

# Utilizing The Competency-Based Strategic Intervention Materials As Tool To Assess Performance Of Students In Grade 9 Physical Education

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*Abstract* — Strategic Intervention Materials, abbreviated SIM at Philippine education is one of the education tools that helps educator achieve high quality education by being able to remedy students with low academic performances. SIM have already been applied onto different fields as research topics; in this context, the utilization of SIM for Physical Education has been investigated.

To test out the hypothesis that SIM helps to improve Grade 9 students' Physical education performances; the study has used 3 methods in order to gather data from the respondents: A diagnostic test for Grade 9 Physical Education and an assessment on their performances based on the competency-based SIM, which were both analyzed using a two-sample t-test; and a self-made survey based on student's reception for the SIM curated for the subject, which was grouped and analyzed by percentage formulas.

The results have indicated that the SIM is effective in improving the student's performances in Physical Education. This is accompanied as well with positive remarks of the students towards the SIM. In this regard, the research concludes that the SIM is an effective tool to be utilized for the subject Physical Education.

*Keywords* — *Competency—Based Strategic Intervention Materials, Students Performance, Physical Education*

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## I. Introduction

Problems usually arise during the learning and teaching processes. Teaching at every stage necessitates exposing learners to some type of engagement or intervention in order to increase students' academic success and result in positive outcomes. When children are given the opportunity to study in more than one method, they learn easily in short period of time. Several of the aspects to evaluate include intellectual capacity, learners' attitude toward academics, and the techniques employed by the educators in teaching. Various factors influence students' learning experiences, resulting in poor academic achievement (Casinillo, et al., 2020).

According to Govindaraju and Venkatesan (2017), ineffective teaching strategies, challenges in learning, and poor performance lead to student absenteeism. As a result, a fundamental change in educational processes is required from conventional time-based to outcome-based and competency-based education. It focuses on the form of knowledge, skill sets,

principles, and behavioral patterns order to reach the desired level of performance in a particular profession. In this study, performance of students in Physical Education will be examined with the use of SIM.

Since the pandemic has brought a big shift in the lives of students, teachers, staff, or education as a whole allowing them to learn and study under a distance learning modality, students are facing different adjustments and challenges in their academic life. Students show low interest in the subject of physical education due to the new learning modality. Educators need to employ a teaching strategy that will enable active participation and performance of students resulting in a good academic outcome enabling them to develop, improve, and promote a healthy lifestyle. Strategic Intervention Material is an instructional material proposed by the Department of Education (DepEd) to improve the academic accomplishments of learners performing poorly in Science and Technology and other subjects as well (Santos, 2020).

In addition, the Department of Education (DepEd) released Department Order 08, or the Classroom Assessment Policy Guidelines, in 2015. It states that there must be adequate and relevant instructional measures to make sure that students are prepared for summative tests, and that a learner who gets a grade of less than 75 in any area of study or subject in any quarter must be intervened by remedial work and extra tutoring from the learners' subject teacher. This policy guideline underlines the need of intervening to prevent academic achievement gaps among students. It also places a high value on inclusive learning. As a result, no learners will fall behind since suitable instructions and interventions will be provided to match individual requirements.

This study aimed to determine the current status of performance and least learned competencies including the perception of students in the subject. It will allow the researcher to use strategic intervention material to employ an effective teaching method to students.

The competency-based education (CBE) method helps students to build advances based on their ability to acquire a skill or competency at their own speed in any context. This strategy is designed to address the needs of students with varying learning capacities and can result in more productive student results. It is an educational strategy that emphasizes the student's presentation of intended outcomes as important to the learning process. Competency-based education has turned to a necessity as a result of higher education institutions' shift from being institutes of knowledge exchange to the core of establishing key competencies that students require for their professional and social lives and development, as a result of the digital revolution in the society (Kostikova et al., 2019).

Distant learning demonstrates a digital and learning gap among Filipino students in their environment (Santos, 2020). This type of learning makes it hard for students to comprehend lectures and subject discussions. There are different challenges that are faced by the learners and one vital solution to it as proposed by the Department of Education is utilizing Strategic Intervention Material particularly competency-based assessments. Also, in the subject Physical

Education, a broad skill can be developed and enhanced by students. Not everyone can properly and expertly perform related field such as sport, dancing, performing, and more.

Instead of occurring at fixed periods during the academic year, assessment in competency-based learning is a criterion-referenced continual process accomplished using skill-specific evaluation criteria. It seeks to provide students with accurate information on their progression toward mastery of key competencies and critical abilities necessary to advance to the next level of learning (Fowler, 2018). In competency-based learning, assessment is a credible and effective procedure that can take numerous forms. This will allow development and enhancement of skill-based performances by the students.

A competency-based learning involves a significant shift in the responsibilities of both teachers and students. Educators are not too much accountable for transmitting information over a given duration. Their responsibilities shift from being a lecturer using one-way model to being guides on student learning. They engage with their learners as facilitators, leading conversations, guiding their learning, answering questions, and assisting them in applying the knowledge they have gained. Student responsibilities shift from passive receivers to engaged knowledge generators (Egbert & Shahrokni, 2019). Learners in competency-based learning are accountable for their own performance and development toward mastery because of the practical reusable learning tools that are available at any moment when needed. This process will help educators assess the level of understanding, knowledge, and skills of students.

The researcher showed great interest in assessing the performance of students in Physical Education with the use of competence-based strategic intervention materials. The research study may contribute to the enrichment of knowledge towards the use of this tool.

## **Literature Review**

### **Competency-Based Strategic Intervention Materials (SIMs)**

COVID-19 has resulted in significant changes in teaching and learning. Even once-skeptical K-12 education and school administrators are increasingly addressing to learners' academic demands with competency-based learning strategies. It based student development on mastery of competencies and academic information rather than seat times, or hours on task, age and more (Saclao, 2017). A competency-based framework is focused on individualized learning activities adapted to each student's abilities, needs, and interests, and it demands a student-centered approach and option in what, how, when, and where they study (Feliciano, 2017). If a learner does not exhibit enough competency to proceed, they must be given remedial instruction, assistance and interventions that assist individuals in filling knowledge gaps and abilities (Patrick, 2021).

Competency-based learning is critical to educational quality, especially in the new normal mode of instruction. The curriculum prescribed in various educational institutions may be used to

measure this (Morris, 2019). It is the system of education, grading, assessment, educational reporting, and student achievement. It illustrates the desired learning abilities and knowledge as the learners grow. It determines the subject area's or course's skill and competency as established and standard in learning (Bosman, 2019). As a result, competency-based learning has risen to the top of the interactive teaching system in the new typical mode of instruction (Mallilin et al., 2021). It meets training demands and delivers experiences that transition the situation in the progression of competency-based learning from definitions and concepts to the current reality of teaching in the middle of a pandemic (Goldhamer, Pusic, Co, Weinstein & Weinstein, 2020)

Moreover, flexibility in the new normal teaching mode demonstrates that competency-based education of children is structured based on the individual learners' needs for great education (Navarre, 2020). It expands the project implementation of the CBL idea and design in different schools to evaluate the difficulties and strategies in the introduction of the proposed modality of teaching, which includes traditional program alignment, important loop comments for quality standard of instruction, educators' interaction, learners' characteristics, flexibility engagement, and structure judgment (Dragoo, & Barrows, 2016).

It creates a competency-based learning platform to help lecturers with the load of their teaching method. Teacher learning albums, student feedback, e-books, assessment progress monitoring, educational tools, and process should ensure all part of the function and competency-based learning for quality of education (Hsiao, Chou, Hsieh, Chang, & Hsu, 2020). Also, this method tracks students' progress in the assessment and educational preparation for the competency-based-learning requirement. It decides and includes the future importance of competency-based learning for students (Gallardo, 2020). It is critical to build competency-based learning via the initiative of diverse educational institutions' skill and aptitude. It requires to grasp ingrained opportunities in learning design in new normal trends that employ creative teaching and learning methodologies to promote competency-based learning and context enhancement (Markey, & Okantey, 2019).

Furthermore, the use of competency-based learning provides a wide variety of advantages in the simulation of CBL to exercise the skills and complexities of diverse educational institutions to allow successful learning and implementation. The many applications are based on stages and the development of knowledge and skills (Chernikova, et al., 2020). Students demonstrate mastery by taking an evaluation, receiving credit, and beginning the learning process. It minimizes the learning process and teachers' capacity to watch and assist students' learning behavior in the new normal mode of teaching by utilizing an organized approach, flexible work, and time in the chosen online learning environment. It offers suggestions for supporting instructors in the new usual mode of instruction (Vanslambrouck et al., 2019).

School resource inputs (SRI) are part of instructional materials that encompass print and nonprint materials that are intended to indicate knowledge to learners during the learning process. Textbooks, kits, magazines, journals, photos, recording, slideshows, projectors, videos,

multimedia discs, worksheets, and electronic media such as music, movies, radio, computer, CD - ROMs, and internet services are additional examples of instructional materials (Dahar, 2017). The importance of instructional content in the teaching-learning system is crucial. It improves students' memory and makes the teaching-learning process more entertaining (Nicholls, 2020).

Intervention materials are currently highly recognized as methods for remediating learners' low academic performance in the Philippine school system. SIM, or Strategic Intervention Material, is a teaching tool that is included into the teaching techniques to promote student participation and so raise their level of knowledge (Dy, 2018). It has been systematically created and intended to provide remedial education to students who have low achievement in the topic. It is offered to pupils who were unable to understand the subject area principles during conventional classroom education (Chod, 2021). Because of large student population, educators are seeking adjustments in conventional methods of educating children (Lee, 2017). Teachers are always looking for new strategies to increase student enthusiasm and involvement in the learning procedure. Contact with people (instructors and peers) and teaching materials are the primary ways in which students learn like, workbooks, textbooks, web-based content, instructional software, projects, homework, quizzes, and tests (Dy, 2018). However, education officials are primarily concerned with elements that are unrelated to those relationships, such as educational standards, educators' evaluation and assessment method, and school accountability measures (Rankin, 2016). There is significant evidence that the selection of teaching materials has significant impacts on student learning like those that rival those associated with variations in teacher performance in size. The absence of information on the usefulness of the intervention materials already in use prevents administrators from making better instructional material selections (Chingos, 2021).

Strategic Intervention Material is basically one of the methods used by the Department of Education to improve students' academic results in specific subject. (Dizon et al., 2021). According to DepEd Memo No. 117, "Training Workshop on Secondary teachers were trained in the creation of Strategic Intervention Materials (SIMs)-Based Instruction (BI) for Successful Learning as part of increasing and creating intervention materials as a strategy for remediating low student performance at school. Instructional media are employed as tools to facilitate the learning process. Reading – writing media, speaking – listening media, and computer – based teaching are the three types of instructional media (Aranes, 2018). In the study, the researcher will utilize the three media to achieve the intended objectives. The competency-based SIM to be utilized in the study will focus primarily on Physical Education. This will include specific topic (basic movements which includes locomotor and non-locomotor movements), activities, analysis, abstraction, and application.

Several studies examine the use of strategic intervention materials in different fields of education. It serves as an assessment to provide an effective teaching method and activities to students (Mulenga et al., 2019). However, the expense of a competency-based SIM largely



depends on the educational institution's curriculum and the student's speed (Dauphinee, Boulet, & Norcini, 2019).

According to the study of Cordova et al., in 2019, the use of competency-based strategic intervention materials was never simple. Some difficulties were found during SIM use. Specifically, school supplies are restricted. Second, not all assigned instructors have their own localized content to utilize in remedial treatment, and last, not all instructors are competent in generating and implementing SIM.

The SIM was rated effective for quality assurance in terms of features and quality by instructors and department heads/LRMDS Coordinator respondents (Alboruto, 2017). There is a considerable variation in the usefulness of competency-based Strategic Intervention Materials as assessed by two groups of respondents. There was an improvement in learning outcomes in the posttest after using the competency-based Strategic Intervention Materials (Alejo et al., 2019).

A study of Salviejo et al., in 2017 examine the use of strategic intervention material-based instruction in the subject chemistry. According to the respondents' comments and suggestions, the SIM actually helped the students increase their efficiency in chemical bonding, which is one of the least learned abilities in Chemistry. Students are hoping that SIM will be offered not only in Chemistry but also for other science areas with tough concepts. SIM must employ language that is appropriate for the reading ability of students who require remediation for a certain topic.

Another study proves that the use of strategic intervention materials is an effective method in improving the performances and competencies of students in the subject Biology (Villareal, 2018). Students are also directed in their learning and have control over when and where they accomplish projects and evaluations, indicating that competency-based learning, opportunities, growth in diverse difficulties, and pedagogy are all valued by students (O'Neill, et al., 2020).

A study of Lazo et al., in 2019 focuses on the utilization of SIM in the subject Economics. The study revealed that the academic performance of the Grade 9 students who were participants in the study were improved after using SIM in their learnings. Casinillo et al. (2020) identify many variables influencing students' learning experiences, resulting in poor academic achievement This must be determined before developing strategic intervention materials. The study revealed that SIM is an effective teaching approach for improving students' proficiency in the least learned areas in science. Also, SIM should be employed in science classes to improve academic achievement and address students' challenging themes to learn. SIM, it appears, helps students build essential knowledge, abilities, and comprehension in the least understood areas in science and is a useful assistance in conveying information to pupils. The study also suggests that teaching personnel should create SIM based on the curriculum's sequence of skills and guarantee that these are available to all schools in all courses. While adopting the SIM, teachers should do item analysis in each quarterly exam so that they can determine the students' most-learned and least-learned abilities.

The findings are consistent with previous research (Arisi, 2018; Jotia & Matlale, 2021; Bunagan, 2019, Joan and Barredo, 2017). It means that SIM implementation is effective at a 1% level of relevance. This also implies that the kids' performance reacts favourably to the use of SIM. This is backed by Bete's (2020) study, which found that employing SIM can improve scientific education and students' academic achievement.

According to Wang, Tlili, Lehman, Lu, and Huang's study in 2021, the aims of competency-based learning as well as quality education in the new baseline mode of teaching are to empower learners' increased learning and instructional response. It implements and evaluates feedback in competency-based learning experiences. It is a method used in a structured learning activity to aid students in achieving and implementing their competencies.

In a 2017 study of a competency-based district in Westminster, Colorado, Brodersen and Randel discovered that 43 to 47 percent of high school students that were behind their traditional grade levels accomplished their performance levels in three or fewer quarters, which is less time than it would take in a conventional teaching system.

The Marzano Research Laboratory discovered that kids who received education that used the competency-based method were more likely to achieve proficiency on state examinations than students who attended schools that did not use CBE (Haystead, 2018).

Another research, which makes use of New Hampshire's Performance Assessment for Competency Education (PACE) program focuses on increasing instructor ability to implement assessments that assess student learning in core skills. Researchers discovered that PACE had a significant beneficial influence on both instructional practice and student comprehension in a 2017 study funded by the Center for Innovation in Education. If competency-based performance assessments were used as intended, researchers discovered an improved student participation and deeper learning (Becker, 2017).

According to Kitto et al., in 2020, competency-based SIM is becoming increasingly dependent on lifelong learning, which will rely on the information-sharing age to promote movement among educational institutions. It aids in the earlier recognition of learning in order to customize the learning experience. It employs skills-based learning and curriculum that investigates the organization and teaching - learning process (Kitto, et al.,2020)

There are various evaluation tools to assess the competency-based development of students. One of diagnostic evaluation tool utilized is Cognitive diagnostic assessment (CDA). It is a collection of conceptually anchored diagnostic methods that help to determine students' strengths and areas for improvement to their knowledge structures and processing skills in the target subject (Lee & Sawaki, 2019). In a proposed three ways, CDA distinguishes from typical test and evaluation procedures. First, it is focused on cognitive methods of learning that are supported by empirical data of processing of information (Davier & Lee, 2019). Second, unlike traditional testing systems that place examinees along a competence scale, CDA estimates

students' skills as a composite of good qualities, allowing for explicit and multi-faceted assessment of students' education (Chen & de la Torre, 2017). Finally, by providing stakeholders with precise diagnostic data, CDA can have a beneficial effect. It discusses how testing affects teaching and learning (Tsayari & Cheng, 2017). The impact of CDA is more targeted and personalized. The generated data may be utilized directly in the curriculum to drive instructional design, boost student learning, and lead curriculum transformation and growth. Much of the previous CDA studies have focused on the first two factors: selecting and evaluating cognitive models to describe qualities and their connections, developing, and extending diagnostic classification models (DCMs) to evaluate differences in students' attribute profile information from analysis response data, and generating and comparing statistical indices to analyze model reliability in monitoring the present state of learners' knowledge (Ding et al., 2020).

Distance learning can increase students' accessibility to instructors, but it is insufficient on its own. Education, structures, and culture must move away from the conventional ranking and sorting of learners, which puts many with significant learning deficiencies. Competency-based education, on the other hand, is built on enabling students to take ownership of their objectives and learning while ensuring that instructors recognize needs, identify what is lacking, use information, and act quickly to meet student needs (Kostikova et al., 2019). It follows the ideas of competency-based learning throughout the system. In the new normal, there is a new teaching mode. It incorporates the system and its outputs into a variety of tactics and methods for instructional supervision and strategies (Sargeant, Wong, & Campbell, 2018).

Competency-based materials assist and improve students' educational experiences as they navigate the learning process. It investigates the advantages of students in the academic instruction of teaching and the continuous competency-based learning at various advanced levels (Anderson, 2018.)

Educators should provide a mechanism that provides students achieve competence and are prepared to succeed at the next grade. They want a student-centered, individualized system. It only stands to reason since students begin with various skill sets, learn in diverse ways, and master skills with varying amounts of time and effort (O'Leary et al., 2019). Educators are expected to provide a system that will monitor student development and reacts to student needs in a flexible manner that is why the present study is conducted to provide quality education to students with the use of strategic intervention material.

### **Performance Assessment for SIM**

In order to provide competency-based intervention, the performances of the students must be assessed to know the areas to focus on (Alboruto, 2017). It will not be effective and reliable to employ this method without assessing the performances of students first. Performance result is commonly described as the frequent measurement of performance and results that produces accurate data on the efficacy and efficiency of education given (Hill & McNamara, 2020).



Although there is a considerable body of evidence that shows performance evaluations are an effective strategy for improving educational outcomes, relatively little study has been undertaken to examine the key conditions necessary to support the delivery of high-quality performance evaluations at the region, school, and room levels (Rea-Dickins, 2016).

An effective teacher employs the practice of introducing new techniques to assist students in improving their learning and coping with the lecture. Teachers, as learning aids, are always aware of who pushes and who does not in a class. A creative instructor provides students who are having difficulty understanding the lesson a second opportunity. Pollock, Tolone, and Nunnally (2021) define innovative instructors as producers. Thus, smart teachers devise methods to assist pupils in learning the lesson before moving on to the next. This action represents the Department of Social Welfare and Development's (DSWD) and Department of Education's (DepEd) policy that No Child Shall Be Left Behind.

Assessment is an integral part of the teaching and learning process. When an assessment is not done properly, or if it does not fulfill the expectations and standards of both learners and lecturers, it can hinder the process of learning (Bray et al., 2020). Teachers have been attempting to develop effective techniques to measure their students' learning, competency, and performances in order to make assessment valuable for students (Wood et al., 2020).

Darling-Hammond (2016) also claims that PBA, rather than multiple-choice tests, involve students in real-world tasks and assess them according to standards that are essential for overall performance in a specific subject. Furthermore, Brown and Hudson (2018) claim that performance-based assessment (PBA), also known as authentic test assessment or performance evaluations, requires students to complete simplifications of real-life authentic activities. PBA comprises three conditions based on these definitions: test takers must complete a task, the task must be as genuine as feasible, and the task must involve certified assessors to rate the performance.

Students must participate in activities that allow them to develop specific performance abilities and generate results that satisfy particular quality standards in order to be assessed using performance assessment. These skills and procedural quality measures should be defined and assessed in order to consistently and critically evaluate actions and outcomes, so that they represent specified levels and record learners' progress (Dole, 2017). In this particular circumstance, there is a desire to change the tradition of the minimal level of education by focusing on scientific, innovative, crucial, and meaningful thinking, as well as optimism, by focusing on competency-based behavioral performances among learners, the importance of evaluation continuity, continuing to support comprehensive cumulative analysis, and teacher training programs in realistic, actual evaluation methods (Mueller, 2018).

To summarize, PBA sought to evaluate as precisely as possible. According to Norris (2019), it serves three critical functions: providing formative or diagnostic input to children and

instructors, allowing summative judgements that indicate the desired learning outcomes, and raising learner awareness.

Keeping learners focused on learning is a challenging experience for a teacher, and it necessitates a flexible and inventive mind on the part of the educator. Flexibility is essential for properly catering to the different learning demands of pupils (Naz & Murad, 2017). It is anticipated in the classroom to have a student who is unable to participate in the conversation due to differing capabilities and personal challenges they encounter before coming to school. As a result, each student has a distinct degree of knowledge and engagement in the session, which influences their performance and might lead to failure or achievement. Teachers improvise because active and involved learning requires student engagement (Vonderwell & Zachariah, 2019).

Student educational excellence is a foundational premise for all sorts of professional, job, and social success. In this view, it has been noticed that educational end outcomes are of social importance; hence, parents' attention to their children's educational accomplishment eventually signifies concern to their fate, career, and life. (de La torre et al., 2018). Individual contributions such as motivation, hard work, and persistence, of course, have a favorable influence on achieving educational achievement. Other significant aspects in the formula of success, such as the relevance of the sort of evaluation that gauge's students' accomplishment, should not be overlooked (Cordova, 2019).

Finding new ways to assist students in improving their performance is what innovation is all about. This is for both learners and lecturers as it promotes both students and teachers to investigate, discover, and use all resources to find something new. The study Naz and Murad in 2017 stated that innovation might provide a lot of options for development and evolution that could have an influence on individuals. Teachers must be creative to detect students' knowledge gaps in the classroom. The Strategic Intervention Material (SIM) has shown to be an effective tool for lesson remediation.

SIM is given to students to assist them learn competency-based abilities that they would not be able to achieve in a traditional classroom setting (Suarez & Casinillo, 2020). SIM aims at developing the students' least mastered competencies, as determined by their results. According to Alboruto (2017), SIM is a learning bundle that includes guide sheets, hands-on exercises, evaluations, enrichments, and key solutions. SIM is therefore a mobile learning kit that learners may bring home as additional learning material to help them gain more insight independently or with friends. It is basically a government-mandated initiative to support and enhance the Philippines' educational system. It focuses on the competency-based learning curriculum, as well as knowledge and growth in the new normal mode of teaching (Vesikivi et al., 2020).

The use of competency-based strategic intervention materials was never simple. Some difficulties were encountered when used. The primary limitation of education is the scarcity of

supplies. Second, not all assigned instructors have their own localized content to utilize in remedial assistance, and last, not all educators are competent of producing and applying SIM.

The SIM assists students in developing abilities that they did not grasp in normal classrooms. It can be delivered by a power point, handouts, or digital exercises. The SIM concentrates solely on one specific competence that is to be addressed (Cordova, 2019). Through the contents offered in the learning improvement of students, it allow them to improve in their module subjects. It includes extensive learning assessment in the new typical online mode of teaching, as well as enhanced technology and expanded digital assistance in education. It enhances the curriculum to support learners in increased learning experiences that help students in the classroom (Troussas, Krouska, & Virvou, 2020).

In the study, the researcher will use four variables in determining the performance of the student-participants in the subject Physical Education: knowledge of choreography, technical skills, performance skills, and rhythm and tempo. The study will focus on a specific activity which is performing basic dance movements for festival dance.

**Knowledge of Choreography.** Dance is a method of creative communication and expression in which the body is moved across space and time (Cross and Ticini, 2021). This is an intellectually and physically challenging art form that requires the dancer to be creative in order to adapt rhythmical and aesthetically beautiful moves (Kaufman and Baer, 2017). Since the early 2000s, it has caught the interest of psychologists and neuroscientists as a way into topics such as expertise (the study of what tends to make people outstandingly knowledgeable about, or competent in, a defined area; Moran and Toner, 2017), embodied cognition (the theory that cognition is primarily centered in sensorimotor encounter; Laakso, 2021), and creativity (the ability to produce innovative solutions and outputs).

Choreography is the skill of designing and organizing dances. In the study, the knowledge of the students regarding the choreography of the festival dance will be assessed through performance. Choreography includes basic steps like walk, touch step, clos step, change step, cross-change step, hop step, and more.

**Technical Skills.** Technical skills in this study refers to the performance of dance with great attention to quality of movement, placement of body position, and other dance details. It basically demonstrates an excellent understanding of dance styles.

According to Scottish Qualifications Authority (SQA) in 2020, in the Technical Skills Section, students will learn and use technical dance skills in different dance forms to attain two different outcomes. Students should be encouraged to expand their knowledge and comprehension of the chosen dance forms in which in this study is a festival dance by researching related performers, technical and performance standards, and model performers to help them remember what they have learned. This can be done in a variety of methods, such as projects, newspaper articles, presentations, or a guidebook provided by the instructor. On the Internet, there is a huge

amount of information containing several recordings of renowned dance groups and individual artists that may be used for studying and instructing (North, 2020). Lastly, students will learn technical dance skills to apply them to their performance, as a result, it is recommended that students spend adequate time learning technical skills before being requested to perform a sequence. The students should be allowed to work on their presentation and performance abilities if they are competent and confident to perform.

**Performance Skills.** In the study, performance skills refer to the projection of eye contact and cheerful facial expression by the students while performing the stated dance. The dance movements of the students show confidence allowing a draw of attention.

Breathing patterns must be taught to dancers as a basis for launching the body into movement expression. The most crucial component of life is breathing. Dancers must apply breath patterns to a ready posture after they have been taught to them. The dancer engages the core by taking a deep breath that flows first from lower abdominals to the top of the head, stretching the body and shifting the weight to the balls of the feet (Keeton, 2021). Dancers gain confidence through paying close attention to every stage direction while in place and moving. While traveling through space, a variety of emphasis locations should be explored to communicate diverse thoughts. Dancers can experience spatial awareness, concentration, and direct movement through focusing and traveling.

**Rhythm and Tempo.** In the study, it refers to being able to perform in count with the beats of the music. Musical rhythm is one of the fundamental aspects of music. In the domains of psychology, music theory and musicology, and music data acquisition, several distinct elements of rhythm and its interpretation have been investigated (Sachs, 2022). Rhythm and tempo are inextricably linked, and rhythm can influence and modify tempo perception without affecting the latter. Both the harmonic and melodic parts of a piece of music are influenced by rhythmic rhythms. Two variations of a song can be divided into distinct music genres and suggest different dance styles by modifying the underlying rhythmic pattern (Pesek et al., 2019).

### **Experience of Students on the Utilization of Strategic Intervention Materials**

Education at any level necessitates exposing pupils to some type of encouragement or assistance to increase students' academic performance Ogbondah (2018). Gillies (2018) defined academic underachievement as the perceived inability of learners to realize their full potential. Escoreal (2022) explained underachievement as failing to satisfy the academic expectations of the educational environment. Academic underachievement is a major concern, particularly because it affects students of all abilities and is not limited to talented students (Jocelyn, 2017). This has been one of the growing issues in the Philippine educational system that is why Department of Education Memorandum No. 117 s. 2005 (the use of SIM) was released (Plenos, 2019).

Okobia (2021) defined teaching resources as "everything that might help the instructor promote teaching and learning." This is backed by research by Matlale (2017) and Popoola (2020),

who explored the impact of instructional materials on student academic attainment. It has been shown that insufficient material resources have a detrimental impact on students' academic performance. How successfully a student accomplishes his or her tasks and studies defines the level and performance of students.

According to Bunagan in 2019, Strategic Intervention Material is intended to re-teach ideas and skills (least learned). It is a resource provided to students to assist them in mastering competency-based abilities that they were unable to learn during regular classroom instruction. It includes both student learning methodologies and material improvement (for teachers). It is a holistic strategy to assist pupils in becoming self-sufficient and effective learners. He distinguished SIM and modules further. This strategic intervention material emphasizes the ability that students did not master during class. It does not include a pretest or a posttest and incorporates enjoyable activities. Modules, on the other hand, were meant for regular classroom instruction and remote learning and comprised various themes featured in a specific chapter. (Rahmawati et al., 2019). Students are interested in their lesson materials because they have control over their education. It enhances contextual mobility in the academic setting as well as problems in classroom encounters. (Lomer, & Anthony-Okeke, 2019). SIM also improves and strengthens students' modification, knowledge, or analytical thinking, as well as their understanding and observation (Togonon, 2021). Several studies were also conducted to determine the perception of students on the utilization of strategic intervention materials on different subject area. The content, structure, and use criteria of Strategic Intervention Material (SIM) in Economics were quite clear. The SIM in general features facilities for improving higher cognitive abilities; topics/discussions are engaging, intriguing, and intelligible; and intervention material provides and ensures long-term knowledge if used by students. The students' view of SIM is also good (Daisy, 2021).

While Reyes and Falle's 2021 study found no significant differences in student-respondent perceptions of knowledge, motivation, process, and transfer/application in mathematics competency test results. When the instructor employed strategic intervention material as a technique of teaching in teaching and learning mathematical abilities, there is a highly significant association between students' pre-test and post-test performance.

Deep and surface learners fared equally well after being exposed to Strategic Intervention Material-Based Instruction (SIM); and (Orge et al., 2017) deep and surface students have a favorable impression of the usage of Strategic Intervention Material (SIM). Students find it fun, fascinating, and helpful in developing a good attitude toward chemistry (Aranes et al., 2017).

According to the Comighud 2020 study, students had a favorable view of the usage of Strategic Intervention Materials. Students find it fun and intriguing, and it adds to a favorable attitude about learning additional Science subjects. Another study was conducted regarding the use of Electronic Strategic Intervention materials. E-SIM is difficult for the pupils, but they loved using the study material. Students' replies indicate that E-SIM should be utilized more frequently (De Jesus, 2019). The study revealed a total weighted mean was 3.64, with the qualitative



equivalent of strongly agree. It demonstrated how Strategic Intervention Material (SIM) increased students' performance. The usage of Strategic Intervention Material (SIM) has enhanced the academic performance of the learners since they were able to grasp and acquaint themselves with challenging topics. The content was packaged in the form of numerous cards that were meant to be comprehended and performed independently by the students (Romero, 2021). These studies and literature show the importance of determining the perception of students on the usage of SIM on their subjects. The present study wanted to contribute to the knowledge in this topic under a different subject in which previous researchers have not yet examined and assessed.

### **Synthesis**

Students are proven to have different sets of skills in various subjects in school settings. However, there are also visible weaknesses that educators can observe from them. Providing effective teaching and learning processes are the major role of teachers. They should be able to detect areas in students that need improvements. With the growing issue of the educational system in the Philippines, the Department of Education proposed various interventions like the use of Strategic Intervention Materials for student remedial processes. Basically, students were given the chance to retake subjects or activities with low performance results. The DepEd ensures that no child or student should be left behind when it comes to learning.

Different studies utilize assessment methods and diagnostic tests to measure the performances of students in a particular subject area. It enables them to monitor the progress of students including both the strengths and weaknesses of an individual. Positive results were concluded by these studies and proves how assessing student's performance helps the educator restructure their teaching method. Educators were able to create a strategic intervention material based upon the results from the studies. Several studies also investigated the importance of using competency-based education in school settings and it provided data regarding the processes, importance, and cons of it.

Educators play an important role in students' success. If teachers were able to provide an effective and engaging teaching to learners, recognizing their strengths and weaknesses in the area, good outcomes for both can be observed. The related studies and literature above show the relevance of assessing the performance of students to provide a more competent and proficient education for them.

## **II. Methodology**

Students are proven to have different sets of skills in various subjects in school settings. However, there are also visible weaknesses that educators can observe from them. Providing effective teaching and learning processes are the major role of teachers. They should be able to detect areas in students that need improvements (Feliciano, 2017). With the growing issue of the educational system in the Philippines, the Department of Education proposed various interventions

like the use of Strategic Intervention Materials for student remedial processes. Basically, students were given the chance to retake subjects or activities with low performance results. The DepEd ensures that no child or student should be left behind when it comes to learning.

Several studies examine the use of strategic intervention materials in different fields of education. It serves as an assessment to provide an effective teaching method and activities to students (Mulenga et al., 2019). However, the expense of a competency-based SIM largely depends on the educational institution's curriculum and the student's speed (Dauphinee, Boulet, & Norcini, 2019). The SIM was rated effective for quality assurance in terms of features and quality by instructors and department heads/LRMDS Coordinator respondents (Alboruto, 2017). There is a considerable variation in the usefulness of competency-based Strategic Intervention Materials as assessed by two groups of respondents. There was an improvement in learning outcomes in the posttest after using the competency-based Strategic Intervention Materials (Alejo et al., 2019).

With this, the study was conducted at Bondoc Peninsula Agricultural High School located at Gumaca - Pitogo - Mulanay - San Narciso Rd, Mulanay, Quezon under the school year 2021-2022. The researcher purposely selected the participants for the study compromising a total of 130 Grade 9 students taken from the three (3) sections that the researcher has handled: Archimedes, Anthurium, and Dahlia. Specifically, the section of Archimedes consisted of 34 students, Anthurium has 49 students, and Dahlia has 47 students.

The primary reason for choosing the participants of the study was to assess their performances in Physical education with the use of competency-strategic intervention materials. This study has helped the researcher on developing strategic teaching method using competency-based interventions.

### **Research Design**

The study utilized a quantitative method of research to assess the performance of the students in Physical Education using competency-based strategic intervention materials. Quantitative research seeks to understand an issue by obtaining numerical data and analyzing it using statistical approaches (Aliaga and Gunderson, 2002).

Specifically, descriptive study characterizes a group, circumstance, or phenomena in a systematic and concise manner. It can answer the questions of how, when, what, and where, except why. It can study one or more variables using a range of research methodologies and does not influence or change the variables, instead, they are observed and measured (McCombes, 2020). The researcher used a descriptive-quantitative research method to provide conclusions of data that support the objectives of the study.

Moreover, quasi experimental approach was utilized by the researcher. It aims to determine the cause-and-effect relationship between an independent variable (competency-based strategic

intervention materials) and dependent variable (performance of the Grade 9 students in Physical Education).

### **Population and Sampling**

The researcher used complete enumeration on choosing the respondents of the study. Complete enumeration is a method of gathering responses from and about each of the individuals from the population. Through this, a total of 130 respondents was used in the study.

### **Data Gathering Procedure**

The researcher utilized three instruments for data gathering procedure: diagnostic evaluation, performance result after the utilization of SIM, and perception of students regarding the use of this method. The information below shows how the survey questionnaire for the perception of students in the utilization of SIM on the subject Physical Education which was constructed, validated, distributed to the respondents, and interpreted with the use of 4-point Likert scale.

**Construction of the Questionnaire.** The researcher conducted an extensive reading for the perception of students on the use of strategic intervention materials for the development of the questionnaire. In addition, the researcher scoured the internet to collect relevant ideas, concepts, and information that served as the basis of the questionnaire. The construction of organized surveys ensured the unwavering quality of questions and answers from the respondents.

**Validation of the Questionnaire.** Based on the suggestions and discussions that were given, the researcher prepared the final questionnaire that would assess the experience of students with the use of SIM. After the construction of the questionnaire, it was checked and validated by the experts related to the field of the study. The confidentiality of the respondents was assured, that all findings were used for the purpose of this study.

**Administration of the Questionnaire.** The gathering of data started by sending a letter to the school head of Bondoc Peninsula Agricultural High School asking permission to conduct the study and discussing the researchers' intention to have the Grade 9 students from the sections Archimedes, Anthurium, Dahlia as participants. After the approval, the researcher sent a letter of intent to the participants.

Due to the risk of the COVID-19 pandemic, minimum health protocols were strictly observed. The instrument was disseminated on their scheduled days for distribution of module. After days of data gathering, the researcher examined, categorized, assessed, tabulated, and evaluated the results from the participants with the use of statistical approaches. The researcher gave assurance to the respondents that their answers were held with strict confidentiality and were used for research purposes only.

**Retrieval of the Questionnaire.** The researcher collected the questionnaire results upon their scheduled days for retrieval of module. The researcher also assured the respondents that the answers or responses were held strictly confidential for the purpose of this study only.

**Scoring of Responses.** The researcher used a 4-point Likert scale to get the scores and percentage of the respondents' perceptions, with one (1) as the lowest and four (4) as the highest. A Likert scale is an ordered scale from which respondents select one option that suits their views best. The researcher generated the findings based on the responses of the participants. Scoring of responses is shown below.

Numerical Code	Likert Scale	Scale Range	Verbal Interpretation
4	Strongly Agree	3.50 – 4.49	SA
3	Agree	2.50 – 3.49	A
2	Disagree	1.50 – 2.49	D
1	Strongly Disagree	1.00 – 1.49	SD

### Research Instrument

The study used three (3) methods of evaluation as instruments on gathering data from the respondents, namely: the diagnostic test for Grade 9 Physical Education, an assessment of performance of the participants in Physical Education based on the competency-based strategic intervention materials, and a self-made survey questionnaire that includes the experience of students on the utilization of competency-based SIM for the subject Physical Education.

The researcher ensured that the assessment tool will be made available for people responsible in the study particularly the researcher and the respondents. A secured link was distributed upholding the privacy and confidentiality of the participants in the study.

### Statistical Treatment of Data

The researcher utilized statistical analysis of data using statistical treatment. This method is essential and vital in analyzing and interpreting the responses of the participants. The data were gathered through the questionnaire, and incorporated into a tally sheet so that the total number of respondents' responses in each item was easily interpreted and analyzed using the following statistical tools:

#### Percentage Formula

This statistical tool determined, interpreted, and analyzed the responses of the participants on assessment result on diagnostic evaluation on Grade 9 Physical Education; Performance result after utilizing competency-based strategic intervention materials; and experience of students after utilization of Strategic Intervention Material.

#### T-test for Correlated Mean

This statistic was used to determine if there is a significant difference between the diagnostic evaluation result and performance assessment of students in Grade 9 Physical Education.he

### III. Results and Discussion

#### Experience in utilization of competency-based strategic intervention material

In this study, the following tables present the Level of Experience in the utilization of competency-based strategic intervention material,with implication as per utilization criteria, and relevance as per variable in accordance to the results per student responses.

**Table 1.** *Level of Experience in the Utilization of Competency-based Strategic Intervention Material in terms of its Objectives*

Statements	Mean	Std. Deviation	Verbal Interpretation
1. The SIM helps me learn and understand the topic.	3.88	0.579	Strongly Agree
2. The SIM inspired and encouraged me to learn more concepts in the subject.	3.59	0.712	Strongly Agree
3. The material helps me learn in my own pace.	3.82	0.409	Strongly Agree
4. The material enhances the development of desirable learning skills and strategies.	3.78	0.570	Strongly Agree
5. It provides an effective way of learning.	4.00	0.000	Strongly Agree
<b>Overall Mean</b>	3.815	0.214	Strongly Agree

Tables 1-3 illustrated the mean distribution of the level of Experience in utilization of competency-based strategic intervention material. The tables has been divided into 3-subcategories; Objectives, Content, and Suitability. As to Objectives, the statement no. 5 has the highest mean score of 4.00, interpreted as “Strongly Agree”. On the other hand, statement no. 2 has the lowest mean score of 3.59, interpreted as “Strongly Agree”. The Objectives have yielded an overall mean of 3.815, interpreted as “Strongly Agree”. The standard deviation of .214 reveals that the majority of responses are closely similar between one another, all being closer to the mean which can be inferred as majority of the answers strongly agree with the objectives of the Strategic Intervention Material (SIM). Moreover, the results further support the study (Bete, 2020) that the students are favourably inclined to use SIM. The idea of the objective is providing the student with the context of identifying how they will be able to achieve progress in their performance. Therefore, it is relevant that they have a strong understanding of the importance of the material.



**Table 2.** *Level of Experience in the Utilization of Competency-based Strategic Intervention Material in terms of its Content*

<b>Statements</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Verbal Interpretation</b>
1. The material consists of complete and important context of the topic under the subject.	3.57	0.681	Strongly Agree
2. The presentation of topics and concepts in the SIM are fitted to my needs.	3.81	.433	Strongly Agree
3. The instructions are simple and easy to follow.	3.42	.805	Strongly Agree
4. I could easily understand the explanations provided in the SIM.	4.00	.000	Strongly Agree
5. The SIM offers easy and interesting tasks and activities.	4.00	.000	Strongly Agree
<b>Overall Mean</b>	<b>3.758</b>	<b>.242</b>	<b>Strongly Agree</b>

As to Contents, the statement no. 4 and no. 5 have the highest mean score of 4.00, interpreted as “Strongly Agree”. On the other hand, statement no. 3 has the lowest mean score of 3.42, interpreted as “Strongly Agree”. The Objectives have yielded an overall mean of 3.758, interpreted as “Strongly Agree”. The standard deviation of .242 reveals that the majority of responses are closely similar between one another, all being closer to the mean which can be inferred as majority of the answers strongly agree with the contents. The further implication of the results under this category implores students’ positive reception of the SIM; similar indicator as shown in another study (Daisy, 2021). The means of student grasping the content is fundamental as it is how the improvement process is taking place. In a similar vantage point with another study (Romero, 2021), it’s very integral that the students have an independent understanding of the SIM. The idea is that the students should be acquainted with the ideas and concepts in the material with their own capability in order to solve academic deficiencies in the subject at hand.

**Table 3.** *Level of Experience in the Utilization of Competency-based Strategic Intervention Material in terms of its Suitability*

<b>Suitability</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Verbal Interpretation</b>
1. It is an effective tool for learning.	3.77	.578	Strongly Agree
2. It is an interesting way of learning.	3.92	.268	Strongly Agree
3. It enhances the learnings and skills in the subject.	3.45	.788	Strongly Agree
4. It acknowledges the area or topics that needs improvement.	3.90	.301	Strongly Agree
5. It will be helpful to use SIM during remediation class.	3.66	.665	Strongly Agree
<b>Overall Weighted Mean</b>	<b>3.740</b>	<b>.263</b>	<b>Strongly Agree</b>

*Legend:*

- 3.50 – 4.00 = Strongly Agree (SA)*
- 2.50 – 3.49 = Agree (A)*
- 1.50 – 2.49 = Disagree (D)*
- 1.00 – 1.49 = Strongly Disagree (A)*

As to Suitability, the statement no. 2 has the highest mean score of 3.90, interpreted as “Strongly Agree”. On the other hand, statement no. 3 has the lowest mean score of 3.42, interpreted as “Strongly Agree”. The Objectives have yielded an overall mean of 3.740, interpreted as “Strongly Agree”. The standard deviation of .263 reveals that the majority of responses are closely similar between one another, all being closer to the mean which can be inferred as majority of the answers strongly agree with the contents. The further implication of the results under this category implores students to be accustomed to the style of learning. This is an important factor considering the learning materials should be centered individually between students (Feliciano, 2017). The change of the approach to education due to Covid-19 must be accommodate such that conventional methods may no longer be as effective as they were in the past, it is important that the current means on learning and strategies of student improvement should adapt as well to address the needs for competencies-based learning strategies (Socloa, 2017).

**Table 4.** *Summary Table on the Level of Experience in the Utilization of Competency-based Strategic Intervention Material*

<b>Indicators</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Verbal Interpretation</b>
Objectives	3.815	0.214	Strongly Agree
Content	3.758	.242	Strongly Agree
Suitability	3.740	.263	Strongly Agree
<b>Overall Mean</b>	3.754	.1449	Strongly Agree

Based on the study results, the overall mean is 3.75, which is interpreted as “Strongly Agree”. This indicated that the agreeableness of strategic intervention material is perceived to be highly agreed upon. The demonstration of the result indicates that the students’ receive the SIM well, catering their student-centered preferences on how they acquaint themselves with the study. The studies of Ogre et al. (2017), Aranes et al. (2017) and De Jesus (2019) shown precedence that the favorable impression on SIM helps foster their attitude towards the subject at hand. The impact on the materials that are used for the education is detrimental to how the students will accomplish their study as supported by Matlale (2017) and Popoola (2020).

Hence, we can conclude that the current implementation of SIM yields upward results for the student performances. The expectation is that the SIM should be able to cover what the students’ had difficulty grasping during their previous studies. Bunagan (2018) have emphasized that the SIM should be centered within the students so that they are self-sufficient and effective during their studies. The results of this survey does not only convey the ease of usage of the SIM; but indicates that the students acknowledged the material revolves as per their specific needs and preferences.

### **Performance of Grade 9 students in Physical Education**

The following section describes the quantifiable interpretations of the data as results of the study. This covers the performances of the students from the diagnostic evaluation on their Grade 9 Physical Education up to their performances after utilizing the competency-based strategic intervention materials.

**Table 5.** *Performance of Grade 9 students in Physical Education*

Performance	Mean	Std. Deviation	Verbal Interpretation
• Knowledge of choreography	92.40	4.287	Very Satisfactory
• Technical skills	89.09	4.552	Satisfactory
• Performance Skills	96.42	3.026	Excellent
• Rhythm and Tempo	88.72	4.626	Satisfactory
Posttest Grades	92.33	4.018	Very Satisfactory

N=130

*Legend:*

80 below = *Poor*

81 - 85 = *Fair*

86 - 90 = *Satisfactory*

91 - 95 = *Very Satisfactory*

96 – 100 = *Excellent*

Table 5 reveals aggregate mean distribution between Grade 9 students' performances in different key topics after the SIM had been integrated. The results show that the *Performance Skills* has the highest mean of 96.42, interpreted as "Excellent". The topic *Rhythm and Tempo* has the lowest mean of 88.73, interpreted as "Satisfactory". The posttest grades show an overall mean of 92.33, which falls under "Very Satisfactory".

From the aggregate results; the performances ranges between "Satisfactory" and "Very Satisfactory". The results show a good indicator that the performances of the students are in line with the reception with the SIM. Gauging whenever the students require additional remedial needs should be assessed carefully as proper assessment is necessary for the learning process (Bray et al., 2020). The different key topics have technical requirements and there exists another challenge to improve these topics outside the conventional classroom setup (Suarez & Casinillo, 2020); with the current results, there is a strong representation that the material used is able to accommodate the challenge on improving the performance variables.

**Table 6.** *Diagnostic Evaluation Grades (Pretest Result) and Section Crosstabulation*

Grades	Section						Total		Description
	Anthurium		Archimedes		Dahlia		N	%	
	N	%	N	%	N	%			
70	11	22.0%	15	45.5%	20	42.6%	46	35.4%	Poor
73	8	16.0%	4	12.1%	6	12.8%	18	13.8%	Poor
75	13	26.0%	3	9.1%	5	10.6%	21	16.2%	Poor
78	8	16.0%	4	12.1%	7	14.9%	19	14.6%	Poor
80	6	12.0%	4	12.1%	7	14.9%	17	13.1%	Poor
83	4	8.0%	3	9.1%	2	4.3%	9	6.9%	Fair
Total	50	100.0%	33	100.0%	47	100.0%	130	100.0%	

*Legend:*

*80 below = Poor*

*81 - 85 = Fair*

*86 - 90 = Satisfactory*

*91 - 95 = Very Satisfactory*

*96 - 100 = Excellent*

Table 6 shows the cross tabulation of results between students' grades prior to the implementation of SIM. The highest grade is 83 in which 6.9% of the total study population falls into; whereas the grade is interpreted as "Fair". The lowest grade is 70, which covers 35.4% of the total study population; whereas the grade is interpreted as "Poor". The median grade for Section *Anthurium* is at Grade 75 and is interpreted as "Poor". The median grade for Section *Achimedes* and *Dahlia* is at Grade 73 which is also interpreted as "Poor".

Overall, the majority of the data are skewed towards the "Poor" interpretation, consisting of the majority of the subject population at 93.1%.

The results from the diagnostic evaluation is indicative that there was a deficiency on academic performances across three sections. The subject Physical Education has mostly been studied via conventional methods and the shift to remote learning would require innovative strategies so students will still be provided high-quality learning for the subject. With the results from table 3, the aim for the research for additional means of teaching and intervention materials is further justified. This would help improve the dilemma of lack of information about usefulness on intervention materials as Chingos (2021) pointed out in his study.



**Table 7. Posttest Grades and Section Crosstabulation**

Grades	Section						Total		Description
	Anthurium		Archimedes		Dahlia		N	%	
	N	%	N	%	N	%			
80 Below	0	0%	0	0%	0	0%	0	0%	Poor
81-85	7	14%	1	3%	0	0%	8	6%	Fair
86-90	17	34%	11	33%	20	43%	48	37%	Satisfactory Very
91-95	16	32%	15	45%	22	47%	53	41%	Satisfactory
96-100	10	20%	6	18%	5	11%	21	16%	Excellent
Total	50	100%	33	100%	47	100%	130	100%	

*Legend:*

*80 below = Poor*

*81 - 85 = Fair*

*86 - 90 = Satisfactory*

*91 - 95 = Very Satisfactory*

*96 - 100 = Excellent*

Table 7 shows the cross tabulation of results between students' grades after the implementation of SIM. The highest grades are in the 96-100 range, in which 16% of the total study population falls into; whereas the grade is interpreted as "Excellent". The lowest grades are in the range of 81-85, which covers 6% of the total study population; whereas the grade is interpreted as "Poor". The data also showed that most of the population falls under the "Satisfactory" description, consisting 41% of the subject data. The median grade for Section *Anthurium* is at the ranges 86-90 and is interpreted as "Satisfactory". The median grade for Section *Achimedes* and *Dahlia* is at the ranges 86-90 which is also interpreted as "Very Satisfactory".

Overall, the data is skewed towards the interpretations "Satisfactory" and "Very Satisfactory", consisting of 78% of the subject population.

### **Test of Difference in the Performance of Grade 9 students in Physical Education**

The following results shows the significant difference between the diagnostic evaluation result (Pretest Result) and the performance assessment (Posttest Results) of students in grade 9 Physical Education,

**Table 8.** Paired Samples Statistics between the diagnostic evaluation result (Pretest) and performance assessment (Posttest) of students in grade 9 Physical Education

	Mean	N	Std. Deviation	Std. Error Mean
Posttest Grades	92.33	130	4.018	.352
Pretest Grades	74.60	130	4.289	.376

The table 8 shows side-by-side display for the diagnostic evaluation result (Pretest) and performance assessment (Posttest). The Posttest Grades are interpreted to fall under “Very Satisfactory” description while the Pretest Grades are interpreted as “Poor” description. The standard deviation of 4.018 for Posttest Grades means that the majority of the population are between “Satisfactory” and “Excellent”. The standard deviation of 4.289 for Posttest Grades means that the majority of the population are between “Poor” and “Fair”.

The results show a significant progress between the Pretest Grades and Posttest Grades; with 17.73 difference in mean. Based on this result alone; there is a big improvement with regard to the student performances. It is revealed that the SIM is successful in the educative approach to improve student performances in Physical Education. As presented by Cordova (2019), there are multiple incentives for students to cover their deficiencies. There are other factors to be evaluated to directly ensure that the relevant success are not only inductive figuratively but under the scope of the study; we can conclude that the SIM is an effective ingredient in achieving that goal.

**Table 9.** Paired Samples t-test between the diagnostic evaluation result (Pretest) and performance assessment (Posttest) of students in grade 9 Physical Education

	Paired Differences					t	df	Significance	
	Mean	SD	Std. Error Mean	95% CID				One-Sided p	Two-Sided p
				Lower	Upper				
Posttest Grades – Pretest Grades	17.731	4.553	0.0399	16.941	18.521	44.407	129	<.001	<.001

Table 9 shows the significant difference between the diagnostic evaluation result (Pretest) and performance assessment (Posttest) of students in grade 9 Physical Education as demonstrated by the t-value at 44.407 with 99.9% level of confidence. As seen from the table, the resulting t-value of 44.407 which is greater than t-value distribution value 3.390 for degrees of freedom (df) = 129; we can reject the null hypothesis that there is no significant relationship between both variables. Hence, the SIM demonstrated successfully on increasing the students’ performances.

The difference between grades immediately recognizable, the competence-based strategic intervention materials have significantly improved the performances of the students. By identifying the skills and aspects on where the student needs to advance, the materials for learning

can be catered to target areas with highly necessary areas for improvement. The SIM succeeded to show significant differences in other specific fields such as Mathematics (Reyes & Falle, 2021), Biology (Villareal, 2018) and Chemistry (Arenes et al., 2017) and this study has also further progressed the impact of SIM for Physical Education. Different subjects have different types of approaches as per students' needs, therefore it is as equivalently important to acknowledge as well that the significance is stressed towards Grade 9 students as the aim is that the use of SIM is explored across all levels of education ((Mulenga et al., 2019). The area have also been explored on the same profiles but under the subject Economics; which yielded similar results to the current study (Lazo et. al., 2019)

In addition, identifying the positive reception of the student towards the SIM is important to achieve the necessary difference in results. Educators should be able to recognize the mediums and approaches necessary to rectify performance deficiencies in the way that is proficient and centered to the students' preferences. This is necessary as the direct performances of students have a direct relationship on how they value their means of study ((O'Neill, et al., 2020). This is crucial for further educators to acknowledge and feel what the students' need in order to achieve the success of the current SIM.

While a standard template for everyone is something that cannot easily be defined, by identifying the factors in common for improvement is integral so that an educator can easily produce remedial materials-based patterns between students. Educators should be able to define the baseline on what they aim to achieve for the students (Wang, et al, 2021); capitalize currently that there are gaps in student learnings to develop higher-quality means of instructional methods and materials for students.

The aim of SIM is not just directly relevant to the students' need for the specific subject; but further to their lifelong learning and understanding of customizable learning experiences (Kitto, et al.,2020). If the SIM is further integrated based on the results of this study, the study further progress learning so that a high-level quality can be achieved by students, regardless if they are in line or behind their suitable level of performance.

#### **IV. Conclusion**

Based on the result of the study, the students' perception on the agreeableness of the prepared Competency-Based Strategic Intervention Materials is an indicator on their performances. A good feedback on the material can translate into good utilization of the material and improvement changes in performances. It is crucial to identify the fields and topics the students are lacking in so that the necessary material can be catered for their improvement, considering factors under objectives, content and suitability. The null hypothesis has been rejected thus it has been proven that there is a significant difference between student performances between the diagnostic evaluation results and performances assessments of students in grade 9 Physical Education.

## REFERENCES

- [1] Alboruto V. (2017). Beating the numbers through strategic intervention materials (SIMs): Innovative science teaching for large classes. AIP Conference Proceedings 1848, 060014. <https://doi.org/10.1063/1.4983982>
- [2] Alipio, M. (2020). Education during COVID-19 era: Are learners in a less economically developed country ready for e-learning? ZBW- Leibniz Information Centre for Economics. Available: <https://www.econstor.eu/bitstream/10419/216098/1/Education%20during%20CO>
- [3] Anderson, L. (2018). Competency-based education: Recent policy trends. *The Journal of Competency- Based Education*, 3(1), e01057.
- [4] Arisi, R. O. (2018). The use of instructional materials by Social Studies teachers in secondary schools in Oredo local government area of Edo State. *Journal of Social Studies*, 1(1), 76
- [5] Barredo, K., & Joan, K. (2017). Development on academic performance in science using strategic intervention material. Retrieved from <http://www.classroom20.com/profiles/blogs/strategic-interventionmaterials-in-science>
- [6] Becker D.E. (Sunny) Arthur Thacker, “Formative Evaluation of New Hampshire’s Performance Assessment of Competency Education (PACE),” Summary Report (Alexandria, VA: Human Resources Research Organization, March 10, 2017), [https://a633434a-8c4b-4ae1-91a4-673ee5f3be53.filesusr.com/ugd/10b949\\_696ca7f8484c4418825bee921fbc6c5f.pdf](https://a633434a-8c4b-4ae1-91a4-673ee5f3be53.filesusr.com/ugd/10b949_696ca7f8484c4418825bee921fbc6c5f.pdf).
- [7] Bete, A. O. (2020). Students’ knowledge and process skills in learning grade-8 chemistry. *Journal of Research, Policy & Practice of Teachers and Teacher Education*, 10(1), 1-13.
- [8] Bosman, L., & Arumugam, S. (2019). A Scaffold and Competency-Based Learning Approach to Innovation Related Thinking Frameworks. *Proceedings of the ASEE Annual Conference & Exposition*, 393-2403.
- [9] Brodersen, M and Bruce Randel, “Measuring Student Progress and Teachers’ Assessment of Student Knowledge in a Competency-Based Education System,” REL 2017–238 (Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Central), [https://ies.ed.gov/ncee/edlabs/regions/central/pdf/REL\\_2017238.pdf](https://ies.ed.gov/ncee/edlabs/regions/central/pdf/REL_2017238.pdf)
- [10] Brown, G. T. L., O’Leary, T. M., & Hattie, J. A. C. (2019). Effective reporting for formative assessment: The asTTle case example. In D. Zapata-Rivera (Ed.), *Score reporting research and applications*, (pp. 107–125). New York: Routledge
- [11] Casinillo, L. F., Camulte, M. C. G., Raagas, D. L. & Riña, T. S. (2020). Cultural factors in learning mathematics: the case on achievement level among Badjao students. *International Journal of Indonesian Education and Teaching*, 4(1), 71-81.
- [12] Chen, J., & de La Torre, J. (2017). A Procedure for diagnostically modeling extant large-scale assessment data: The case of the programme for international student assessment in reading. *Psychology*, 5(18), 1967–1978.
- [13] Comighud, S. 2020. Stratehic Intervention Materials: A tool on improving students’ academic performance. *International Journal For Research In Applied And Natural Science* (ISSN: 2208-2085)
- [14] Dahar, M (2017), Effect of the Availability and the Use of Instructional Material on Academic Performance of Students in Punjab (Pakistan), *Euro Journal Publishing Inc.*

- [15] Daisy D. Lazo et.al, "Strategic Intervention Material: A Learning Approach in Teaching Economics during the Distance Education ," *International Journal of Computer Engineering In Research Trends*, 8(5): pp: 76-84, May -2021
- [16] de la Torre, J., & Minchen, N. (2018). Cognitively diagnostic assessments and the cognitive diagnosis model framework. *Educational Psychology*, 20(2), 89–97
- [17] Dumigsi, M. P. & Cabrella, J. B. B. (2019). Effectiveness of Strategic Intervention Material in Mathematics as Remediation for Grade 9 Students in Solving Problems Involving Quadratic Functions. *Asian Journal of Education and Social Studies*, 5(1), 1-10
- [18] Egbert, J., & Shahrokni, S. (2019). Balancing Old and New: Integrating Competency-Based Learning into CALL Teacher Education. *The JALT CALL Journal*, 15(1), 3-18. <https://doi.org/10.29140/jaltcall.v15n1.156>
- [19] Fowler, A. (2018). *Transitioning to Competency-Based Grading*, (Unpublished Doctoral Dissertation). Carson-Newman University, Tennessee, United States.
- [20] Goldhamer, M. E. J., Pusic, M. V., Co, J. P. T., & Weinstein, D. F. (2020). Can covid catalyze an educational transformation? competency-based advancement in a crisis. *New England Journal of Medicine*, 383(11), 1003-1005.
- [21] Govindaraju, R. & Venkatesan, S. (2017). A study on school drop-outs in rural settings. *Journal of Psychology*, 1(1), 47-53.
- [22] Haystead Mark W., "RISC vs. Non-RISC Schools: A Comparison of Student Proficiencies for Reading, Writing, and Mathematics" (Centennial, CO: Marzano Research, 2018).
- [23] Hill, K., & Mcnamara, T. (2020). Developing a comprehensive, empirically based research framework for classroom-based assessment. *Language Testing*, 29(3), 395–420.
- [24] Hsiao, C. T., Chou, F. C., Hsieh, C. C., Chang, L. C., & Hsu, C. M. (2020). Developing a competency-based learning and assessment system for residency training: analysis study of user requirements and acceptance. *Journal of medical Internet research*, 22(4), e15655.
- [25] Jotia, A. L. and Matlale, O. J. (2021). Use of instructional materials in social studies: Impact on students' performance in primary school leaving certificate examinations in Botswana. *European Journal of Educational Studies*, 3(1), 111-122.
- [26] Kaufman, J. C., and Baer, J. (eds.). (2017). *Creativity Across Domains: Faces of the Muse*. London: Psychology Press. doi: 10.4324/9781410611925
- [27] Keeton, Gladys. 2021. Relationship of Dance Performance skills to Real-World Situations. Retrieve from: <https://us.humankinetics.com/blogs/dance/relationship-of-dance-performance-skills-to-real-world-situations>
- [28] Kitto, K., Sarathy, N., Gromov, A., Liu, M., Musial, K., & Shum, S. B. (2020, March). Towards skills-based curriculum analytics: can we automate the recognition of prior learning?. In *Proceedings of the Tenth International Conference on Learning Analytics & Knowledge* (pp. 171-180).
- [29] Lazo, D. de Guzman M. (2021). Strategic Intervention Material: A learning approach in teaching economics during the distance learning. *International Journal of Engineering in Research Trends*, Volume 8, Issue 5
- [30] Małgorzata, G., Justyna, K., & Michał, T. (2020). Competencies of graduates as future labor market participants – preliminary study. *Economic Research-Ekonomska Istraživanja*, 33(1), 1095-1107. DOI: 10.1080/1331677X.2019.1631200
- [31] Mallillin, Leovigildo Lito & Mallillin, D & Laurel, Regilito & Mallillin, Jocelyn & Carag, Eduardo & Guingab-Carag, Catalina. (2021). Competency Based-Learning and Quality Education in the New Normal Modality of Teaching. 10.36349/easjehl.2021.v04i04.002.



- [32] Markey, K., & Okantey, C. (2019). Nurturing cultural competence in nurse education through a values-based learning approach. *Nurse education in practice*, 38, 153-156.
- [33] Matlale, O. J. (2017). Use of instructional: Impact on students' performance. *European Journal of Educational Studies*, 3(1), 111-122.
- [34] Mulenga, I. M., & Kabombwe, Y. M. (2019). Understanding a competency-based curriculum and education: The Zambian perspective.
- [35] Naz, F., Murad, H. (2017). Innovative Teaching Has a Positive Impact on the
- [36] Performance of Diverse Students. *SAGE Open*, 7(4), 215824401773402. Retrieved from: <https://doi.org/10.1177/2158244017734022>
- [37] Norris, J. M. (2019). Task-based teaching and testing. In M. H. Long & C.J. Doughty (Eds.), *The handbook of language teaching* (pp. 578-594). Malden, MA: WileyBlackwell.
- [38] O'Neill, T. A., Pezer, L., Solis, L., Larson, N., Maynard, N., Dolphin, G. R., ... & Li, S. (2020). Team dynamics feedback for post-secondary student learning teams: introducing the "Bare CARE" assessment and report. *Assessment & Evaluation in Higher Education*, 45(8), 1121-1135.
- [39] Patric, Susan. May 2021. Transforming Learning through Competency-Based Education. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1315095.pdf>
- [40] Raquel C. Cordova<sup>1</sup>, Janariah Grace D. Medina<sup>2</sup>, Tessa R. Ramos<sup>3</sup>, and Aileen R. Alejo<sup>4</sup>. (2019). Effectiveness of Competency-Based Strategic Intervention Materials in English 7. Retrieved from: <https://www.dlsu.edu.ph/wp-content/uploads/pdf/conferences/research-congress-proceedings/2019/lii-II-019.pdf>
- [41] Rankin, J. G. (2016). *Standards for reporting data to educators: what educational leaders should know and demand*. New York: Routledge
- [42] Rea-Dickins, P. (2016). Currents and eddies in the discourse of assessment: a learning-focused interpretation. *International Journal of Applied Linguistics*, 16(2), 163-188.
- [43] Salviejo, Edwin. Aranes, Fidela. Espinosa, Allen. (2017). Strategic Intervention Material-Based Instruction, Learning Approach and Students' Performance in Chemistry. *International Journal of Learning, Teaching and Educational Research* Vol. 2, No. 1, pp. 91-123
- [44] Sargeant, J., Wong, B. M., & Campbell, C. M. (2018). CPD of the future: a partnership between quality improvement and competency-based education. *Medical education*, 52(1), 125-135.
- [45] Suarez, Michael, and Casinillo, Leomarich, Effect of Strategic Intervention Material (SIM) on Academic Performance: Evidence from Students of Science VI (December 2020). *Review of Socio-Economic Research and Development Studies*
- [46] Tsagari, D., & Cheng, L. (2017). Washback, impact, and consequences revisited. In E. Shohamy, I. Or, S. May (Eds.), *Language Testing and Assessment* (pp. 359-372). Cham: Springer.
- [47] Torres, A., Brett, J., Cox, J., & Greller, S. (2018). Competency Education Implementation: Examining the Influence of Contextual Forces in Three New Hampshire Secondary Schools. *AERA Open*, 4(2), 1-13. DOI: 10.1177/2332858418782883
- [48] Troussas, C., Krouska, A., & Virvou, M. (2020). Using a multi module model for learning analytics to predict learners' cognitive states and provide tailored learning pathways and assessment. In *Machine Learning Paradigms* (pp. 9-22). Springer, Cham
- [49] ReyeS, E. Falle, T. (2021). STRATEGIC INTERVENTION MATERIAL: PERFORMANCE LEVEL OF GRADE 7 STUDENTS OF ZAMBALES NATIONAL HIGH



SCHOOL SCHOOLS DIVISION OF ZAMBALES, PHILIPPINES. Universe International Journal of Interdisciplinary Research Vol 2 Issue 2

- [50] Vesikivi, P., Lakkala, M., Holvikivi, J., & Muukkonen, H. (2020). The impact of projectbased learning curriculum on first-year retention, study experiences, and knowledge work competence. *Research Papers in Education*, 35(1), 64-81.
- [51] Villareal, Sheila. (2018). The Effectiveness of Intervention Materials in Improving Learners' Competence in Grade 7 Students in Biology. Retrieved from: [https://www.academia.edu/12894496/The\\_Effectiveness\\_of\\_Intervention\\_Materials\\_in\\_Improving\\_Learners\\_Competence\\_in\\_Grade\\_7\\_Students\\_in\\_Biology](https://www.academia.edu/12894496/The_Effectiveness_of_Intervention_Materials_in_Improving_Learners_Competence_in_Grade_7_Students_in_Biology)
- [52] Vonderwell, S., & Zachariah, S. (2005). Factors that Influence Participation in Online Learning. *Journal Of Research on Technology in Education*, 38(2), 213230.
- [53] <https://doi.org/10.1080/15391523.2005.1782457>.

#### Cited Literature

- [54] Aranes, F (2018), Illustrated Laboratory Procedures in Chemistry: Effects on the Achievement of Surface and Deep Learners. Unpublished Masters Thesis. De La Salle University, Philippines.
- [55] Aranes, Fidela Q, Espinosa, Allen A., Salviejo, Edwin I (2017) Strategic Intervention Material - Based on Learning Approach and Students Performance in Chemistry p. 119
- [56] Bray, M. J., Bradley, E. B., Martindale, J. R., & Gusic, M. E. (2020). Implementing Systematic Faculty Development to Support an EPA-Based Program of Assessment: Strategies, Outcomes and Lessons Learned. *Teaching and Learning in Medicine*, 1-31.
- [57] Brown, J. D., & Hudson, T. (2018). The alternatives in language assessment. *TESOL Quarterly*, 32 (4), 653-675. doi: 100.2307/3587999
- [58] Bunagan, F. (2019). Strategic Intervention Material. Retrieved June 12, 2017, from <https://www.slideshare.net/felixbunagan/strategic-intervention-aterial>
- [59] Chernikova, O., Heitzmann, N., Stadler, M., Holzberger, D., Seidel, T., & Fischer, F. (2020). Simulation-based learning in higher education: A meta-analysis. *Review of Educational Research*, 90(4), 499-541.
- [60] Chingos, M. (2021) [http://www.brookings.edu/~media/research/files/reports/2012/4/10%20curriculum%20chingos%20whitehurst/0410\\_curriculum\\_chingos\\_whitehurst.pdf](http://www.brookings.edu/~media/research/files/reports/2012/4/10%20curriculum%20chingos%20whitehurst/0410_curriculum_chingos_whitehurst.pdf)
- [61] Chod, J., Markakis, M. G., & Trichakis, N. (2021). On the learning benefits of resource flexibility. *Management Science*.
- [62] Cross, E. S., and Ticini, L. F. (2021). Neuroaesthetics and beyond: new horizons in applying the science of the brain to the art of dance. *Phenomenol. Cogn. Sci.* 11, 5–16. doi: 10.1007/s11097-010-9190-y
- [63] Darling-Hammond, L. (2016). Performance-based assessment and educational equity. *Harvard Educational Review*, 64, 5-30.
- [64] Dauphinee, W. D., Boulet, J. R., & Norcini, J. J. (2019). Considerations that will determine if competency-based assessment is a sustainable innovation. *Advances in Health Sciences Education*, 24(2), 413-421
- [65] De Jesus, Rainier. 2019. Improving the Least Mastered Competencies in Science 9 Using “Pump It Up!” Electronic Strategic Intervention Material. Retrieved from: <https://www.dlsu.edu.ph/wp-content/uploads/pdf/conferences/research-congress-proceedings/2019/lli-II-011.pdf>

- [66] Department of Education Memorandum No. 117, s. 2005, entitled, “Training Workshop on Strategic Interventions for Successful Learning; 2005
- [67] Deonovic, B., Chopade, P., Yudelson, M., de La Torre, J., & von Davier, A. A. (2018). Application of cognitive diagnostic models to learning and assessment systems. In M. von Davier, & Y. S. Lee (Eds.), *Handbook of diagnostic classification models: models and model extensions, applications, software packages*, (pp. 437–460). Berlin: Springer
- [68] Dole, S. F. (2017). Creating cultures of thinking: the 8 forces we must master to truly transform our schools. *Interdisciplinary Journal of Problem-Based Learning*, 11(2). doi.org/10.7771/1541-5015.1720
- [69] Dragoo, A., & Barrows, R. (2016). Implementing competency-based education: Challenges, strategies, and a decision-making framework. TheDy, L. (2018). Strategic Intervention material. <http://jhody.hubpages.com/hub/TEACHING-PHYSICSTHROUGH-STRATEGIC-INTERVENTION-MATERIALS-SIM>
- [70] Dy, Jocelyn O. (2017). Strategic Intervention Materials (SIM) in Teaching Science IV (Physics).
- [71] Escoreal, A. (2022), Strategic Intervention Material a Tool to Reduce Least Learned Skills in Grade Four Science.
- [72] Feliciano, M. (2017), A Stategic Intervention Material in Mathematics 10. Retrieved from <https://www.pressreader.com/philippines/sunstarpampanga/20171020/281603830703858> Nicholls, G (2000), *Learning to Teach*, pp 356 –360, Bell and Bain Ltd. Glasgow
- [73] Gillies, D. (2018). Educational potential, underachievement, and cultural pluralism. *Education in the North*, 16, 23-32.
- [74] Laakso, A. (2021). Embodiment and development in cognitive science. *Cogn. Brain Behav. Interdisc. J.* 4, 409–425.
- [75] Lee, Y. W. (2021). Diagnosing diagnostic language assessment. *Language Testing*, 32(3), 299–316.
- [76] Lee, Y. W., & Sawaki, Y. (2017). Cognitive diagnosis approaches to language assessment: an overview. *Language Assessment Quarterly*, 6(3), 172–189. Lehrer, R., & Lesh, R. (2017). Mathematical learning. In W. Reynolds & G. Miller (Eds.), *Comprehensive handbook of psychology*, Volume 7 (pp. 357-391). New York: Wiley.
- [77] Lomer, S., & Anthony-Okeke, L. (2019). Ethically engaging international students: student generated material in an active blended learning model. *Teaching in Higher Education*, 24(5), 613-632.
- [78] McCombes, Shona (2020). Descriptive Research Design. Retrieved from: <https://www.scribbr.com/methodology/quasi-experimental-design/>
- [79] Moran, A., and Toner, J. (2017). *A Critical Introduction to Sport Psychology*, 3rd Edn. London: Routledge. doi: 10.4324/9781315657974
- [80] Morris, T. H. (2019). Self-directed learning: A fundamental competence in a rapidly changing world. *International Review of Education*, 65(4), 633-653
- [81] Mueller, J. (2018). Authentic assessment in the classroom and the library media center. *Library Media Connection*, 23(7), 14–18.
- [82] Navarre Cleary, M. (2020). Comparing goals to outcomes for graduates of a competency-based education program. *The Journal of Competency- Based Education*, 5(4), e01223.
- [83] N.B.A. Orge, & A.F. Borje, “Manifestations of Learning Difficulties: A Case among Pupils of Public Elementary Schools in Iba, Zambales, Philippines”, *International J. Soc. Sci. & Education*. Vol.7 Issue 4, 2017

- [84] Nicholls, G (2020), Learning to Teach, pp 356 – 360, Bell and Bain Ltd. Glasgow
- [85] N.H. Dizon, M.F.D. de Guzman, L.F. Uy, & A.R. Ganaden, “Education Concerns in Public Secondary Schools of Division of Zambales, Philippines: An Education Response to COVID 19 Pandemic of 2020”, EAS Journal of Humanities and Cultural Studies- Volume-3 | Issue-2| April-March 2021
- [86] North, M. (2020) Movement education: child development through body motion J. M. Dent London
- [87] Obana, J., 2020. What Will Schools Look Like Under the “New Normal”. Available:<https://www.grantthornton.com.ph/insights/articles-and-updates/1/fromwhere-we-sit/what-will-schools-look-like-under-the-new-normal/> Ogbondah, L. (2018). An appraisal of instructional materials used to educate Migrant Fishermen’s children in Rivers State, Nigeria. International Journal of Scientific Research in Education, 1(1), 13-25.
- [88] Pesek, Matevž, Aleš Leonardis and Matija Marolt. (2019). An analysis of Rhythmic pattern with Unsupervised Learning.
- [89] Pesek, Matevž, Aleš Leonardis and Matija Marolt. (2019). An analysis of Rhythmic pattern with Unsupervised Learning.
- [90] Plenos, Josephine. (2019) Effectiveness of the Teacher-Made Science Strategic Intervention Material in Increasing the Performance Level of Grade Six Pupils of Bacongco Elementary Schools in the Specified Competency.
- [91] Pollock, J. Tolone, L., & Nunnally, G. (2021). How Innovative Teachers Can Start Teaching Innovation ASCD Retrieved from <https://www.ascd.org/el/articles/how> Popoola, T. A. (2020). An investigation into the relationship between instructional resources and students’ academic performance in secondary schools in Abeokuta, Ogun State, Nigeria. An unpublished MED Thesis. Rahmawati, R., Lestari, F., & Umam, R. (2019). Analysis of the effectiveness of learning in the use of learning modules against student learning outcomes. Desimal: Jurnal Matematika, 2(3), 233- 240.
- [92] Saclao, J. (2017). Development and Impact of SIM-MOD (Strategic intervention Material and Module Combined) on Students’ Academic Achievement in Mathematics at the \*th Grade level. 13th National Convention on Statistics (NCS). EDSA Shangri- La Hotel, Mandaluyong City. Retrieved from <https://psa.gov.ph/sites>.
- [93] Sachs, Curt (2022) Rhythm and Tempo: An Introduction. The Musical Quarterly Volume 3, pp. 384-398 (15 pages)
- [94] Santos, A. P. (2020, October 6). In the Philippines, distance learning reveals the digital divide. Retrieved from <https://eu.boell.org/en/2020/10/06/philippines-distance-learning-reveals-digital-divide>
- [95] Scottish Qualifications Authority. 2020. Dance: Technical Skills. Retrieved from: <https://www.sqa.org.uk/files/nu/SCQF6UnitSpecDanceTechnicalSkills.pdf>
- [96] Vanslambrouck, S., Zhu, C., Pynoo, B., Thomas, V., Lombaerts, K., & Tondeur, J. (2019). An indepth analysis of adult students in blended environments: Do they regulate their learning in an „old school way?. Computers & Education, 128, 75-87
- [97] Wood, R., & Shirazi, S. (2020). A systematic review of audience response systems for teaching and learning in higher education: The student experience. Computers & Education, 103896.
- [98] Zhan, P., Ma, W., Jiao, H., & Ding, S. (2020). A sequential higher order latent structural model for hierarchical attributes in cognitive diagnostic assessments. Applied Psychological Measurement, 44(1), 65–83.