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ENHANCING LEARNERS' PERFOMANCE THROUGH TASK-BASED ANALYTIC RUBRICS IN COMPUTER SYSTEM SERVICING 10

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ABSTRACT

The study developed and evaluated the Task-Based Analytic Rubrics in Computer System Servicing (TBARCSS) for Grade 10 learners. It aimed to assess and improve the performance of Grade 10 learners in TLE Computer System Servicing. The study was conducted at Baras-Pinugay Integrated High School during the second quarter of the school year 2023–2024. The study employed a developmental and quasi-experimental research method to determine the level of performance of the students in the pretest and posttest results and the difference between the pretest and post-test before and after the utilization of the TBARCSS. Fifty Grade 10 low-performing or at-risk students were purposively selected as respondents of the study. The Task-based Analytic Rubrics in Computer System Servicing was developed based on identified least learned competencies in TLE 10. The experts evaluated the developed Task-based Analytic Rubrics in Computer System Servicing as "Very Much Acceptable" with respect to performance criteria, rating scale, performance level delivery, description of standard and task, and usefulness. The level of performance of the learners before and after exposure to the developed task-based analytic rubrics was "Excellent" and concluded that Grade 10 learners improved their performance after exposure to the developed material. The result of t-test revealed that there is a significant difference between the performance of the learners before and after the exposure to the developed Task-based Analytic Rubrics in Computer System Servicing 10. It was concluded that the utilization of the TBARCSS was effective in increasing the level of performance of the grade10 students. The study recommended that the developed TBARCSS may be used by the TLE Computer System Servicing 10 teachers in teaching and assessing the competency on configuring computer system and network to improve learners' performance; that the output can be modified and improved by the teachers and professionals in terms of performance tasks, criteria, and performance descriptors depending upon the needs and abilities of the learners; that TLE teachers are encouraged to develop Task-Based Analytic Rubrics in other specialization courses in TLE to improve the performance of the learners; that the results of the study may be integrated on school-based and department LAC session; that parallel studies may be conducted utilizing the Task-Based Analytic Rubrics in other subject areas; and experimental research may be conducted utilizing controlled and experimental group, other variables, and wider scope to test the effectiveness of the Task-Based Analytic Rubrics in Computer System Servicing 10 in improving the performance of the learners.

1. INTRODUCTION

Assessing learners' performance objectively has become a pressing concern in education, particularly in skill-based subjects such as Technology and Livelihood Education (TLE). Performance tasks require learners to apply knowledge and demonstrate higher-order thinking, making them essential in measuring mastery of competencies. However, performance assessment is only as effective as the tools used to evaluate it. As emphasized in DepEd Order No. 8, s.2015, classroom assessment must provide accurate and meaningful information about what learners know and can do.

Rubrics have long been used as assessment tools to measure the quality of student outputs. Holistic rubrics, however, often provide only a single overall score, offering little feedback on specific strengths and weaknesses. This lack of detail leads to learner dissatisfaction and limited opportunities for improvement. Chowdhury (2019) highlighted that unclear performance criteria confuse learners, often resulting in poor outcomes and lower motivation.

Analytic rubrics, in contrast, provide clear criteria across different performance dimensions and are recognized for their effectiveness in ensuring objectivity and transparency. Ghalib and Al-Hattami (2015) emphasized that analytic rubrics support consistency in scoring while helping students understand expectations. Likewise, Beyreli and Ari (2009) stressed their value for both teachers and learners, noting that they guide performance and foster quality outputs. These features make analytic rubrics more responsive to the demands of performance-based assessment.

In the context of Computer System Servicing (CSS 10), the absence of analytic rubrics has posed challenges in student performance evaluation. At Baras-Pinugay Integrated High School, Grade 10 learners recorded a mean percentage score of only 59.72% in their first periodical test during SY 2023–2024. Balajadia (2022) recommended the development of analytic rubrics in TLE courses to address such gaps and to ensure that learners receive objective and constructive feedback on their work.

To address these issues, this study developed and evaluated Task-Based Analytic Rubrics in Computer System Servicing (TBARCSS) for Grade 10 learners. It examined their effectiveness in improving student performance and providing objective assessment. As Reddy (2007) noted, there is still limited experimental research on the role of rubrics in enhancing competencies, behaviors, and attitudes. Thus, this study contributes to improving assessment practices in TLE and strengthening competency-based learning under the K to 12 curriculum.

METHODOLOGY

This study employed an action research approach utilizing developmental and quasi-experimental methods. It focused on the development and evaluation of Task-Based Analytic Rubrics in Computer System Servicing (TBARCSS) and their effectiveness in improving the performance of Grade 10 learners.

The participants of the study were fifty (50) Grade 10 low-performing or at-risk learners from Baras-Pinugay Integrated High School, purposively selected based on their first-quarter performance in CSS 10. The primary sources of data were the learners' performance tasks before and after the use of TBARCSS and the experts' evaluation of the material. Expert evaluators consisted of TLE/TVL Master Teachers, head teachers, CSS teachers, and an English/Language teacher who assessed the developed rubrics using an adopted questionnaire-checklist. The acceptability of the TBARCSS was measured through a five-point Likert scale ranging from 1.00–1.79 (Not Acceptable) to 4.20–5.00 (Very Much Acceptable), while learners' performance was evaluated on a five-point scale ranging from 1.00–1.79 (Very Poor Performance) to 4.20–5.00 (Excellent Performance).

The data gathering process began with the identification of low-performing students using the results of the first periodical test, which yielded a mean percentage score (MPS) of 59.72%, interpreted as nearing mastery. The least mastered competencies in CSS 10 were identified through

the learners' outcomes assessment and served as the basis for developing the TBARCSS. The draft rubrics were subjected to expert evaluation and validation by five TLE/TVL Master Teachers, two TLE Head Teachers, and seven CSS teachers for evaluation, while five other TLE/TVL Master Teachers, three CSS teachers, and one English/Language teacher validated its content. Suggestions and recommendations from the experts were incorporated, and revisions were made accordingly. Proof of validation was documented through signed content validation certificates.

Learner performance was measured through pretest and posttest performance tasks. The pretest utilized traditional holistic rubrics, while the posttest applied the developed TBARCSS. Both were administered after instruction and remediation on the target competencies. Performance scores were then gathered, tabulated, and analyzed.

In the analysis of data, the mean was used to determine the level of acceptability of TBARCSS as assessed by experts. The mean and standard deviation were employed to evaluate learners' performance before and after exposure to the developed rubrics. A dependent t-test was applied to determine the significant difference between pretest and posttest scores. Additionally, qualitative discussion was used to further explain how TBARCSS enhanced the learners' performance.

RESULTS AND DISCUSSION

Level of acceptability of the developed and validated Task-Based Analytic Rubrics in Computer System Servicing 10 as evaluated by the teachers-experts with respect to different criteria

The evaluation of experts on the developed Task-Based Analytic Rubrics in Computer System Servicing (TBARCSS) in terms of performance criteria revealed very high acceptability. The highest-rated items were "The Task-Based Analytic Rubric has two or more performance criteria to be able to rate the performance effectively" and "The criteria are aligned with the performance standard, content standard, and learning competency," both obtaining a mean of 4.95 and verbally interpreted as "Very Much Acceptable." These were followed by "The criteria listed in the Task-Based Analytic Rubric are the essential aspects and elements of the performance to be assessed" and "The criteria represent the knowledge, skills, competencies, and values that students must demonstrate in performing the task," each with a mean of 4.90 and also interpreted as "Very Much Acceptable." The lowest-rated but still highly acceptable item was "The criteria are clear, different from each other, and specific for the task to be performed," which garnered a mean of 4.82. Overall, the performance criteria obtained an aggregate mean of 4.91, verbally interpreted as "Very Much Acceptable."

These results imply that the developed TBARCSS contains the most essential criteria needed to objectively and effectively assess learners' performance while remaining aligned with the prescribed learning standards and competencies. The findings affirm the importance of well-structured performance criteria in ensuring fairness and clarity in assessment practices.

The results support Vercellotti and McCormick (2021), who emphasized that analytic rubrics must establish clear performance categories aligned with assessment objectives and learning goals. Likewise, Brookhart (2013) highlighted that effective analytic rubrics must include clear and appropriate criteria that reflect the most important aspects of a task, describing qualities that both teachers and students can use as evidence of meaningful learning.

Evaluation of Expert's on the Task-Based Analytic Rubrics in Computer System Servicing 10 in Terms of Performance Indicators/Descriptors

The experts rated item no. 3, "The performance indicators give students a clear idea of what must be done to demonstrate a certain level of performance," with the highest overall mean of 5.00, verbally interpreted as "Very Much Acceptable." This was followed by item no. 1, "The performance indicators are clear, distinct from each other, and match the criteria and the rating scale," and item no. 2, "The performance indicators differentiate levels on the scale with descriptive and parallel language," both obtaining an overall mean of 4.90, likewise interpreted as "Very Much Acceptable." Meanwhile, item no. 4, "The performance indicators enable the students to verify and comprehend the score on each criterion," and item no. 5, "The overall description of performance provides teacher's feedback on student's performance and student's reflections after completing the task," obtained the lowest mean of 4.83, though still verbally interpreted as "Very Much Acceptable."

The overall evaluation of the experts on the acceptability of the Task-Based Analytic Rubrics in Computer System Servicing 10 in terms of performance indicators/descriptors yielded an overall mean of 4.90, interpreted as "Very Much Acceptable." This finding suggests that the developed rubrics provide clear, distinct, and well-aligned performance descriptors that correspond with the criteria and the scale. These indicators give learners a concrete guide on how to meet the expectations for each performance level, making the assessment process more transparent and constructive.

These results are supported by Balch et al. (2016), who emphasized that performance descriptors must match the criteria and provide a clear basis for assigning points, allowing students to understand how their scores are determined. They also stressed that rubric language should be descriptive and illustrative of different levels of performance.

The findings also align with Brookhart (2013), who explained that analytic rubrics must contain clear and detailed descriptions of performance across a continuum of quality. Each criterion should have separate descriptors that define expected performance levels, ensuring fairness and objectivity in assessment.

Evaluation of Expert's on the Task-Based Analytic Rubrics in Computer System Servicing 10 in Terms of Rating Scale

The experts rated item no. 1, "The rating scale has a numerical (1 point–5 points) and descriptive labels (Very Poor Performance–Excellent Performance)," item no. 2, "The rating scale indicates the different levels of performance for grading," and item no. 5, "The numeric values are totaled in the overall score for the performance task," with the highest overall mean of 5.00, verbally interpreted as "Very Much Acceptable." This was followed by item no. 4, which obtained an overall mean of 4.90, and item no. 3, "The rating scale corresponds with the performance criteria and performance indicators," which also obtained a mean of 4.90, both verbally interpreted as "Very Much Acceptable" but ranked lower.

The overall evaluation of the experts on the developed Task-Based Analytic Rubrics in CSS 10 in terms of the rating scale yielded an overall mean of 4.95, interpreted as "Very Much Acceptable." This indicates that the rubric features an informative rating scale that effectively combines

numerical and descriptive labels, thereby providing students with a clear understanding of their level of performance in each criterion.

Leusen (2013) stressed that to demonstrate the extent to which a student meets performance criteria, rubrics must include multiple levels of performance, with descriptive and numeric values aligned to the criteria and indicators. The use of numeric values that can be totaled also provides a reliable basis for determining the overall score of the performance task.

Evaluation of Expert's on the Task-Based Analytic Rubrics in Computer System Servicing 10 in Terms of Performance Level Delivery

The experts rated item no. 3, "Each performance level in the Task-Based Analytic Rubric has a specific score to reduce subjectivity in rating the performance," with the highest overall mean of 5.00, verbally interpreted as "Very Much Acceptable." This was followed by item no. 2, "The rubric describes how poor and excellent the students' level of performance in each criterion," which obtained a mean of 4.90, and item no. 1, "The rubric helps students understand and demonstrate an excellent level of performance," with a mean of 4.89, both rated "Very Much Acceptable." Item no. 5, "The rubric contains three to five performance levels to demonstrate performance in each task," received an overall mean of 4.83, while item no. 4, "The level of performance determines the degree of performance met and conveys detailed feedback to students," obtained 4.74, also interpreted as "Very Much Acceptable" but ranked the least.

The overall expert evaluation of the developed Task-Based Analytic Rubrics in Computer System Servicing 10 in terms of performance level delivery yielded an overall mean of 4.87, verbally interpreted as "Very Much Acceptable." This suggests that the material effectively shows and describes how both excellent and poor performances are demonstrated, ensuring clear standards and meaningful feedback for students.

These findings are supported by Vercellotti and McCormick (2021), who emphasized that analytic rubrics must assign a score to each level of performance to guide both teachers and students toward expected standards while providing constructive feedback. Lim (2013) also highlighted that including specific scores at each level reduces subjectivity in grading. Similarly, Chaaban and Arcuria (2019) noted that high-quality analytic rubrics should consist of three to five clearly differentiated performance levels to ensure meaningful assessment.

Evaluation of Expert's on the Task-Based Analytic Rubrics in Computer System Servicing 10 in Terms of Description of Standard and Task

The evaluation of the experts on the developed Task-Based Analytic Rubrics in Computer System Servicing 10 in terms of description of standards and tasks revealed very positive results. Items stating that the rubric provides a clear description of content and performance standards, as well as the inclusion of learning competencies and outcomes in each task, both obtained the highest overall mean of 5.00, verbally interpreted as "Very Much Acceptable." This was followed by the clarity of task description aligned with learning competencies, which gained an overall mean of 4.95 and was also rated "Very Much Acceptable." Meanwhile, items concerning the sufficiency of detail in task descriptions and their alignment with competencies obtained an overall mean of 4.72, still interpreted as "Very Much Acceptable," though ranked the least. Overall, the rubric garnered an average mean of 4.88, which is verbally interpreted as "Very Much Acceptable."

This result implies that the Task-Based Analytic Rubrics in CSS 10 effectively provide a clear description of learning standards, competencies, and tasks that are consistent with curriculum requirements. These findings are aligned with Brookhart (2013), who emphasized that performance tasks should directly reflect intended learning outcomes and competencies, making rubrics an effective assessment tool.

Evaluation of Expert's on the Task-Based Analytic Rubrics in Computer System Servicing 10 in Terms of Usefulness

The evaluation of the experts on the developed Task-Based Analytic Rubrics in Computer System Servicing 10 in terms of usefulness showed that the rubric was highly accepted. Items highlighting its ability to help teachers assess students' performances consistently and objectively, provide detailed feedback, and enhance both student learning and teacher instruction all obtained the highest overall mean of 5.00, verbally interpreted as "Very Much Acceptable." This was followed by the rubric's contribution to clarifying assessment with a mean of 4.95, and its role in guiding teaching with a mean of 4.93, both interpreted as "Very Much Acceptable." The item regarding its capacity to address specific student needs obtained the lowest mean of 4.84 but still fell under the same verbal interpretation. Overall, the rubric garnered a mean of 4.94, interpreted as "Very Much Acceptable."

These results suggest that the Task-Based Analytic Rubrics are a very useful tool in teaching Computer System Servicing and assessing student performance objectively in alignment with prescribed competencies. This supports the findings of Balch et al. (2016), who emphasized that analytic rubrics provide fair, unbiased assessments and useful performance feedback. Likewise, Lee and Ragupathi (2020), drawing on Jonsson and Svingby's review, noted that analytic rubrics function as instructional tools by offering objective and consistent evaluation of student work.

Composite Table on the Evaluation of Expert's on the Task-based Analytic Rubrics in Computer System Servicing 10

The experts' composite evaluation of the developed Task-Based Analytic Rubrics in Computer System Servicing 10 revealed that the rating scale ranked highest with an overall mean of 4.95, verbally interpreted as "Very Much Acceptable." This was followed closely by usefulness, which ranked second with an overall mean of 4.94, also interpreted as "Very Much Acceptable." The performance criteria obtained a mean of 4.91 and ranked third, while the performance indicators or descriptors followed with a mean of 4.90. The description of standard and task earned a mean of 4.88, ranking fifth, and performance level delivery also obtained a mean of 4.88, ranking last. Despite the ranking, all components consistently received the verbal interpretation of "Very Much Acceptable."

The overall evaluation garnered a grand mean of 4.91, indicating that the Task-Based Analytic Rubrics in Computer System Servicing 10 passed all the necessary criteria and is highly acceptable as a learning and assessment tool. This implies that the rubric effectively aligns with the standards and competencies prescribed in the DepEd curriculum and can serve as a reliable guide for both teaching and assessment.

Level of Performance of the Students as Revealed by Performance Tasks Before and After Utilizing the Task-Based Analytic Rubrics in CSS 10

The level of performance of the learners in Computer System Servicing 10, specifically on the least mastered competency of configuring computer systems and networks, showed a marked improvement when assessed using the developed Task-Based Analytic Rubrics. In the pre-test, where traditional holistic rubrics were utilized, the learners' performance in tasks such as following OHS procedures, inspecting networking devices, creating cross-over and straight-through cables, assigning IP addresses to clients and servers, and configuring assigned IP addresses, obtained a grand mean of 2.49, verbally interpreted as "Poor." In contrast, the post-test performance after the use of the Task-Based Analytic Rubrics yielded a grand mean of 4.47, which is verbally interpreted as "Excellent."

These results clearly indicate that Grade 10 learners excelled in their performance tasks when evaluated using the Task-Based Analytic Rubrics, showing substantial improvement compared to their pre-test results. The findings suggest that the use of analytic rubrics provided clearer performance criteria and guidance, enabling learners to meet the expected standards more effectively than when holistic rubrics were employed.The results parallel the findings of Bitong (2023), who reported that student performance improved significantly after exposure to Task-Based Activities in Biology 10.

Significant Difference on The Level of Performance Before and After Exposure to the Developed TBARCSS

The result of the t-test revealed a significant difference between the performance of the learners before and after their exposure to the developed Task-Based Analytic Rubrics in CSS 10. This finding implies that the use of the developed material is effective in improving the level of performance of Grade 10 students, particularly in addressing their least mastered competency.

This result is consistent with the study of Montemayor (2023), which showed that the implementation of Project SMILE (Special Mathematics Intervention in Learning Enhancement) significantly improved the academic performance of students at Baras Pinugay Integrated High School based on post-test results. Similarly, the findings parallel the study of Bitong (2023), who reported a significant difference in the performance of learners before and after exposure to Task-Based Activities as a remediation tool in Biology. Both studies highlight the effectiveness of well-designed instructional and assessment tools in raising student achievement levels.

How the Task-Based Analytic Rubrics in Computer System Servicing improve the performance of Grade 10 learners

The Task-Based Analytic Rubrics in CSS improved the performance of Grade 10 learners by actively engaging them in the learning process through a hands-on approach. Learners performed practical and relevant tasks guided by explicit criteria and indicators, which enabled them to construct knowledge while applying skills. This approach aligns with Dewey's theory of Learning by Doing, which emphasizes that students learn best when they are involved in meaningful tasks accompanied by thought and reflection (Learning Agency LAB, 2020).

The utilization of the developed rubrics required learners to perform the tasks excellently, reflect on feedback, and continuously improve their work. Teacher feedback played a vital role in this process, as it guided students to analyze their strengths and identify areas for improvement. This finding is consistent with Sanger and Gleason (2020), who highlighted that detailed teacher feedback helps learners evaluate their own performance and plan for further growth. Similarly, Stuyniski (2015) emphasized that analytic rubrics foster feedback and learner reflection, which in turn enhance performance.

Through this process of learning by doing and receiving structured feedback, the Grade 10 learners demonstrated significant improvement in their performance. Their outputs, evaluated using the Task-Based Analytic Rubrics, were verbally interpreted as "Excellent," confirming the effectiveness of the developed material in enhancing students' competency in Computer System Servicing.

Conclusion and Recommendation

Based on the findings of the study, the following conclusions were drawn, and corresponding recommendations are provided to guide future practice and research:

1. The use of Task-Based Analytic Rubrics in CSS significantly improved the performance of Grade 10 learners by engaging them in hands-on tasks and enabling knowledge construction through explicit criteria and indicators. It is therefore recommended that teachers adopt Task-Based Analytic Rubrics in CSS and related subjects to enhance learner engagement and performance.

2. Learners attained an excellent level of performance after exposure to the developed material, proving its effectiveness in enhancing competencies in configuring computer systems and networks. It is recommended that schools and curriculum developers institutionalize the use of analytic rubrics in assessing performance tasks to further strengthen competency-based learning.

3. Feedback from teachers allowed learners to reflect on their strengths and areas for improvement, reinforcing Dewey's Learning by Doing theory and showing that analytic rubrics promote reflection, accountability, and performance improvement. It is recommended that regular and constructive feedback be integrated with rubric-based assessments to maximize student growth and improvement.

4. The study confirmed the effectiveness of Task-Based Analytic Rubrics and its potential for broader application across subject areas. Future researchers are recommended to replicate this study in other learning domains to validate its effectiveness and expand its applicability.

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