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PTI-B 23

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1. The Design and Development of a Multimedia Reading Application for Pre-schoolers as a Foundation in the Area of TVET (RnD)

   - Does the research type align with the research question?
     Yes, the research follows the design and the development research (DDR) methodology, which align with the research focus: developing a multimedia reading application for preschoolers to aid in their TVET (Technical and Vocational Educational and Training) foundation. The use of ADDIE Model for instructional design supports the structured development and evaluation of the application.

   - Is the date collection technique appropriate?
     The study uses a checklist form to collect a feedback from experts (teo multimedia academics and one preschool education expert). The purposeice sampling methos ensures that the selected participant are knowledgeable in the relecant fields. Data analusis is done using frequency and percentage values, which is suitable for meaduring expert agreement but may lack deeper qualitative insights/

   - Is the data analysis adequate?
     The analysis provides descriptive statistics (percentage) to evaluate content design, interaction, and interface. While this is effective for quantitative evaluation, the lack of detailed qualitative feedback might limit the depth of understanding regarding specific usability or pedagogical improvements.

2. Effects of jigsaw learning strategyintegrated with computer simulations on grade 10 students' achievement and attitude and their correlations in chemistry (Experiment)

   - Does the research type align with the research question?
     Yes, the stusy follows a quasi-experimental design with pre-test and post-test comparasions across doffrent groups. The aligns well with the research question, which seeks to investigate the effectiveness of a jigsaw learning strategy integrated with computer simulation (JLSICS) on students achievement and attitudes in chemistry. Since the study aims to establish casual relationships, a quasi-experimental approach is an appropriate choice.

   - Is the data collection technique appropriate?
     The study uses a chemistry achievement test (CAT) with multiple-choice question and an attitude likert scale test to measure student perspectives

before and after the intervention. These methods are suitable for assessing both cognitive learning outcomes (achievement test) and affective outcomes (attitude test). Additionally, statistical techniques susch as ANOVA, MANOVA, and Pearson correlation analysis provide storng validity to findings.

- Is the data analysis adequate?
  The study employs a range of statistical tests:
    - One-way ANOVA to compare pre-test and post-test results across groups.
    - One-way MANOVA to analyze multiple dependent variables (achievement & attitude).
    - Pearson correlation to explore the relationship between achievement and attitude.
    - Post-hoc test (Turkey HSD) toidentify specific differences between groups.

  These methods are rigorous and appropriate for determining statistical significance, effect sizes, and relationships between variables. The inclusion of assumption checks (e.g., normality tests, Levene's test for homogeneity of variance) further strengthens the credibility of the analysis

3. Trends Virtual Laboratory for Practical Learning in Vocational Education (Bibliometric)

- Does the research type align with the research question?
  Yes, the research aims to analyze trends in virtual laboratory research in vocational education using a bibliometric analysis approach. This methodology is suitable because it focuses on extracting and analyzing patterns in existing literature. The study follows a systematic process of:

    - Keyword selection
    - Data collection from Scopus
    - Bibliometric data processing & mapping (using VOSviewer)
    - Data analysis

  Since the research question revolves around identifying publication trends, bibliometric analysis is an appropriate method.

- Is the data collection technique appropriate?
  The study gathers Scopus-indexed articles from 2002 to 2023 using keywords such as "Virtual Laboratory," "Vocational," and "Education."

    - The source (Scopus) is reputable for bibliometric studies.
    - The time range (2002-2023) ensures a long-term view of research trends.
    - The study uses bibliometric mapping tools (VOSviewer) to visualize relationships between key research terms.

  However, the study is limited to Scopus and does not include other databases like Web of Science or Google Scholar, which may exclude some relevant studies.

- Is the data analysis adequate?

  - The study applies bibliometric mapping techniques to identify research clusters.
  - Findings include:
  - 24 key terms grouped into 3 clusters, focusing on virtual labs, education, and vocational learning.
  - Trends in publication activity, showing an increase in research from 2019-2023.
  - Country and institutional contributions, identifying Indonesia as the leading contributor.
  - Overlay visualization is used to track how research focus has evolved over time.

The analysis is adequate for identifying trends but lacks deeper qualitative insights (e.g., content analysis of key papers). Expanding the study to include citation analysis or co-citation networks could improve its depth.