Rubric as Assessment Tool for Lecturers and Students in Higher Education Institution

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ABSTRACT: Rubrics in higher education have been studied in a range of disciplines and for a variety of reasons, including improving student achievement, enriching instruction, and evaluating programs. Some authors indicate good responses to the use of rubrics by teachers, whereas others have noticed instructors' reluctance to adopt them. This review aims to provide an empirical study on the utilization of rubrics as assessment tools in higher education institutions. It examines specific peer-reviewed literature on the utilization of rubrics in higher education; the utilization of rubrics in instructional and program evaluations; and the reliability, validity, and utility of rubrics. However, one study did not find a correlation between the use of rubrics and improved academic performance. It has been demonstrated that rubrics can identify the need for course and program enhancements. According to research on the validity of rubrics, clarity and appropriateness of language are of paramount importance. Rubrics can lead to a somewhat consistent assessment of student performance, according to the bulk of research on rater dependability. Suggestions for future research include the use of more rigorous research methodologies; a higher emphasis on validity and reliability; a stronger emphasis on learning; and research on the implementation of rubrics in various educational settings.

KEYWORDS: Assessment tool; effective rubric; university; formative assessment; critical thinking.

1. Introduction

The term "rubric" is commonly defined in a variety of ways by educators. Typically, a rubric is a document that describes assignment requirements by identifying the criteria or what matters and describing levels of quality from good to poor. A rubric consists of three fundamental components: evaluation criteria, quality definitions, and a scoring procedure. When determining the quality of a student's work, an evaluator considers the evaluation criteria. The criteria, sometimes referred to as a set of indicators or a list of recommendations, describe the important procedures and content. Definitions of quality provide a clear description of what a student needs to do in order to establish an ability, competency, or principle in order to attain a specific degree of achievement, such as inadequate, adequate, good, or excellent. The standards emphasize the need to discern between good and poor responses, both for grading and providing feedback to students. Strategies for scoring rubrics apply a scale for interpreting

product or process assessments. Since figuring out final grades isn't important to the point of this review, scoring systems won't be talked about [1-3].

Rubrics are commonly used by lecturers to grade student work, but many authors contend that they can also serve a more important purpose. When students utilize them as part of formative assessments of their works-in-progress, rubrics can both teach and assess. Implemented as an element of a student-centered evaluation tool, rubrics have the capacity to facilitate students in comprehending the educational targets and quality requirements for a specific assignment, as well as in conducting accurate self-evaluations that can inform modification and growth. There is limited but persuasive scientific evidence that the use of rubrics can improve the learning and performance of elementary and secondary pupils [3-5].

2. Materials and Methods

This article is fundamentally a literature review. It involved literature searching with journal databases consisting of Sciencedirect, SpringerLink, Wiley, and Taylors & Francis. Examining the nature and scope of empirical research on rubrics at the postsecondary level and encouraging further research on the use of rubrics in higher education are the goals of this review. The main keywords used in the literature search "rubric", "formative assessment" and "undergraduate program". Individually or collectively, the keywords were entered into the search engines. When a more particular search was desired to get articles that fit the given aims, the keywords were typed together. The selection procedure yielded 22 items for inclusion in the review, the majority of which are provided in Sections 3, 4, and 5. The search criteria are as follows: The articles must be written in English and the articles must be of a scholarly nature and have been peer-reviewed; journal articles were prioritized over conference papers in this review because journal articles generally undergo more rigorous review processes; university theses and dissertations were excluded from the review.

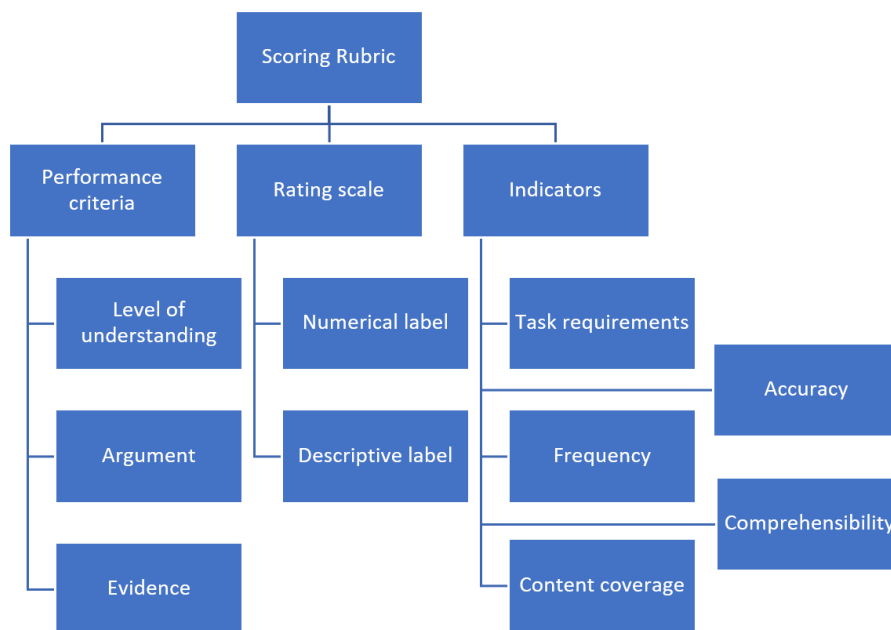## 3. Utilization of rubrics in higher education

Previous studies stated that rubrics are applied in a wide range of studies in higher education institutions, if not by the majority of lecturers. Numerous social studies, such as liberal arts, information literacy, management, education, and science studies, such as engineering, agriculture, medicine, pharmacy, and geology, have produced research on the usage of rubrics. Rubrics are used to evaluate and mark students' idea maps, literature reviews, reflective writing, bibliographies, oral presentations, critical thinking, citation analyses, portfolios, projects, and oral and written communication abilities. While some studies examine how diagnostic feedback obtained via the use of a rubric may be utilized to identify instructional improvement areas, other researchers employ rubrics merely to assess student work. Rubrics, according to other researchers, can be used for both evaluation and educational objectives, as well as to improve instruction and the learning process [3,6-8]. The included studies on rubric use at the university level have been organized in accordance with the overarching themes determined by observing the recurrence of specific subjects across research. The subjects consist of lecturers' and students' opinions on the utilization of rubrics; the impact of rubrics on learning outcomes or student performance; the rubric advantages in educational and course assessments; and confirmatory factors like validity and reliability. Several academics have examined the relationship between rubrics and learning, and their findings indicate that students whose work is directed by rubrics achieve higher levels of achievement and acquire greater knowledge.

Previous research found that the final grades for a short-term project in a course called Advanced Management of Business Information were tied to A similar project was assigned to two classrooms of twenty students each as part of the two-group post-test design. The project rubric was distributed to students in one of the classrooms at the start of the semester. When the project grades of students in the two classrooms were compared, it was discovered that the portion using rubrics had a substantially higher mean percentage grade than the comparison group [9]. Another study investigated whether rubrics were used for recurring lecturer, self, and peer evaluations of student presentation skills in a preparation course. As part of the longitudinal, single-group study, all students were asked to self-and peer-evaluate a minimum of four oral presentations per semester. A comparable study by Green and Bowser yielded inconsistent results [10]. This study used a rubric to evaluate the literature reviews for the master's thesis and found no significant differences between samples prepared with and without the rubrics. The small sample size and the limited use of the rubric in this study, which consisted of providing the rubric to students prior to their review submission, may explain the discrepancies in these findings. However, the rubric did not always increase student performance if implemented in middle high school. Students must actively participate with rubrics, perhaps through co-creation and use for self-or peer-assessment [9].

4. Utilization of rubrics in instructional and program evaluations

Rubrics have been used in course-based assessments, but other research has examined their application in instructional and program evaluations as well. Using a rubric to evaluate the effectiveness of oral communication education has been documented by previous studies [11]. Two lecturers employed an effective rubric after evaluating one hundred student speeches in seven classes of a general education public speaking course. The students found five of the eight competencies listed in the rubric to be insufficient. It was the writers' duty to offer the department's critics' comments after proving the department's inability to meet its public speaking goals. Some students suggested that the course's content and delivery method should be reevaluated. The students in the normal, service, and honors sections of introductory undergraduate research and writing courses were graded using a rubric for their bibliographies. For each section's information literacy, data from the rubric was utilized to identify any consistent disparities in learning that might be traced back to classroom contexts. The findings were utilized to identify areas of improvement and change the library tutorial. Another study demonstrated the utility of rubrics for the effectiveness of courses. Performance-based artifacts rather than test scores were used to evaluate the growth of lecturer candidates' performances as well as their intellectual and ethical preparation. Students were graded on the basis of rubrics. Students' overall strengths and shortcomings were revealed by analyzing the scores for each criterion. This allowed the assessors to discover instructional improvement opportunities. The use of rubrics to evaluate student work, on the other hand, allowed instructors to identify areas of weakness and so enhance education. Effective rubrics for multiple courses were developed by Petkov & Petkova wherein the lecturers came to agreement on the criteria and quality levels of the scoring rubrics produced by some researchers for final year projects [6,12]. The scoring rubric in higher education is shown in Figure 1. Performance criteria is the expected level of knowledge and performance established for a population of students and consists of two main components: the score/rating that students should achieve to demonstrate mastery of the stated outcome and the proportion of sampled students that should achieve this score/rating for the

program to have successfully accomplished its goal as outlined in the outcome. Some criteria of students need to be evaluated, for example, level of understanding, argument, and evidence. Rating scales can be numerical or descriptive on rating systems. A rating scale typically contains an even number of performance levels. If an odd number is utilized, the middle category tends to become a catch-all. Monitoring and evaluation entails the creation of an assessment strategy to measure the success of adaptation efforts in terms of their relevance, effectiveness, efficiency, results, and sustainability. Indicators are crucial to this. Indicators are measurable variables. They help establish whether assessment objectives have been met or whether a learning result has been attained. Task requirements, frequency, accuracy, compehesibility, and topic coverage are indicators that must be evaluated in the rubric.

Figure 1. Scoring rubric in higher education.

5. Reliability, validity, and utility

Even though little of the above research revealed the reliability and validity of the rubrics used, a distinct but related literature puts a lot of emphasis on assessing the reliability of a rubric by figuring out if it measures what it is supposed to measure (validity) and if it ensures scoring consistency (reliability). Rubrics' reliability hasn't been thought about much. Most research has been done on reliability, which is a necessary but not sufficient condition for validity. Most often, rater reliability is taken into account when creating classroom assessments and rubrics. This is the consistency of scores given by two independent reviewers (inter-rater reliability) and by the same rater at different times. General opinion and consistency are the two ways that are most often suggested to improve inter-rater reliability [3,13,14]. Consistency looks at how often raters give the same score. Consensus looks at how often raters give the same score. The concept of generalization is used to figure out quantification estimates in some studies. People think that a well-designed scoring rubric should reduce scoring discrepancies by reducing errors generated by assessor training, assessor feedback, and the clarification of eligibility requirements descriptions [15].

Research has shown that students and educators can use rubrics to accurately evaluate performance achievement. Previous studies have shown how to create rubrics to evaluate both formative and summative assessments for graduate and undergraduate students. The majority of professors and students agreed on the use of rubrics as an evaluation and self-assessment tool [16,17].Other studies looked at how reliable peer and lecturer grades were in an undergraduate course by using consensus and consistency approaches. The study revealed that the scores of the lecturers and the students were amazingly similar. The studies also showed that using rubrics can lead to a fairly uniform understanding of how well students did [16,18].

Analytical rubrics and holistic rubrics are the two main varieties. More than one content area can be evaluated using an analytic rubric at various levels of performance. A holistic rubric evaluates a work or product as a whole, taking into account a variety of factors. Criteria for judging, quality descriptions, and a method for assigning points go into making a good rubric. For the most part, they take the shape of tables, with rows denoting the evaluation criteria and columns denoting different performance levels. Each box in the table contains information on how well the candidate performed on each criterion. In the process of creating a rubric, a lecturer or teaching team should create the scale, define the grades, and provide descriptions of what each level of performance looks like [19,20].

However, the validity and dependability of research rubrics are underrated. Little research discloses the results of pilot and reliability testing undertaken before implementing rubrics. Procedures, analyses, and results help readers comprehend validity and dependability. Future studies should detail a rubric's validity and scoring reliability, including rater training and its contribution to inter-rater reliability, and the link between rubric-referenced scores and other performance metrics. Comparing raters' scores to the researcher's scores shows high rater agreement fluctuation. A previous study reveals that ensuring dependability depends on how assessment results are used. For summative applications, consistency estimates may suffice. If judgments are made at the criterion level, consensus estimates may be needed. Construct validity, criteria validity, and content validity are validities. Content validity relates to whether the scoring instrument includes all intended content [3,8]. During the preparation of the scoring rubric for information literacy, teachers from different faculties reviewed the rubric. The current study, which tests the qualities of the existing grading rubric, no longer investigates content validity. Construct validity asks if all grading criteria are related to the construct of interest. Factor analysis analyzes whether distinct criteria refer to one or more dimensions. Along with factor analysis, reliability analysis examines a group's internal consistency. High internal consistency for different criteria indicates the instrument's reliability. Criterion validity relates to whether an assessment instrument's scores correlate with another instrument measuring the same construct [6,12].

Some publications tested the validity of research rubrics concentrated on content and language. Language is one of the most difficult components of designing rubrics. As with any method of evaluation, a vague rubric cannot be interpreted accurately or consistently by teachers, students, or scorers. Another approach used group-created concept maps to better assess physiological topics in a dentistry course. Faculty reflections and student survey results on rubric interpretation were used to revise and add criteria. Other studies have examined rubrics' language and substance for certain populations [3,8,21]. Traditional students are more interested in the completion of the course than non-traditional students, who are driven by income or employment prospects. The study examined whether nontraditional and traditional

students might use the same rubric to improve their performance. Traditional students assessed with a rubric meant for non-traditional students did not provide the required degree of effort and response quality. A modified rubric was devised after comparing the two student groups. Revisions included converting score levels to score ranges and giving samples of student responses to support performance levels. After testing the updated rubric in a classroom, the authors found it could evaluate both student groups. Green and Bowser (2006) showed how to move a rubric from one institution to another and the importance of customizing the criteria to the student group being evaluated. A Shenandoah University (SU) rubric for master's thesis literature evaluations was employed unchanged at Best Practices University (BPU). Pairs of BPU raters rated entering M.Ed. students' literature reviews. SU raters evaluated the same samples. According to the study, BPU raters evaluated samples at a higher level than SU raters. The variance in marks between raters from the two universities was attributed to the fact that the rubric was meant for students who have completed their literature reviews and theses, but was used for students just beginning the literature review process. BPU later amended the rubric. These validity and reliability studies show the importance of rater training and course objectives and program design in rubric formulation and implementation. One subset of rubrics literature highlights this issue strongly, while another fraction ignores it [10,22].

5. Conclusion

Research has studied rubrics' usage in educational and program evaluations. Rubric data was used to uncover learning differences that might be connected to classroom circumstances. The insights helped improve the library tutorial. Performance-based artifacts were utilized to evaluate lecturer candidates' intellectual and ethical readiness, not test scores. Rubrics helped grade students to analyze each criterion's scores and highlighted students' strengths and weaknesses. Rubrics also help educators recognize student weaknesses and improve instruction. The majority of these studies illustrate the exclusive use of rubrics for evaluation. It has not been sufficiently explored how they can be utilized in the classroom. For instance, the development of positive attitudes and perceptions about learning, the acquisition and integration of new knowledge, the extension and refinement of knowledge, the use of knowledge to perform meaningful tasks, and the development of powerful habits of mind that enable students to regulate their behavior and think critically and creatively are necessary.

Competing Interest

Author declare no competing interest.

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