects of a project are most important, and it demystifies for the students the assessment criteria used by the teacher.

- **Designing the rubric and showing models that illustrate various proficiency levels to students**

One way to illustrate to students the differences between the cells of a criteria is to provide examples of excellent, acceptable, and not-so-good work. Reviewing the models with the rubric provides students with the opportunity to further clarify what is important, and what is not.

- **Designing the rubric with students' input**

Some teachers actively engage their students in creating a rubric. For older students, they may be able to work online to achieve this task. Within RubiStar, an account can be created for a class, and the login and password information shared among the students. Over a period of time, students can edit the rubric with their ideas. The teacher can then share and review the rubric with the entire class.

- **Allowing students to select what elements of the rubric to apply to their work**
One way to account for diversity in the classroom, and varying skill levels of students, is to allow students to select what elements of a rubric to apply to their work. This further engages students in evaluating their performance, and to specifically target skills they want to improve.
- **Having students highlight specific items on the rubric AND on the draft of the project/assignment**
In this approach, students are asked to use several colors of highlighters. The same color is used to highlight specific items on the rubric, as well as the parts of the project that demonstrate the specific trait. In many cases, students believe that they have addressed the criteria in the rubric, but when asked to point out examples in their project, they are unable to actually find it (Andrade, 2000). The benefit of this exercise is to have students realize the differences between what they may have internalized, versus what they have demonstrated.

The experience with RubiStar illustrates the role that teacher support tools can play when new teaching methods or strategies are introduced. New methods or strategies are being explored and developed all the time and there will always be a need for ways to inform and support teachers in learning and adopting these new approaches to teaching. In our increasingly technological world, technology-based solutions are frequently being adopted. In the past there was a significant amount of funding directed towards integrating technology into the classroom. As more and more emphasis is placed on meeting No Child Left Behind (NCLB) objectives, this funding has been diverted to capacity planning (Merillat, Holvoet, & Adams, 2007). But technology is always changing and teachers will still struggle with those changes. Technology can be used to make their jobs easier and to make their efforts more effective. When asked, users estimated that it takes 48.5 minutes longer to develop a rubric without using RubiStar (Merillat, 2008a). When this time savings is multiplied by the hundreds of thousands of teachers who use RubiStar every year, the impact on teachers overall is dramatic.

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