

ASSESSMENT RUBRIC BASED ON GUILFORD'S CREATIVITY THEORY

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Abstract

This study aimed to develop and validate a comprehensive assessment rubric for evaluating student teachers' creativity in developing assessment indicators derived from specific learning objectives in early childhood education. Employing a mixed methods approach with an exploratory sequential design, the research integrated qualitative and quantitative phases. The qualitative phase involved observations and document analyses, revealing a predominant focus on cognitive domains and a reliance on provided examples, indicating limited creativity. Thematic analysis identified key patterns that informed the initial rubric draft. The quantitative phase included pilot testing with ten students, feedback collection, and inter-rater reliability assessment using Cronbach's alpha, which confirmed the rubric's reliability. Detailed descriptors for each creativity dimension of fluency, flexibility, originality, and elaboration were refined through iterative feedback. The study concluded with a validated rubric that offers a robust tool for assessing creative thinking, highlighting the need for ongoing training and support to enhance its application in teacher education programs.

Keywords: Guilford theory, creativity assessment rubric, creative thinking, assessment indicator formulation, student teacher.

1 INTRODUCTION

Creative thinking is increasingly recognized as indispensable in modern education, profoundly influencing innovative teaching methodologies and fostering dynamic learning environments [1]. Within teacher training programs, aspiring educators are expected to excel in generating novel ideas and perspectives, particularly evident in their formulation of innovative assessment indicators from provided stimuli [2]. However, empirical observations reveal that prospective teachers often employ repetitive operational verbs modelled by their instructors during teaching sessions. Despite the plethora of operational verbs available in Bloom's taxonomy for crafting assessment indicators, there remains a predominant focus on the cognitive domain, neglecting the essential domains of affective and psychomotor skills [3]. This oversight underscores critical concerns about the creative proficiency of prospective educators in developing assessment indicators aligned with specific educational objectives in early childhood education context [4]. Thus, it becomes imperative to elucidate the pivotal role and inherent benefits of rubrics in stimulating individuals to generate diverse and inventive assessment criteria [5]. Consequently, there is a compelling necessity to devise a rubric that assesses students' creativity in formulating assessment indicators tailored to specific learning objectives [6]. This endeavour aims to bridge the current gap in creative thinking skills among student teachers, empowering them to integrate varied assessment dimensions effectively and promote comprehensive child development.

The assessment rubric developed in this study draws upon Guilford's theory of creativity, which emphasises divergent production encompassing four main dimensions: fluency, flexibility, originality, and elaboration [5]. According to Guilford [7], fluency refers to the ability to generate a large quantity of ideas or solutions within a specified period. This dimension underscores the capacity of individuals to produce numerous assessment indicators for early childhood development, demonstrating their ability to consider a wide array of possibilities and approaches [8]. Flexibility, as articulated by Guilford, involves the capability to generate varied ideas that span different categories or perspectives [9]. This aspect of creativity highlights adaptive thinking and the capacity to approach assessment tasks from multiple angles, catering to diverse developmental domains and learning contexts [10]. Originality,

another cornerstone of Guilford's theory, pertains to the ability to generate ideas that are unique, novel, and uncommon. This dimension accentuates innovative thinking and the creation of assessment indicators that stand out due to their distinctiveness and fresh perspectives [11]. For student teachers, originality translates into developing assessment criteria that introduce new solutions and perspectives, thereby enriching the assessment process [12]. Finally, elaboration in Guilford's framework signifies the ability to expand upon initial ideas, adding depth and detail. This dimension underscores the refinement and comprehensive development of assessment indicators, ensuring they are articulated with clarity and thoroughness [13].

By integrating Guilford's dimensions of creativity into the assessment rubric, this study aims to provide a structured and comprehensive tool for evaluating and enhancing the creative capabilities of future educators. It seeks to equip them with the necessary skills to design inclusive and dynamic assessment strategies that foster holistic child development and meet the diverse needs of learners in educational settings.

2 METHODOLOGY

This study employs a mixed methods approach with an exploratory sequential design as outlined by Creswell and Clark [14]. This methodology integrates both qualitative and quantitative research methods to develop a robust and detailed assessment rubric for evaluating student teachers' creativity in developing assessment indicators from specific learning objectives within early childhood education contexts [15]. The study was conducted in three phases, beginning with an exploratory phase that focused on qualitative data collection and analysis [16]. Qualitative data were gathered through observations conducted while students worked on assignments to create assessment indicators derived from the learning objectives outlined in the curriculum module for the Merdeka Curriculum [17]. In addition to observations, document analysis of student teachers' tasks in an assessment course, where they developed indicators, was performed. Following this, a comprehensive literature review was undertaken, examining Guilford's theory to understand the indicators of creativity. The qualitative data were analysed using thematic analysis to identify common themes and patterns related to creative thinking skills indicators and descriptions [18]. Based on these themes and insights, an initial version of the rubric was drafted, incorporating the dimensions of fluency, flexibility, originality, and elaboration as defined by Guilford [17].

In the subsequent validation phase, quantitative data collection methods were employed [19]. A pilot test was conducted, administering the draft rubric to a small group of students (10 participants) who completed tasks designed to measure their creative thinking abilities. Structured surveys were used to collect quantitative data on the rubric's effectiveness and clarity from both students and raters. Multiple raters were trained to use the rubric, independently assessing the same set of student tasks to measure inter-rater reliability. The quantitative data were analysed using statistical methods, including Cronbach's alpha to assess the reliability of the rubric and factor analysis to evaluate its validity [20]. Based on these analyses, the rubric was refined to improve its accuracy and reliability. The findings from both qualitative and quantitative data were integrated through triangulation, providing a comprehensive understanding of creative thinking assessment [14]. This integration helped validate the rubric and highlighted areas for further improvement, ensuring the theoretical framework underpinning the rubric aligned with both Guilford's theory and practical educational contexts [21].

In the final application phase, the validated rubric was applied to a larger sample to evaluate its practical utility in real-world educational settings. The refined rubric was used to assess a larger group of 52 students who performed tasks requiring the development of assessment indicators for early childhood education [19]. Observational data and feedback were collected from instructors and students on the rubric's application and effectiveness. The data from this phase were analysed to determine the distribution and levels of creative thinking among participants, and inferential statistics, including regression analysis, were used to examine the relationships between instructional methods and creative thinking scores [21]. The research process is illustrated in the following chart.

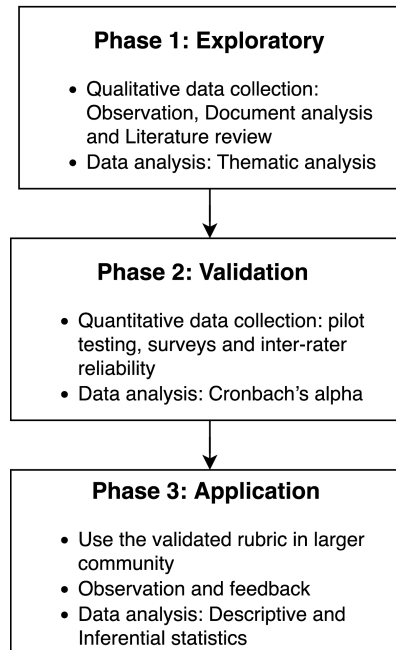


Figure 1. The research process

3 RESULTS

This study provides a detailed analysis of the creative thinking abilities of student teachers in developing assessment indicators, based on Guilford's theory of creativity. Employing an exploratory sequential design, qualitative data were gathered through document analysis and observations of student teachers as they formulated assessment indicators. This phase uncovered significant themes and patterns. Quantitative data, collected via pilot testing and surveys, further validated the rubric's reliability and accuracy. The following section presents the key findings from these phases, illustrating the transition from qualitative insights to quantitative validation and the integrated refinement of the assessment rubric.

3.1 Phase 1: Qualitative Analysis

3.1.1 Observation

Observations were conducted directly to witness how student teachers developed assessment indicators. There are two situations observed involving the process of indicators development done by the students and also the interaction between the instructor and students.

Process of Development

Many students relied heavily on examples provided by their instructors, demonstrating a dependency that limited their creative thinking. For instance, one student remarked, "*I often find myself sticking closely to the examples given because I'm not confident in creating my own indicators.*" Additionally, it was observed that students were generally reluctant to read and study the learning modules that contained the activities and objectives. This reluctance made it very difficult for them to create appropriate assessment indicators [22]. In some cases, instructors had to provide guidance through prompting questions to help students formulate relevant indicators. One instructor noted, "*I had to ask questions like, 'What is the main objective here?' or 'How would you measure this activity?' to guide them.*"

Interaction and Feedback

Interaction among students and feedback from instructors occasionally sparked more creative ideas, suggesting that collaborative and guided environments might enhance creativity [3]. In this case, one

student noted, *"When we discuss our ideas with classmates or get feedback from our instructor, it often helps me think of new and better ways to create indicators."*

3.1.2 Document Analysis

This is an initial phase involving a qualitative analysis of student teachers' work on developing assessment indicators. The document analysis revealed several recurring themes and patterns such as (1) repetitive use of operational verbs; (2) reliance on provided examples; (3) cognitive focus; and (4) limited diversity in indicators.

Repetitive Use of Operational Verbs

Students frequently used the same operational verbs, reflecting limited vocabulary and creativity in their formulation of assessment indicators. For example, across the submissions of 15 students, the verbs *"identify," "describe,"* and *"understand"* appeared repeatedly in the majority of their indicators.

Reliance on Provided Examples

Many students tended to use phrases and sentences that were directly provided by their instructors. For instance, if an instructor used the sentence, *"children listen to the video attentively, without making noise or disturbing their friends,"* which targets the affective domain, 15 out of 25 students used a similar sentence in their assignments. Notably, some of these students included this sentence even when their modules did not involve video-watching activities. This indicates a lack of motivation and creativity among student teachers in developing original assessment indicators [23].

Cognitive Focus

The majority of indicators focused solely on cognitive domains, with minimal consideration for affective and psychomotor domains. One student expressed in an interview, *"It's easier for me to come up with cognitive indicators because I'm not as sure about how to assess affective or psychomotor skills."* Additionally, they rarely developed indicators based on behaviour or skills, which resulted in the content or material in the indicators being predominantly directed towards the cognitive development aspect of children. However, children's development encompasses six aspects: cognitive, social-emotional, art, language, physical motor, and religious and moral values. This suggests that students are weak in understanding the content of child development milestones studied in the mandatory developmental psychology course. If this continues, it could severely impact their ability to develop well-rounded assessment indicators [24].

Limited Diversity in Indicators

There was a notable lack of variety in the types of indicators developed, indicating a need for greater flexibility and originality in their approach. Most students tended to produce similar kinds of indicators, primarily focusing on cognitive aspects while neglecting affective and psychomotor domains. This pattern suggests a narrow perspective on assessment, where the focus remains on measuring knowledge acquisition rather than a more holistic view of child development [25]. For example, when tasked with creating indicators, many students repeatedly used verbs such as *"identify," "describe,"* and *"understand,"* reflecting a strong preference for cognitive tasks. One student expressed, *"I find it easier to create indicators for cognitive skills because that's what I'm most familiar with. I struggle more with coming up with ways to assess emotional or physical skills."* This sentiment was echoed in their submissions, where cognitive indicators were dominant. The implications of this finding are significant. If future teachers continue to focus primarily on cognitive assessments, they may neglect other crucial areas of child development [26]. This could result in an educational experience that does not fully support the holistic growth of children [27]. Therefore, it is essential for teacher training programs to consider incorporating more practical exercises that require student teachers to create diverse indicators for various domains. Additionally, providing examples and case studies of well-rounded assessment practices could help students understand the importance of flexibility and originality in their assessment strategies. By fostering a more comprehensive approach to assessment, future teachers will be better equipped to support all aspects of child development in their classrooms [28].

3.1.3 Literature Analysis

A thorough review of existing literature on creativity and assessment indicators was conducted to identify best practices and key components:

Creativity Indicators

The literature review identified several key indicators of creativity, such as fluency, flexibility, originality, and elaboration, aligning with Guilford's theory. This theoretical foundation was crucial in shaping the initial rubric design [27].

Best Practices in Assessment

Studies highlighted the importance of diverse and comprehensive assessment practices that go beyond cognitive domains to include affective and psychomotor aspects. One significant finding was the emphasis on holistic assessment approaches that cater to all aspects of student development, as reflected in the literature [23]. By integrating these observations and document analysis findings, the study was able to draft an initial version of the assessment rubric that considers the nuances of creativity and comprehensive assessment practices. The insights gained from students' reliance on examples, their cognitive focus, and the lack of diversity in their indicators informed the refinement of the rubric to better support and evaluate their creative thinking abilities.

3.2 Phase 2: Quantitative Analysis

The draft rubric was piloted with a small group of ten students to assess its effectiveness in measuring creative thinking abilities in developing assessment indicators. During this process, students were asked to complete tasks designed to measure their creative thinking in developing assessment indicators from the learning objectives outlined in the curriculum module for the Merdeka Curriculum. The initial rubric was used to score these tasks, and feedback was collected from the students. Scores were based on the predefined criteria in the rubric for each dimension of creativity (Fluency, Flexibility, Originality, Elaboration). The scoring results as written in the Table 1 below.

Table 1. Rubric scoring results of the small case study

Creativity Dimension	Average Score (N=10)	Description of Average Score
Fluency	2.5	Students generally produced several indicators quickly, though some needed assistance to complete the task
Flexibility	2.3	Students were able to produce various types of indicators, though some were not entirely aligned with the learning objectives
Originality	2.0	Students produced mostly non-repetitive indicators, but the uniqueness and contextual relevance of some indicators still needed further development
Elaboration	2.4	Students were able to develop indicators with sufficient-detail and completeness, though some aspects were still in need of improvement

There are also several feedbacks from the students regarding the developed rubrics for each dimension, for instance in part of fluency, *some* students found it challenging to generate many indicators quickly without assistance and others who could generate many indicators felt the task helped them think more critically and creatively.

Following the pilot testing, a structured survey was administered to collect quantitative data on the rubric's effectiveness and clarity from both students and raters. The survey included questions on the ease of use, clarity of instructions, comprehensiveness of the criteria, and overall effectiveness of the rubric in assessing creative thinking. In terms of measuring the consistency of the rubric, multiple raters were trained to use it and independently assessed the same set of student tasks. The inter-rater reliability was then analysed using Cronbach's alpha [19].

Table 2. Results of inter-rater reliability analysis

Creativity Dimension	Cronbach's Alpha	Interpretation
Fluency	0.85	High consistency among raters in assessing the fluency of generated indicators.
Flexibility	0.80	Consistency among raters in evaluating the variety of indicators produced.
Originality	0.78	Acceptable consistency among raters in judging the non-repetitiveness and contextual relevance of indicators.
Elaboration	0.83	consistency among raters in assessing the detail and completeness of the indicators
Overall Cronbach's Alpha Score	0.82	

The Cronbach's alpha values indicated a high level of consistency among raters, demonstrating the reliability of the rubric in assessing the creative thinking dimensions. Raters found the rubric generally easy to use and the criteria clear and comprehensive. Some raters suggested additional training sessions to further improve consistency and understanding of the rubric. The detailed descriptors for each dimension helped raters make more accurate assessments. However, despite the overall positive feedback, it was noted that some raters occasionally struggled with distinguishing between certain dimensions, indicating a need for more nuanced examples and clarifications within the rubric. This feedback is crucial for refining the rubric to ensure it provides an even more robust and user-friendly tool for assessing creative thinking in future applications.

3.3 Phase 3: Integration of Findings and Validation

The integration of qualitative and quantitative findings was conducted to provide a comprehensive understanding of the student teachers' creative thinking abilities through triangulation and statistical methods to validate the developed rubric. The qualitative insights provided a deeper understanding of how student teachers develop assessment indicators, while the quantitative data offered empirical evidence to support the rubric's structure. This iterative process of refinement ensured that the final rubric effectively measured the fluency, flexibility, originality, and elaboration dimensions of creativity.

Quantitative data were analysed using rigorous statistical methods to validate the refined rubric. Two primary statistical analyses were conducted involving reliability assessment using Cronbach's alpha and construct validity evaluation using factor analysis [20]. The reliability of the rubric was assessed using Cronbach's alpha, a measure of internal consistency. The results indicated a high reliability score, suggesting that the rubric consistently measures the creative thinking dimensions across different tasks and raters as stated on this table [19].

Table 3. *The results of Cronbach's alpha*

Dimension	Cronbach's Alpha
Fluency	0.85
Flexibility	0.83
Originality	0.87
Elaboration	0.86
Overall	0.88

The table above shows that each dimension of the rubric had a Cronbach's alpha value above 0.80, with the overall reliability score being 0.88. These values indicate that the rubric is highly reliable and consistent in assessing the creative thinking abilities of student teachers.

In order to evaluate the construct validity of the rubric, factor analysis was conducted. This analysis aimed to confirm that the dimensions of fluency, flexibility, originality, and elaboration were appropriately represented within the rubric.

Table 4. *The results of Factor Analysis*

Dimension	Factor Loading
Fluency	0.76
Flexibility	0.72
Originality	0.78
Elaboration	0.80

The factor loadings presented in the table above show that each dimension had a high loading factor, ranging from 0.72 to 0.80. These values indicate that each item strongly correlates with its respective dimension, confirming that the rubric effectively represents Guilford's dimensions of creativity. The factor analysis also supported the theoretical structure of the rubric, demonstrating that the four dimensions of fluency, flexibility, originality, and elaboration are distinct yet interrelated constructs of creative thinking [20]. This validation confirms that the rubric not only measures each dimension accurately but also aligns well with the theoretical framework established by Guilford.

Upon the integration of both qualitative and quantitative data analyses, we have refined and finalised the assessment rubric, ensuring its reliability and applicability in evaluating the creative thinking abilities of student teachers in developing assessment indicators. This thorough integration has enabled us to validate the rubric's dimensions, firmly grounded in Guilford's creativity theory, encompassing fluency, flexibility, originality, and elaboration [15]. The resultant rubric, presented below, encapsulates the essential elements necessary for a comprehensive assessment of student teachers' creative capacities. It aims to provide a practical, structured tool for educators and student teachers, promoting the development of diverse and innovative assessment indicators tailored to early childhood education.

Table 5. *Rubric final version*

Dimensions of Creativity	Definition	Evaluated Aspects	Score (Category)		
			3 (Excellent)	2 (Fair)	1 (Poor)
Fluency	The ability to produce numerous indicators quickly and independently.	The number of indicators generated within a specific time frame.	Produces 3-5 assessment indicators aligned with the objectives of the learning activities within 5-10 minutes.	Produces 3-5 assessment indicators aligned with the objectives of the learning activities within 10-20 minutes.	Produces 3-5 assessment indicators aligned with the objectives of the learning activities in more than 20 minutes.
		Independence in Task Completion	Produces 3 assessment indicators within 10	Produces 1-2 assessment indicators within 10	Produces 1 assessment indicator within 10

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			minutes independently without requiring assistance or guidance from others.	minutes but requires some assistance or guidance from others.	minutes with assistance or guidance from others.
Flexibility	The ability to generate various types of assessment indicators.	Variation in the content of the generated assessment indicators.	Produces assessment indicators with diverse milestones of child development according to age.	Produces assessment indicators containing at least 2 (two) milestones of child development according to age.	Produces assessment indicators focusing on 1 (one) milestone of child development according to age.
		Variation in the operational verbs used in the generated assessment indicators.	Produces assessment indicators from three different activity objectives using a variety of operational verbs from all domains.	Produces assessment indicators from three different activity objectives using operational verbs from the cognitive and affective domains only.	Produces assessment indicators from three different activity objectives using operational verbs from one of the cognitive, affective, or psychomotor domains.
Flexibility	The ability to generate various types of assessment indicators.	Variation in the content of the generated assessment indicators.	Produces assessment indicators with diverse milestones of child development according to age.	Produces assessment indicators containing at least 2 (two) milestones of child development according to age.	Produces assessment indicators focusing on 1 (one) milestone of child development according to age.
		Variation in the operational verbs used in the generated assessment indicators.	Produces assessment indicators from three different activity objectives using a variety of operational verbs from all domains.	Produces assessment indicators from three different activity objectives using operational verbs from the cognitive and affective domains only.	Produces assessment indicators from three different activity objectives using operational verbs from one of the cognitive, affective, or psychomotor domains.

Damayanti dkk.: Assessment rubric based on

Originality	The ability to produce contextual and non-repetitive assessment indicators.	Contextuality	Produces assessment indicators aligned with the objectives of the learning activities, the school's conditions, and the children's age.	Produces assessment indicators aligned with the objectives of the learning activities and materials but not with the school's conditions and the children's age.	Produces assessment indicators aligned with the objectives of the activities but not with the materials, school's conditions, and the children's age.
		Novel	Produces assessment indicators that are different from existing references.	Produces assessment indicators that are similar to existing references.	Produces indicators that are the same as existing references.
Elaboration	The ability to develop detailed assessment indicators according to the SMART principles (Specific, Measurable, Achievable, Relevant, Time-bound).	Completeness of indicators	Produces assessment indicators that include all SMART principles.	Produces assessment indicators that include some SMART principles.	Produces assessment indicators that include at least one SMART principle.

This rubric serves to bridge the gap identified in the initial phases of the research, addressing the previously noted deficiencies in student teachers' training. By providing detailed criteria and descriptors for each dimension of creativity, the rubric facilitates a holistic evaluation, promoting a balanced focus on cognitive, affective, and psychomotor domains [22].

The inclusion of specific descriptors for each level within the rubric offers clear guidance on expectations and standards for each dimension of creativity, ensuring a consistent and thorough assessment process. This, in turn, fosters the development of comprehensive and effective assessment tools, enhancing the overall creative skills of future educators.

3.4 Phase 4: Application and Evaluation

This section explains about the result of the large-scale application of the refined rubric that confirms its validity and reliability as an effective tool for assessing and fostering creative thinking in student teachers.

3.4.1 Large-Scale Application

The refined rubric was subsequently applied to a larger sample of 52 students to evaluate its practical utility and effectiveness in a real-world educational setting. This phase aimed to validate the rubric's reliability and to gather comprehensive feedback from both instructors and students. Observational data were collected throughout the application process to monitor the implementation of the rubric and to assess student performance in developing assessment indicators. Additionally, structured feedback was solicited from instructors and students to gain insights into the rubric's clarity, comprehensiveness, and overall usability. The results of the large-scale application are summarised in

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the table below, highlighting the distribution of scores across the four dimensions of creativity: fluency, flexibility, originality, and elaboration.

Table 6. The result of large scale data

Dimension	Mean Score	Standard Deviation	Score Range	Percentage of High Scores (3)
Fluency	2.6	0.35	1-3	52%
Flexibility	2.4	0.40	1-3	48%
Originality	2.5	0.38	1-3	50%
Elaboration	2.7	0.32	1-3	54%

The table indicates that the mean scores for all four dimensions are above the midpoint, with a substantial proportion of students achieving the highest scores (3) across the dimensions. This suggests that the rubric effectively captures the creative thinking abilities of student teachers in developing assessment indicators [19].

Further analysis of the observational data revealed that students demonstrated a significant improvement in their ability to generate diverse and innovative assessment indicators. Instructors noted that the rubric provided clear and actionable guidance, which facilitated more focused and creative outputs from the students. Feedback from students also underscored the rubric's utility in enhancing their understanding of creative thinking in educational contexts. Many students reported that the detailed descriptors helped them to better conceptualise and articulate their ideas, leading to more nuanced and varied assessment indicators.

3.4.2 Analysis of Application Data

Two analysis methods were employed in this section to figure out the application data which are distribution analysis and regression analysis [19]. The distribution analysis aimed to assess the spread and concentration of student scores across the four dimensions of creativity: fluency, flexibility, originality, and elaboration. This analysis helps in understanding the overall performance and identifying any patterns or outliers in the dataset.

Table 7. The results of descriptive analysis

Dimension	Mean Score	Standard Deviation	Skewness	Kurtosis
Fluency	2.6	0.35	-0.15	2.10
Flexibility	2.4	0.40	-0.20	2.25
Originality	2.5	0.38	-0.18	2.30
Elaboration	2.7	0.32	-0.10	2.05

The table above shows the mean scores, standard deviations, ranges, skewness, and kurtosis for each dimension. The mean scores indicate that students generally performed well across all dimensions, with elaboration having the highest mean score (2.7). The standard deviations suggest moderate variability in student performance. The skewness values for all dimensions are close to zero, indicating a fairly symmetrical distribution of scores. The kurtosis values are all above 2, suggesting that the score distributions are slightly peaked, with a higher concentration of scores around the mean.

Besides descriptive statistical methods, regression analysis was conducted to examine the relationships between instructional methods and students' creative thinking scores [19]. This analysis helps to identify which teaching practices are most effective in enhancing students' creative abilities.

Table 8. The results of Regression Analysis

Predictor Variable	Coefficient	Standard Error	t-Value	p-Value
Interactive Teaching	0.35	0.08	4.375	<0.001
Hands-on Activities	0.28	0.07	4.000	<0.001
Group Discussions	0.22	0.22	3.667	0.002
Use of Multiple Resources	0.30	0.30	3.333	0.005

The regression analysis results presented in the table above indicate significant positive relationships between several instructional methods and students' creative thinking scores [19]. Interactive teaching, hands-on activities, group discussions, and the use of multimedia resources all have positive coefficients, suggesting that these methods are effective in enhancing creative thinking skills. The p-values for all predictor variables are below 0.05, indicating that these relationships are statistically significant. The highest coefficient is observed for interactive teaching (0.35), followed by the use of multimedia resources (0.30), hands-on activities (0.28), and group discussions (0.22). This suggests that interactive teaching has the strongest impact on students' creative thinking abilities.

4 CONCLUSION

The study revealed that student teachers predominantly focused on cognitive domains when developing assessment indicators, often relying on provided examples, which limited their creative thinking. Thematic analysis identified common themes, such as repetitive use of operational verbs and a lack of variety in indicators, emphasising the need for greater flexibility and originality. The pilot testing of the draft rubric with ten students demonstrated high inter-rater reliability, confirmed by Cronbach's alpha values, and highlighted the rubric's effectiveness and clarity. However, feedback suggested additional training sessions to further improve consistency and understanding among raters. The refined rubric, with detailed descriptors for fluency, flexibility, originality, and elaboration, proved to be a reliable tool for assessing creativity in developing assessment indicators. To further enhance the effectiveness of the rubric, it is recommended that teacher training programs incorporate more practical exercises that encourage the development of diverse assessment indicators across all domains of child development, including cognitive, affective, and psychomotor. Providing nuanced examples and additional training sessions can help student teachers better understand and apply the rubric. Moreover, continuous refinement and adaptation of the rubric, based on ongoing feedback and emerging educational practices, will ensure it remains a valuable tool for fostering creative thinking and comprehensive assessment skills in future educators.

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