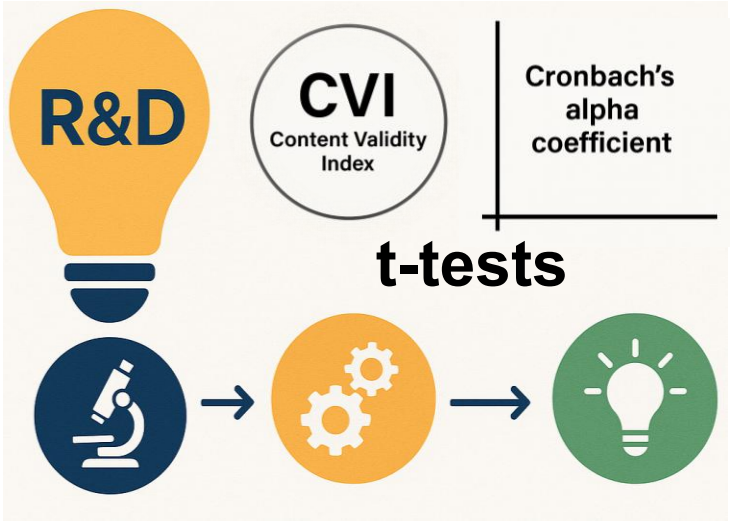
Development of a Creative Problem-Solving Skills Assessment for Learning Activities Based on Project-Based STEAM Education Integrated With the BCG Economy Model

The development of an assessment tool for **creative problem-solving skills** is crucial, particularly one that is tailored to the learner's context and the specific processes used to foster such skills. Accurately identifying students' levels of creative problem-solving ability provides essential insights for improving instructional design and promoting higher-order thinking.

Therefore, this study aimed to develop a context-specific assessment tool to measure and enhance students' creative problem-solving skills in **Learning activities based on Project-Based STEAM Education integrated with the BCG Economy Model.**

This study employed a **research and development (R&D) methodology** to **synthesize the components of creative problem-solving skills** and to develop an initial version of the assessment tool. The quality of the tool was examined through multiple validation methods: content validity was verified using the **content validity index (CVI), discriminative power was assessed using t-tests**, **and reliability was determined through internal consistency using Cronbach's alpha coefficient.**



6 components of creative problem-solving skills

1. Creative analysis of the problem situation **α = 0.93**
2. Gathering creative problem-solving approaches **α = 0.93**
3. Generating creative solutions **α = 0.93**
4. Planning and implementing creatiive problem-solving **α = 0.93**
5. Testing and evaluating the quality of creative solutions **α = 0.93**
6. Applying creative solutions in daily life **α = 0.94**

The assessment tool comprised **33** items, of which **29** were found to effectively distinguish respondents' skills. The content validity index (CVI) ranged from **0.78 to 1.00**, and the scale-level CVI based on the average method (S-CVI/Ave) was **0.92**, exceeding the acceptable threshold of **0.90**. The overall reliability, as measured by Cronbach's alpha, was **0.93**, which is higher than the minimum acceptable level of **0.70**.

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