Differences between Current and Past Users of RubiStar on the Use of Rubrics

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Abstract: RubiStar is an online tool that enables teachers to easily create rubrics. In a survey, 284 respondents reported how they used rubrics. Significant differences were found between current and past users of the tool. Current users of RubiStar are more likely than past users to use rubrics to communicate requirements to students, to evaluate large projects using rubrics, to engage students in the process by designing the rubric and showing models that illustrate various proficiency levels to students, and to use more individual or unique rubrics throughout the year.

Introduction

RubiStar (http://rubistar.4teachers.org) is a free, Web-based tool designed to help teachers develop quality rubrics. A rubric is a scoring guide that provides students with a clear description of proficient student work (Markham, Larmer, & Ravitz, 2003). RubiStar is one of several tools developed by ALTEC 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). 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, he or she can then print it or download it to their local computer. As of spring 2007 there were about 300,000 individuals registered and over 220,000 rubrics have been saved.

Results from an earlier study (Merillat, 2008) indicated that further research could be conducted that examined the differences between individuals who currently used RubiStar and past users of the tool. The researcher hypothesizes that:

1. Individuals who currently use RubiStar will use rubrics significantly more than past users.
2. Individuals who currently use RubiStar will engage students in the process significantly more than past users.

Research Design

Participants

The site for this survey was the World Wide Web using SurveyMonkey (http://www.surveymonkey.com). The survey was administered to three samples selected from two different populations. The first and third samples were based on a group of users randomly selected from the RubiStar database containing approximately 406,750 registered users at the time of selection on September 4, 2007. The second sample was from a group of 99 schools randomly selected from the list of approximately 94,000 public schools available through the U.S. Department of Education's National Center for Educational Statistics. The second sample was administered to broaden the base of the participants to include those who might use rubrics, but do not use RubiStar. For this study, responses from 284 individuals were analyzed. The number of current users was 215, and the number of past users was 69.

Variables

The questions for the dependent measures asked respondents to report on his or her use of rubrics in these areas:

1. Use of Rubrics: the frequency with which they used rubrics for specific activities (9 items).
2. Used to Evaluate: the frequency with which they used rubrics to evaluate specific student activities (3 items).
3. Student Engagement: the frequency with which they engaged students in the process in specific ways (6 items).
4. Number of Rubrics Used: the number of individual or unique rubrics used throughout the year, and the total number of times rubrics were used throughout the year (2 items).

The question for the independent variable asked respondents to report on their current use of RubiStar. The independent variable was defined in three levels: respondent currently uses RubiStar; respondent used RubiStar in the past, but not now; respondent never or hardly at all used RubiStar. For purposes of this research, only the first two categories were compared. The number of individuals in the third category was too small for comparison.

Methods and Procedures

The survey was created using the software tools available at SurveyMonkey. Respondents were randomly selected from an extract file of registered RubiStar users. The selected participants were sent an e-mail invitation and consent form to participate in the research. The link to the survey was included in the e-mail. Those participants choosing to participate in the research clicked on the link and completed the survey questions via the SurveyMonkey application on the Internet. After a period of either one or two weeks, the survey results were downloaded for further analysis.

The procedures used to develop the survey were based on those presented by Creswell and Plano Clark (2007), and included reviewing the instrument with several individuals and professionals. The instrument was then administered to a sample of 24 graduate students in education who were attending an educational technology related class. Ten students responded to the survey. They indicated that the survey was simple and easy to understand, and they were able to complete it in less than 10 minutes. The instrument was tested for readability, and the readability of the survey was found to be near the eighth grade reading level.

The survey was administered between February 14, 2008 and March 20, 2008. The data was downloaded from SurveyMonkey and reformatted for use in SPSS, which was used to run statistical analyses to determine whether or not the proposed research hypotheses should be accepted or rejected.

Research Results

A series of independent samples *t* tests were conducted to evaluate the hypotheses that current RubiStar users use rubrics significantly more than past users, and to evaluate if current RubiStar users engage students in the process significantly more than past users. In cases where Levene's Test for Equality of Variances was significant, the Mann-Whitney *U* statistic was calculated.

The statistical 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.

The first set of questions asked respondents to report how frequently they used rubrics for specific activities. A graph of the results is provided in Figure 1, followed by the supporting data and statistical results in Table 1.

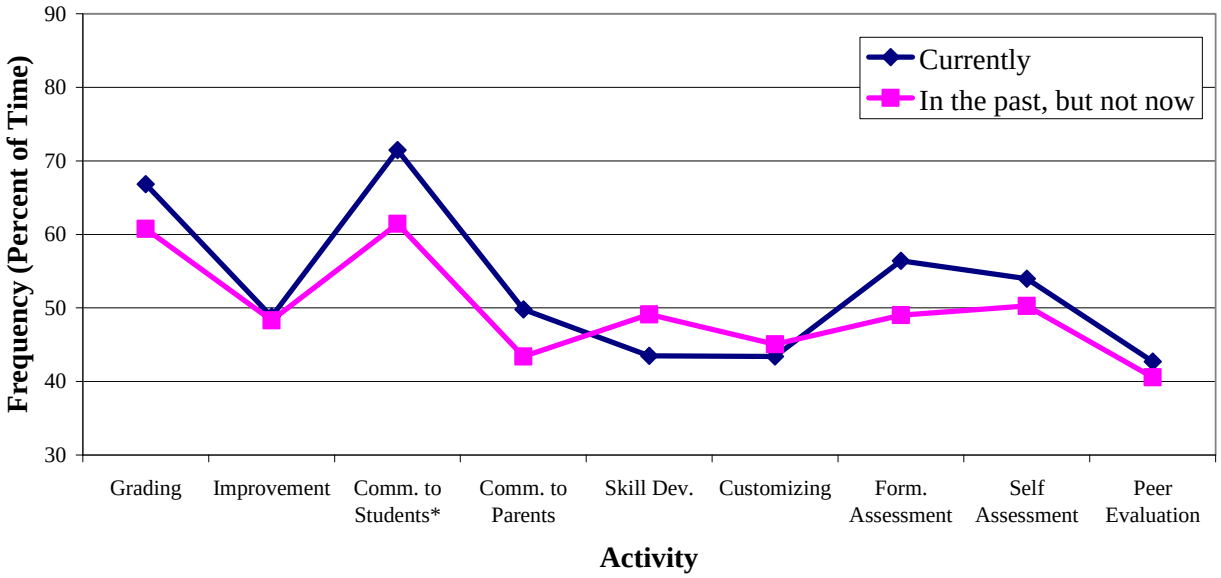


Figure 1 - Use of Rubrics

	Currently Uses RubiStar		Used RubiStar in the past, but not now		
Use of Rubrics For:	**Mean/ Median**	**Std. Dev.**	**Mean/ Median**	**Std. Dev.**	**Statistical Results**
Grading	66.84	22.53	60.75	26.63	Variances not equal.
	75	IQR(50-80)	60	IQR(45-80)	Mann-Whitney $U(n_1 = 215, n_2 = 69) = 6418$, p = .088)
Identifying Areas for Improvement	48.82	30.66	48.30	30.92	$t(282) = .121$, $p = .904$
Communicate Requirements to Students*	71.47	23.99	61.43	29.39	Variances not equal.
	75	IQR(50-90)	75	IQR(37.5-85)	Mann-Whitney $U(n_1 = 215, n_2 = 69) = 6095$, p = .025)
Communicate Requirements to Parents	49.80	34.29	43.39	33.67	$t(282) = 1.358$, $p = .904$
Tracking and Documenting Skill Development	43.48	31.31	49.12	33.08	$t(282) = -1.283$, $p = .200$
Customizing Assessment for Individual Students	43.40	33.51	45.06	34.07	$t(282) = -.356$, $p = .722$
Formative Assessment	56.42	38.69	49.04	32.40	$t(282) = 1.799$, $p = .073$
Student Self-Assessment	53.98	31.54	50.28	31.64	$t(282) = .849$, $p = .397$
Peer Evaluation	42.70	33.24	40.57	34.06	$t(282) = .461$, $p = ..645$

Table 1 - Use of Rubrics Data Table

The next set of questions asked respondents to report how frequently they used rubrics to evaluate specific student activities. A graph of the results is provided in Figure 2, followed by the supporting data and statistical results in Table 2.

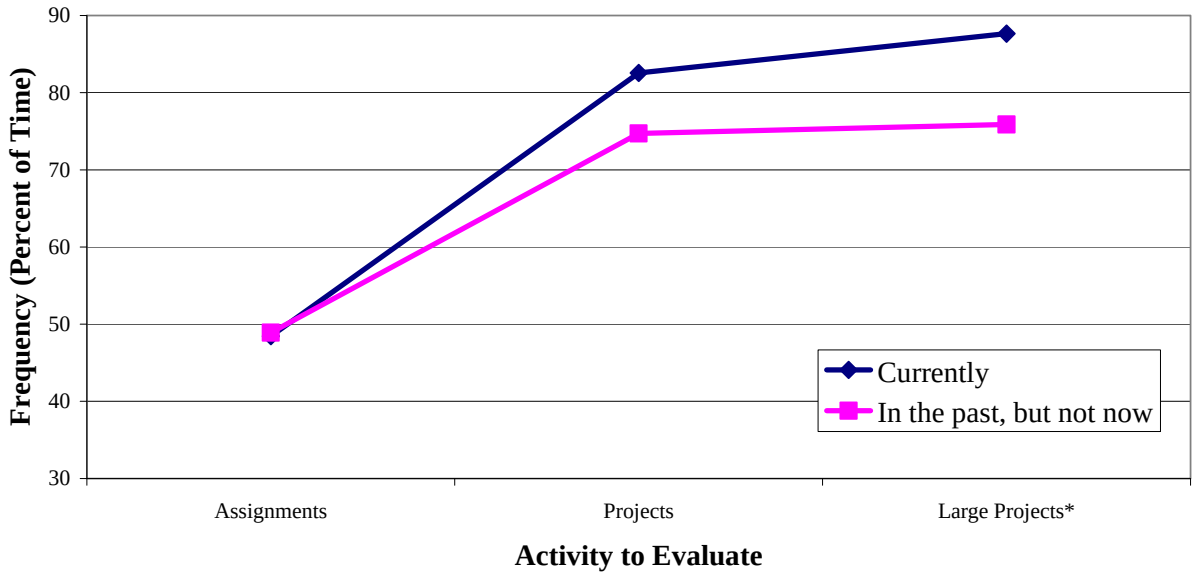


Figure 2 - Use Rubrics to Evaluate

	Currently Uses RubiStar		Used RubiStar in the past, but not now		
Use Rubrics to Evaluate:	**Mean/ Median**	**Std. Dev.**	**Mean/ Median**	**Std. Dev.**	**Statistical Results**
Assignments	48.46	31.16	48.91	33.23	$t(282) = -.104$, $p = .917$
Projects	82.54	22.03	74.71	28.58	Variances not equal.
	90	IQR(75-100)	85	IQR(52.5-100)	Mann-Whitney $U(n_1 = 215, n_2 = 69) = 6329$, $p = .059$)
Large Projects*	87.65	19.38	75.88	30.43	Variances not equal.
	100	IQR(76-100)	90	IQR(56.25-100)	Mann-Whitney $U(n_1 = 215, n_2 = 69) = 5763$, $p = .005$)

Table 2 - Use Rubrics to Evaluate Data Table

The third set of questions asked the respondents to report how frequently they engaged students in process in specific ways. A graph of the results is provided in Figure 3, followed by the supporting data and statistical results in Table 3.

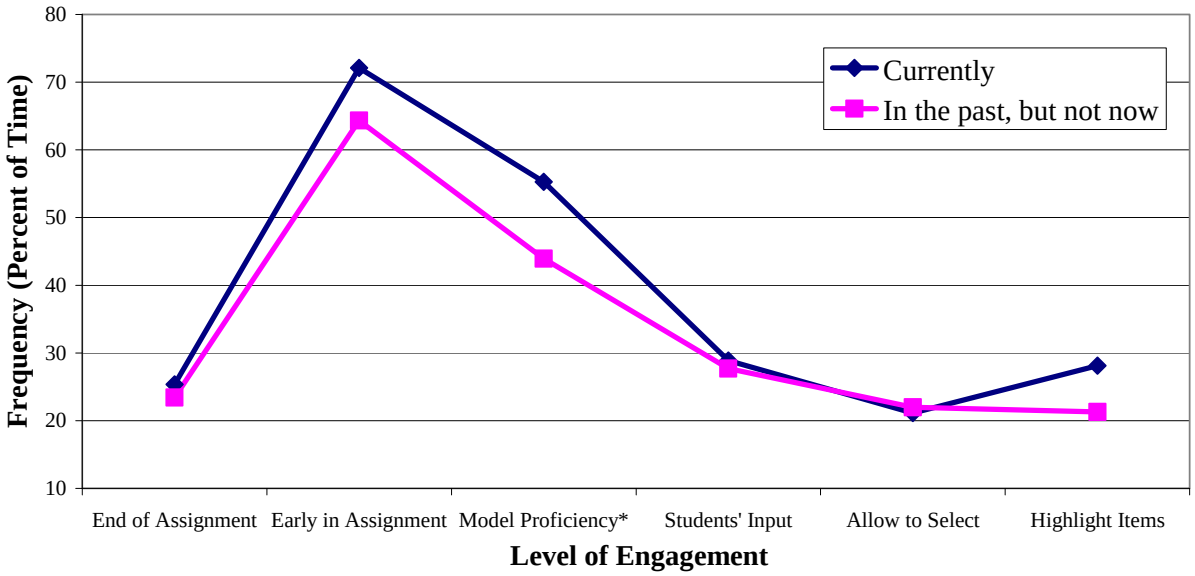
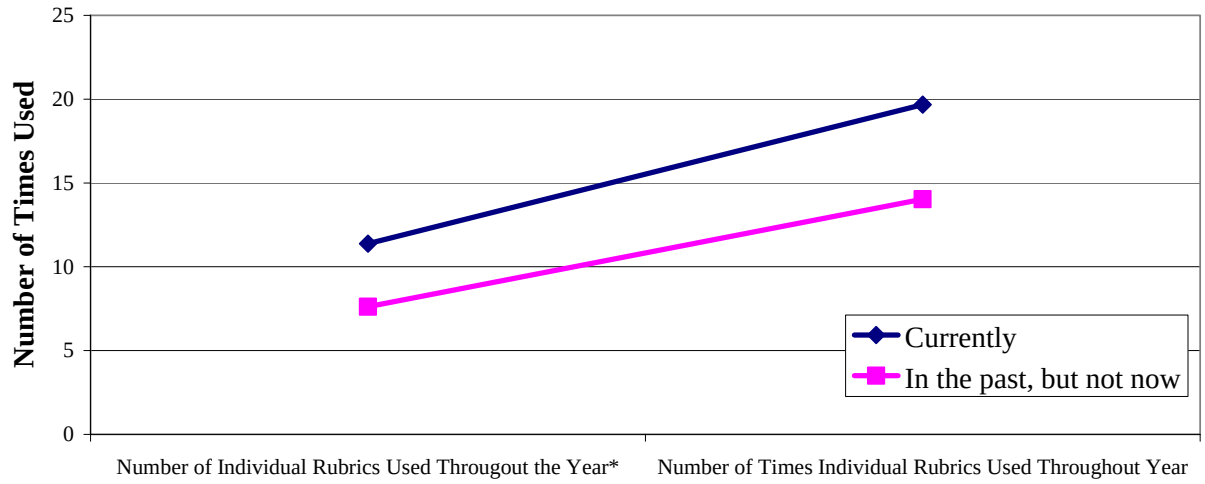


Figure 3 - Engages Students in the Process

	Currently Uses RubiStar		Used RubiStar in the past, but not now		
Engages Students in the Process by:	**Mean/ Median**	**Std. Dev.**	**Mean/ Median**	**Std. Dev.**	**Statistical Results**
Designing Rubric and Prov. at End of Assignment	25.37	32.03	23.41	30.94	$t(282) = .446$, $p = .904$
Designing Rubric and Going Over It with Students Early in the Assignment	72.12	30.04	64.35	34.41	Variances not equal.
	80	IQR(50-100)	80	IQR(40-90)	Mann-Whitney $U(n_1 = 215, n_2 = 69) = 6511$, p = .121)
Designing the Rubric and Showing Models that Illustrate Various Proficiency Levels to Students*	55.29	31.74	43.93	33.57	$t(282) = 2.552$, $p = .011$
Designing the Rubric with Students' Input	28.88	29.98	27.71	28.12	$t(282) = .287$, $p = .774$
Allowing Students to Select What Elements of the Rubric to Apply to Their Work	21.14	26.96	21.96	25.66	$t(282) = -.222$, $p = .825$
Having Students Highlight Specific Items on the Rubric AND on the Draft of the Project/Assignment	28.11	31.17	21.28	24.91	Variances not equal.
	20	IQR(.00-50)	10	IQR(.00-42.50)	Mann-Whitney $U(n_1 = 214, n_2 = 69) = 6746$, p = .266)

Table 3 - Engages Students in the Process Data Table

. The final questions asked the respondents to report first the number of individual or unique rubrics used throughout year, and then the total number of times rubrics were used. A graph of the results is provided in Figure 4, followed by the supporting data and statistical results in Table 4.



Individual Rubrics vs. Total Rubrics Used

Figure 4 - Number of Times Rubrics Used

	Currently Uses RubiStar		Used RubiStar in the past, but not now		
Number of Times Rubrics Used:	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Statistical Results**
Number of Individual Rubrics Used Throughout the Year*	11.38	10.34	7.62	8.49	$t(282) = 2.733$, $p = .007$
Number of Times Ind. Rubrics Used Throughout the Year	19.67	41.48	14.03	25.95	$t(282) = 1.063$, $p = .289$

Table 4 - Number of Times Rubrics Used Data Table

Discussion

In the twenty different areas analyzed, the average frequency of use by current RubiStar users versus past users of RubiStar was higher in all but four cases. In each of the four dependent measures being studied (Use of Rubrics, Used to Evaluate, Student Engagement, and Number of Rubrics Used), a significant difference was found in one aspect of the measure. In an earlier study, Merillat (2008) found that when asked why they quit using the tool, 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 5 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 5 - Deciding When to Use a Rubric

For both groups, conveying a clear understanding of the requirements or exact criteria of the assignment to students was the reason for using a rubric most often. Current users of RubiStar reported a significantly higher frequency of this activity than past users. Current users of RubiStar were also found to more frequently engage students in the process showing models to illustrate various levels of proficiency. The correlation between these two behaviors was significant for current users, $r(215)=.312$, $p < .0005$, and for past users, $r(69)=.526$, $p < .0005$. Modeling or illustrating levels of proficiencies for students is one way to more clearly convey a teacher's expectations.

Similarly, the next most common reasons for using a rubric were to support assessment of projects and large projects. Many of the respondents made a distinction between projects and larger projects. Current users of RubiStar reported a significantly higher frequency of using rubrics to evaluate large projects than past users of RubiStar.

A previous study (Merillat, 2008) has shown that users of RubiStar estimate that they save an average of 48.5 minutes per rubric by developing a rubric using RubiStar. For many, the most difficult aspect of implementing project-based learning is developing a way to assess the student for that activity. When an existing rubric or template already exists in RubiStar for the subject matter being covered, it makes it easier for the teacher to complete this difficult task. When asked about their beliefs regarding RubiStar, the respondents gave these responses (Merillat, 2008, p. 182):

- Allows me to make and use more rubrics in my classroom, 56% strongly agreed
- Helps me develop better quality rubrics, 55% strongly agreed
- Makes it easier to develop rubrics, 74% strongly agreed
- Makes it easier to implement project-based learning, 52% strongly agreed
- Makes my job easier, 56% strongly agreed

In the present study, current users of RubiStar reported using a significantly higher number of individual or unique rubrics throughout the year than past users. One reason for this finding may be that it is easier and less time consuming to develop rubrics with RubiStar, than it is without it.

Conclusion

RubiStar is a tool that allows teachers to create and use more rubrics. More importantly, it also helps them to achieve their educational objectives. It helps them to focus on more clearly communicating their expectations to their students. It encourages them to adopt more project-based approaches by making it easier to evaluate and assess students in these activities.

Acknowledgements

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