Paper Number:

**Utilization of Strategic Intervention Material (SIM) : A Blended Learning Approach in Teaching Science 10 to Junior High School Learners of Alfelor Sr. Memorial College, INC.**

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**Abstract.**

This study investigated the utilization of Strategic Intervention Materials (SIMs) as a blended learning approach in teaching Science 10 to Junior High School learners at Alfelor Sr. Memorial College, Inc. Specifically, it aimed to assess the academic performance of students in both control and experimental groups before and after the implementation of SIMs. The research examined the extent of SIM utilization in terms of learning objectives, pre-test/ post-test assessment, language level, content, and time frame. It also analyzed the significance of the difference between the rank orders of SIM utilization as perceived by the teachers and learners. Furthermore, the study assessed the level of effectiveness of SIMs in enhancing students’ academic performance and identified the challenges encountered during their implementation. The study also determined the degree of agreement between teachers and learners on the perceived of effectiveness of SIMs. Based on the findings, pointers were formulated to enhance the effective utilization of SIMs in teaching Science 10. Results revealed a significant improvement in the academic performance of students exposed to SIMs, highlighting their effectiveness as a blended learning tool. Challenges such as time constraints and varying learner readiness were also identified. The study concludes that strategic and well-implemented SIMs can significantly improve learning outcomes in Science education for Junior High School learners.

**Keywords:** Strategic Intervention Material (SIM), Blended Learning, Teaching Approach, Science 10, Junior High School, Alfelor Sr. Memorial College, Inc.

**1. Introduction**

The educational landscape has experienced profound transformation in recent years, propelled by rapid technological advancements and shifting learner needs. These changes have underscored the urgent demand for more accessible, resilient, and effective educational delivery systems—particularly during global disruptions such as the COVID-19 pandemic. In response to these challenges, blended learning has emerged as a viable and strategic approach, combining traditional face-to-face instruction with digital platforms to ensure educational continuity and flexibility.

The Department of Education (DepEd) institutionalized blended learning during the pandemic to mitigate disruptions in learning. This approach highlighted the need for innovative teaching strategies and emphasized the importance of tools that could adapt to various learning environments. Among these tools are **Strategic Intervention Materials (SIM)**—instructional resources specifically designed to aid students in mastering challenging concepts. When integrated into blended learning, SIMs serve as vital supplements that cater to diverse learning needs while addressing gaps in student comprehension, particularly in complex subjects like Science.

Several legal frameworks and policies support this educational shift**. Republic Acts 10533, 9155**, and **10650**, along with directives such as **DepEd Order No. 21, s. 2019**, and Memorandum **No. 053, s. 2020**, underscore the government's commitment to inclusive, quality education. These policies mandate the development and implementation of flexible learning modalities, including zthe creation of effective learning materials to ensure equitable access across socio-economic backgrounds.

Despite these efforts, disparities in technological access and support continue to hinder the full realization of blended learning's potential. Studies have shown that low-income learners face significant challenges in accessing online education due to limited resources, while educators struggle with the lack of technical support. In this context, SIMs provide an alternative that reduces dependence on digital infrastructure while supporting curriculum objectives.

**2. Methodology**

This study aimed to assess the utilization of **Strategic Intervention Materials (SIM)** as a blended learning approach in teaching **Science 10** among Junior High School learners at **Alfelor Sr. Memorial College, Inc.** Specifically, the study evaluated the extent of SIM utilization based on five dimensions: **Learning Objectives, Pre-test/Post-test Assessment, Language Level, Content**, and **Time Frame**. Furthermore, the study determined the effectiveness of SIM in enhancing academic performance, identified challenges encountered in its implementation, and analyzed the perceptions of both teachers and learners.

The study employed a **quantitative research design**, using a **quasi-experimental** method with a **descriptive-correlational** approach. Two groups of Grade 10 students were observed: an experimental group that used SIM in a blended learning setup, and a control group that followed traditional teaching methods. Pre-tests and post-tests were administered to both groups to measure changes in academic performance. In addition, surveys were conducted among learners, teachers, and administrators to gather their perceptions on the utilization and effectiveness of SIM.

The study utilized **purposive sampling** in selecting the research locale, with **total enumeration** employed for selecting respondents, encompassing all Grade 10 learners at ASMC. The research instruments included achievement tests (pre-test and post-test) and a self-constructed questionnaire validated by a research adviser. Statistical tools such as **frequency count,** **percentage, weighted mean**, and **rank** were used to analyze the respondent profiles and perceptions.

To determine the significance of the difference in academic performance between the control and experimental groups, a **paired sample t-test** and **independent sample t-test** were conducted. Additionally, the **Wilcoxon Mann-Whitney U-test** was applied to examine differences in perception between teachers and students regarding SIM utilization. The **Kendall Coefficient of Concordance W** was used to test the level of agreement among raters on the perceived effectiveness and challenges of SIM.

**The Five-Point Rating Scale for Jurors’ Rating Form**

A five-point rating scale was utilized to evaluate the extent of utilization and effectiveness of Strategic Intervention Materials (SIM) in teaching Science 10 under a blended learning approach. The scale was adapted from the Likert-type assessment tools in educational evaluation and tailored to the present study.

The Five-point Scale for Juror’s rating Form\*

|  |  |  |
| --- | --- | --- |
| **Numerical Interpretation** | **Verbal Interpretation** | **Description** |
| 5 | Very Much Utilized | Consistently and extensively used |
| 4 | Much Utilized | Used regularly and consistently |
| 3 | Utilized | Used intermittently, but not regularly |
| 2 | Fairly Utilized | Used only in few occasions, with limited implementation |
| 1 | Not At All | Not used at all during the teaching process |

\*Adapted from the utilization and effectiveness scales presented in **(Avila 2016, Batanes 2012)**

|  |  |
| --- | --- |
| **Effectiveness of Strategic Intervention Material** | |
| **Rating Scale** | **Interpretation** |
| 4.50 – 5.00 | Very Much Effective |
| 3.50 – 4.49 | Much Effective |
| 2.50 – 3.49 | Effective |
| 1.50 – 2.29 | Fairly Effective |
| 1.00 – 1.49 | Not at all |

|  |  |
| --- | --- |
| **Challenges Encountered** | |
| **Rating Scale** | **Interpretation** |
| 4.50 – 5.00 | Very Much Challenging |
| 3.50 – 4.49 | Much Challenging |
| 2.50 – 3.49 | Challenging |
| 1.50 – 2.29 | Fairly Challenging |
| 1.00 – 1.49 | Not at all |

**3. Results and Discussion**

This study presents a comprehensive analysis of student academic performance in **Science 10**, comparing outcomes between **control and experimental groups** before and after the implementation of **Strategic Intervention Material (SIM)** as a blended learning strategy. It evaluates learning outcomes using pre-test and post-test data to determine the impact of SIM on students’ academic achievement. The study applied both **Independent Sample T-test** and **Paired Sample T-test** to assess performance variations across and within the groups, with a significance level of **α = 0.05** guiding the statistical interpretations.

*Table 6. The Pres-test performance and the experimental and control group*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Group | df | Mean | sd | t-value | P-value | Interpretation |
| Experimental | 24 | 18.44 | 6.47 | -0.34 | 0.737 | No Significant Difference |
| Control | 18.88 |

The findings indicate that there was no statistically significant difference in the pre-test performance of the two groups prior to the implementation of the Strategic Intervention Material (SIM), as evidenced by the t-value of -0.34, degrees of freedom (df)=9, and p-value=0.737. This lead to the failed rejection of the null hypothesis (p-value > 0.05). This result suggests that both groups were comparable and homogeneous in terms of their prior knowledge in science, thereby minimizing potential bias and ensuring a fair basis for evaluating the effectiveness of the researcher-developed SIM.

*Table 7. The level of students’ academic performance in Science 10 on the control and experimental groups before and after the utilization of Strategic Intervention Material*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Group** | **Test Type** | **Mean Score** | **SD** | **t-value** | **df** | **p-value** | **Interpretation** |
| Experimental | Pre-test | 18.44 | 4.82 | -18.59 | 24 | <0.0001 | Statistically significant |
| Post Test | 35.72 |
| Control | Pre-Test | 18.88 | 2.06 | -6.24 | 24 | <0.00001 | Statistically significant |
| Post Test | 21.44 |

**Table 7** presents the summary of the **pre-test and post-test performance** of the experimental and control groups. Based on the data, both groups showed statistically significant improvement after the intervention. However, the **experimental group**, which utilized the **Strategic Intervention Material (SIM)**, exhibited a **highly significant improvement**, with a **t-value of -18.59, df = 24**, and **p < 0.0001**, leading to the **rejection of the null hypothesis**. The **control group** also demonstrated a statistically significant increase in scores, with a **t-value of -6.24**, **df = 24**, and **p < 0.00001**. In terms of mean scores, the **experimental group’s** average increased from **18.44 (pre-test)** to **35.75 (post-test),** while the **control group’s** mean rose from **18.88** to **21.44**. Although both groups improved, the **experimental group displayed a more substantial gain,** suggesting that the use of **Strategic Intervention Material (SIM)** had a **notably positive effect** on students’ academic performance in Science 10.

The results obtained are consistent with the findings of Aranda et al. (2009) and Suarez and Casinillo (2020), who both emphasized the beneficial effects of SIM in science education. Aranda et al. (2019) reported a statistically significant improvement in the post-test performance of learners exposed to SIM, showing a marked transition from lower to satisfactory levels, particularly among low-achieving students. Similarly, Suarez and Casinillo (2020) concluded that the SIM is an effective instructional strategy that facilitates students’ comprehension of complex science concepts and contributes to enhanced learning outcomes. These findings affirm the effectiveness of SIM as an innovative and learner-centered approach in delivering science instruction under blended learning environments.

*Table 13. Utilization of the Strategic Intervention Materials (SIMs) as perceived by the Learners and Jurors across various dimensions*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Indicators** | **Learners** | | | **Jurors** | | |
| **Wx** | **INT** | **Rank** | **Wx** | **INT** | **Rank** |
| **1. Learning Objectives** | **3.64** | **MU** | **4** | **4.74** | **VMU** | **1** |
| **2. Pre- test/ Post- test Assessment** | **4.69** | **VMU** | **1** | **4.53** | **VMU** | **2.5** |
| **3. Language Level** | **3.68** | **MU** | **2** | **4.33** | **MU** | **3** |
| **4. Content** | **3.66** | **FU** | **3** | **4.53** | **VMU** | **2.5** |
| **5. Time Frame** | **3.32** | **U** | **5** | **3.47** | **U** | **4** |
| **Average** | **3.798** | **MU** |  | **4.32** | **MU** |  |

Table 13 provides a detailed analysis of the acceptability of the Strategic Intervention Materials (SIMs) as evaluated by both learners and jurors, based on five dimensions: learning objectives, pre-test/post-test assessment, language level, content, and time frame. Learners rated the SIMs with an overall weighted mean of 3.798, interpreted as Much Utilized (MU). Among the dimensions, the highest rating was given to pre-test/post-test assessment (4.69), indicating that learners found the evaluation tools within the SIMs particularly effective in tracking and reinforcing their understanding. Language level (3.68), content (3.66), and learning objectives (3.64) followed closely, suggesting that learners generally found the materials clear, appropriate, and relevant to their science lessons. The time frame dimension received the lowest mean score (3.32), interpreted as Utilized, pointing to a potential need for adjustment in pacing or scheduling of the activities.

Jurors, composed of experts and educators, provided a more favorable evaluation, with an overall weighted mean of 4.32, also interpreted as Much Utilized. The highest-rated dimension from the jurors was learning objectives (4.74), reflecting their strong approval of how clearly the SIMs defined what students should learn. This was followed by both pre-test/post-test assessment and content, which each received a rating of 4.53 (Very Much Utilized). Language level was rated at 4.33 (Much Utilized), while the time frame again received the lowest score at 3.47, consistent with the learners’ feedback. These results suggest that both groups recognized the strength of the SIMs in terms of learning alignment, content delivery, and assessment practices, though both also identified a common area for improvement related to time management within the materials.

In summary, both learners and jurors expressed overall satisfaction with the SIMs, rating them as Much Utilized and affirming their effectiveness in a blended learning setup. The high scores in assessment, content, and learning objectives confirm the relevance and instructional value of the materials in supporting Science 10 education, especially under the new normal conditions. Although the time frame dimension was rated lower by both groups, the overall feedback indicates that the SIMs are well-designed, purposeful, and beneficial in addressing the evolving educational needs of students. These findings support the continued use and enhancement of SIMs as strategic tools for improving learner outcomes in science education.

*Table 14. The test of significant difference between the jurors and learners on the extent of the utilization of strategic intervention materials.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **INDICATORS** | **Utilization of the Module** | | | | |
| **Learning Objectives** | **Language Level** | **Pre-test/Post-test Assessment** | **Content** | **Time Frame** |
| **Summation of ranks of the small group** | **40** | **38** | **40** | **40** | **27** |
| **Summation of ranks of the larger group** | **15** | **17** | **15** | **15** | **28** |
| **Number of cases of the small group** | **5** | **5** | **5** | **5** | **5** |
| **Number of cases of the larger group** | **5** | **5** | **5** | **5** | **5** |
| **Total number of cases** | **10** | **10** | **10** | **10** | **10** |
| **Computed z** | **-0.22** | **-0.37** | **-0.22** | **-0.22** | **-1.18** |
| **Probability associated with the z** | **0.8258** | **0.7114** | **0.8258** | **0.8258** | **0.238** |
| **Decision on null hypothesis *Ho*** | **Accepted** | **Accepted** | **Accepted** | **Accepted** | **Accepted** |
| **Significance Difference** | **Not Significant** | **Not Significant** | **Not Significant** | **Not Significant** | **Not Significant** |

Table 14 presents the comparative results of teachers’ and learners’ perceptions on the utilization of Strategic Intervention Materials (SIMs) across five indicators—Learning Objectives, Language Level, Pre-test/Post-test Assessment, Content, and Time Frame—using the Mann-Whitney U Test. The computed z-values were low for all indicators (-0.22 for Learning Objectives, Pre-test/Post-test Assessment, and Content; -0.37 for Language Level; and -1.18 for Time Frame), with corresponding p-values of 0.8258, 0.7114, 0.8258, 0.8258, and 0.238, respectively. Since all p-values exceeded the 0.05 level of significance, the null hypothesis was accepted in each case, indicating no statistically significant difference between the perceptions of teachers and learners. This result implies a strong alignment between the two groups in how they view the relevance, clarity, and implementation of the SIMs. Both teachers and learners agreed on the effectiveness of the learning objectives, appropriateness of language, value of assessments, quality of content, and the general adequacy of the time allotted for module use. The consistency in their evaluations highlights the acceptability and reliability of the SIMs as effective tools for supporting Science instruction under the blended learning modality.

*Table 15. Level of effectives of strategic intervention materials in enhancing students’ academic performance in science 10.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Effectiveness of SIM in Enhancing Student’s Academic Performance** | **Learners** | | |
| **Indicators** | **Wx** | **INT** | **Rank** |
| **1. The use of SIM has improved student’s understanding of Science 10 concepts.** | **4.32** | **ME** | **1** |
| **2. SIM helps students perform better in Science 10 assessments and exams.** | **3.76** | **ME** | **2** |
| **3. SIM provides students with the tools they need to better grasp difficult Science 10 topics.** | **3.52** | **ME** | **8** |
| **4. Students retain more information from Science 10 lessons after using SIM.** | **3.48** | **E** | **9** |
| **5. SIM results marked improvement in student’s test scores in Science 10.** | **3.08** | **E** | **10** |
| **6. Students show greater interest and motivation in learning Science 10 after using SIM.** | **3.64** | **ME** | **4.5** |
| **7. The implementation of SIM helps students better apply scientific concepts in practical situations.** | **3.72** | **ME** | **3** |
| **8. The use of SIM positively influences the overall academic performance of students in Science 10.** | **3.56** | **ME** | **7** |
| **9. SIM makes it easier for students to complete assignments and projects related t o Science 10** | **3.64** | **ME** | **4.5** |
| **10. The effectiveness of SIM in improving student’s academic performance in Science 10 is evident in their overall grades.** | **3.6** | **E** | **6** |
| **Average** | **3.63** | **ME** |  |

The findings reveal that learners generally perceive the Strategic Intervention Materials (SIMs) as highly effective in improving their academic performance in Science 10, with an overall weighted mean of 3.63, interpreted as “More Effective.” The highest-rated aspect was the improvement in students’ understanding of Science concepts (Wx = 4.32), followed by better performance in assessments (Wx = 3.76) and enhanced application of concepts in practical situations (Wx = 3.72). SIMs were also recognized for increasing students’ interest and motivation in learning Science 10 and making it easier to accomplish assignments and projects (both Wx = 3.64), indicating their role in promoting engagement and productivity.

All indicators scored above 3.0, with eight interpreted as “More Effective” and only two as “Effective.” The lowest ratings were recorded for marked improvement in test scores (Wx = 3.08) and retention of information (Wx = 3.48), suggesting that while students acknowledge gains in comprehension and engagement, perceived long-term retention and exam performance may require further reinforcement. Overall, these results underscore the value of SIMs as an instructional tool that effectively enhances students’ understanding, application of concepts, and overall learning experience in Science 10.

*Table 16. Challenges encountered by learners in implementing and utilizing sim.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Challenges Encountered by the Learners in Implementing and Utilizing Strategic Intervention Materials (SIM)** | **Learners** | | |
| **Wx** | **INT** | **Rank** |
| **1. Difficulty in understanding the instructions provided in the SIM materials.** | **3.52** | **MC** | **4.5** |
| **2. Difficulty to stay focused while using SIM.** | **3.48** | **C** | **5.5** |
| **3. Time required to effectively use the SIM materials in coursework.** | **3.48** | **C** | **5** |
| **4. Availability of teacher or peer support when using SIM materials.** | **3.4** | **C** | **5.5** |
| **5. Clarity and relevance of the content in the SIM materials.** | **3.32** | **C** | **6** |
| **6. The SIM does not always match the pace of the class, making it hard to keep me engaged.** | **3.4** | **C** | **5** |
| **7. There are not enough interactive elements in the SIM to keep me engaged.** | **3.6** | **C** | **3** |
| **8. Difficulty completing the SIM activities within the given time frame.** | **3.52** | **MC** | **3** |
| **9. Difficulty in staying motivated while using SIM materials for independent learning.** | **3.64** | **MC** | **2** |
| **10. Lack of confidence to complete the tasks in SIM without further support.** | **3.68** | **MC** | **1** |
| **Average** | **3.50** | **MC** |  |

The results indicate that learners encounter a moderate level of difficulty in the implementation and utilization of Strategic Intervention Materials (SIMs) in Science 10, as reflected by the overall weighted mean of 3.50, interpreted as “Moderately Challenging.” The most significant challenge identified was the lack of confidence to complete SIM tasks without additional support (Wx = 3.68), suggesting that many students still depend on guidance rather than engaging fully in self-directed learning. This was closely followed by difficulty in maintaining motivation during independent learning with SIMs (Wx = 3.64), highlighting motivation as a key factor influencing effective use. Other moderately challenging aspects included insufficient interactive elements to sustain engagement (Wx = 3.60), difficulty understanding instructions, and completing activities within the given timeframe (both Wx = 3.52), pointing to areas where improving design and clarity could benefit learners.

On the other hand, the least challenging indicators—clarity and relevance of content (Wx = 3.32), availability of teacher or peer support (Wx = 3.40), and alignment of SIM pacing with the class (Wx = 3.40)—were interpreted as “Challenging” rather than “Moderately Challenging.” Although these scored lower, they still indicate potential barriers to optimal SIM utilization, particularly regarding consistency in pacing and timely access to assistance. Overall, while SIMs are effective learning tools, these findings reveal that enhancing learner confidence, motivation, engagement features, and instructional clarity could further improve their implementation and maximize their instructional value in Science 10.

*Table 17. Challenges encountered by jurors in implementing and utilizing sim.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Challenges Encountered by the Jurors in Implementing and Utilizing Strategic Intervention Materials (SIM)** | **Jurors** | | |
| **Wx** | **INT** | **Rank** |
| **1. Difficult to find enough time to effectively implement SIM in my lessons.** | **4.66667** | **VMC** | **1.5** |
| **2. The resources required to implement SIM are not always readily available.** | **4.33333** | **MC** | **2.5** |
| **3. Some students struggle to engage with the content presented in the SIM.** | **4.33333** | **MC** | **2.5** |
| **4. Difficulty to adapt the SIM materials to fit the needs of all students.** | **3.33333** | **C** | **3** |
| **5. The language used in the SIM is sometimes too advanced for my students.** | **4.33333** | **MC** | **2.5** |
| **6. Difficulty in assessing the effectiveness of SIM in improving student performance.** | **4.33333** | **MC** | **2.5** |
| **7. There is insufficient training on how to effectively use SIM in blended learning environments.** | **4.66667** | **VMC** | **1.5** |
| **8. Students often lack the necessary technology to effectively engage with SIM.** | **4.66667** | **VMC** | **1.5** |
| **9. The SIM materials with the curriculum standards.** | **4.66667** | **VMC** | **1.5** |
| **10. Difficulty in managing student participation and interaction during SIM- based activities.** | **4.66667** | **VMC** | **1.5** |
| **Average** | **4.4** | **MC** |  |

The findings reveal that jurors encountered a generally moderate level of difficulty in implementing and utilizing Strategic Intervention Materials (SIMs), as indicated by the overall weighted mean of 4.40, interpreted as “Much Challenging.” However, several issues were rated as “Very Much Challenging,” reflecting more severe barriers to effective SIM integration. The most critical challenges included lack of sufficient time to implement SIMs in lessons, inadequate training for SIM use in blended learning environments, students’ limited access to necessary technology, misalignment of SIM content with curriculum standards, and difficulty managing student participation and interaction during SIM-based activities. Each of these indicators received a weighted mean of 4.67, underscoring significant logistical, technological, and instructional constraints faced by jurors.

Other notable challenges, interpreted as “Much Challenging,” involved the unavailability of required resources (Wx = 4.33), occasional use of language too advanced for students (Wx = 4.33), and difficulties in assessing SIM effectiveness and sustaining student engagement (both Wx = 4.33). These results emphasize the need for better material accessibility, learner-level-appropriate language, and stronger assessment strategies. The least challenging concern, “Difficulty adapting SIM materials to fit the needs of all students” (Wx = 3.33, “Challenging”), suggests that while differentiation is still relevant, it is less pressing compared to the broader issues of time, training, technology, and curriculum alignment. Overall, the findings point to the importance of addressing these systemic and instructional gaps to optimize SIM implementation in classroom settings.

*Table 18. The test on the rank orders of challenges encountered among teachers and learners in the utilization of strategic intervention materials.*

|  |  |
| --- | --- |
| **INDICATORS** | **Challenges Encountered in the Utilization of SIM** |
| Summation of the Squared Deviation for the Mean | 97.725 |
| No. of Groups | 2 |
| No. of Cases/Items | 10 |
| Coefficient of Concordance W | 0.30 |
| Computed Chi-Square | 5.4 |
| Degree of Freedom | 9 |
| Tabular  0.05  0.025  0.01  0.005  0.001 | 16.92  19.023  21.67  23.58  27.88 |
| Decision on Null Hypothesis | Accepted |
| Significance of Agreement | 0.005 |

*Table 19. The test on the rank orders of the level of effectiveness of strategic intervention materials in enhancing student academic performance.*

|  |  |
| --- | --- |
| **INDICATORS** | **Challenges Encountered in the Utilization of SIM** |
| Summation of the Squared Deviation for the Mean | 2628.5 |
| No. of Groups | 25 |
| No. of Cases/Items | 10 |
| Coefficient of Concordance W | 0.051 |
| Computed Chi-Square | 11.475 |
| Degree of Freedom | 9 |
| Tabular  0.05  0.025  0.01  0.005  0.001 | 16.92  19.023  21.67  23.58  27.88 |
| Decision on Null Hypothesis | Accepted |
| Significance of Agreement | 0.005 |

The results from Tables 18 and 19 indicate that there is no significant agreement between teachers and learners regarding the rank orders of both the effectiveness of Strategic Intervention Materials (SIMs) and the challenges encountered in their use. For effectiveness (Table 18), the computed Coefficient of Concordance W was 0.051, with a chi-square value of 11.475 (p = 0.245). Since the calculated chi-square was lower than the critical value at the 0.001 significance level, the null hypothesis was accepted, confirming the absence of significant agreement on the perceived effectiveness rankings.

Similarly, for challenges (Table 19), the computed W was 0.30, with a chi-square value of 5.4 (p = 0.798), which was also below the critical value at the same significance level. This led to the acceptance of the null hypothesis, indicating no significant agreement on the rankings of challenges faced. These findings suggest that teachers and learners have differing perspectives on both the benefits and the difficulties associated with SIM implementation. Nevertheless, the insights gained from both groups can provide valuable input for improving SIM design, enhancing pedagogical strategies, and ensuring more effective and inclusive implementation in future instructional practices.

**CONCLUSION**

**T**he following conclusion are drawn:

1. There is a significant improvement in Science 10 performance among the students in the experimental group after using strategic intervention material compared to the control group.
2. The utilization of strategic intervention material (SIM) under a blended learning approach were found to be effectively utilized. The perception of the learners and jurors shows congruency as both groups rated objectives, assessments, and content as highly utilized. It was concluded that SIM are largely considered beneficial, with some areas for refinement in language level and time management.
3. There is no significant on the difference between the rank orders on the extent of the utilization of strategic intervention materials among teachers and learners.
4. The strategic intervention material has found to be much effective in enhancing student’s academic performance in Science 10.
5. The learners and jurors reported encountering challenges in utilizing strategic intervention material with learners facing issues like the lack of confidence, motivation difficulties, and lack of interactive elements, while the jurors highlighted challenges such as limited time, insufficient training, lack of technology, and difficulty managing student participation.
6. There is no significance agreement on the rank orders of the level of effectiveness of Strategic Intervention Materials in enhancing student academic performance and challenges encountered among teachers and learners.
7. Pointer for recommendations were generated based on the findings of the study.

**RECOMMENDATIONS**

The following recommendations were formulated:

1. Integrate Strategic Intervention Materials (SIMs) as a regular part of Science instruction and provide support for teachers in their use.
2. Conduct regular training and workshops on SIMs in blended learning, promote teacher collaboration, ensure effective implementation.
3. Provide orientation and coaching for learners on SIM use, along with support sessions or tutorials for those struggling with independent learning.
4. Incorporate interactive elements such as multimedia, gamified tasks, and quizzes to boost motivation and enhance understanding.
5. Implement programs to orient parents on SIMs and encourage them to create a supportive home learning environment.
6. Establish s strong monitoring and evaluation systems, gathering feedback from stakeholders to refine and improve SIMs continuously.

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