



IMPLEMENTATION OF GRAPHIC INTERCHANGED FORMAT (GIF) – ENHANCED LEARNING MATERIALS (ELM) TO THE PERFORMANCE OF STUDENTS IN PHYSICAL EDUCATION OF BALIBAGO INTEGRATED HIGH SCHOOL

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ABSTRACT

Current educational trends, the emergence of the knowledge society, societal changes, and globalization influenced the higher education at the greater level and thus resulted in a quality education and quality assurance, the transformation of the education system and changes in teaching and learning approaches like virtual learning and more technologically enhanced learning like the GIF-ELM. Among a wide range of GIF's has been introduced to academic institutions and industries.

As revealed in this study, the thirty-five (35) teachers who are utilizing GIF-ELM, agreed that the level of effectiveness of the GIF-ELM when it comes to Accuracy, Significance, and Presentation is highly effective. The Enhanced Students Performance after using GIF-ELM is found also highly effective.

Diversity refers to the diversification and multiple dimensions in information transmission of technology that will enhance the performance of the Grade 8 students, the results revealed that it is Highly Effective. With this, the utilization of learning materials using GIF-ELM stimulate students' concentration and awareness of the learning contents. The same viewpoint was stated in stressing that the presence of suitable learning material is a necessity for a smooth process of sharing information between the teacher and learners.

INTRODUCTION

In this 21st century, the term technology is an important issue in many fields including education. This is because technology has become the knowledge transfer highway in most countries. Technology integration nowadays has gone through innovations and transformed our societies that has totally changed the way people think, work and live. As part of this, schools and other educational institutions which are supposed to prepare students to live in "a knowledge society" need to consider ICT integration in their curriculum (Chaamwe, 2020). Based on the Curriculum Guide on Physical Education (PE) provided by the Department of Education (DepEd), fitness and psychomotor learning comprise the heart of the K to 12 PE Curriculum which includes value, knowledge, skills and experiences in physical activity participation to achieve and maintain good academic standing.

However, the status of Physical Education in the Philippines has seen a well as being severely affected by the onset of a rapidly changing youth culture immersed in mobile technology and social media, (Solon, 2017). Thus, if not addressed promptly with necessary measures would be an offense to the guiding principles of Republic Act No. 5708 also known as the Schools Physical Education and Sports Development Act of 1969 such as instilling in young citizens a proper appreciation of the importance of physical development hand in hand with the mental development in individual and social activities; providing opportunities for the athletic development of children and youth who grace, coordination, stamina and strength and addressing the physical growth, social training, and personal, discipline for all students, as well as superior athletic achievement for those who are psychologically inclined and physically gifted.

In relation to the aforementioned statement, educators have taken necessary steps in addressing the issue such as exploiting these new technologies in teaching rather than looking at them as deterrent to psychomotor learning. Thus, reflected in this research is the development of ICT-integrated instructional material utilizing moving or animated images in teaching skills in selected sports in Grade 8 knowing that schools entered already the digital

era, it became a central cognitive artifact for conveying information. This study aimed to find out whether moving images particularly Graphic Interchange Format-Enhanced Learning Material (GIF-ELM) can improve skills of students in Physical Education as compared to traditional lecture and text-based or module-based learning at school especially in circumstances that learning and instruction is confined only in the classroom due to lack of resources or adequate space to accommodate physical activities. GIF stands for Graphics Interchange Format. GIF is a raster file format designed for relatively basic images that appear mainly on the internet. Each file can support up to 8 bits per pixel and can contain 256 indexed colors. GIF files also allow images or frames to be combined, creating basic animations. GIFs can be used for small animations and low-resolution video clips, or as reactions in online messaging used to convey emotion and feelings instead of using words. They are popular on social media platforms and even being introduced in the classroom for highly industrialized country.

Technology can never replace an actual physical activity or actual teaching, but it could still be beneficial in the curriculum as it takes advantage of young people's enthusiasm for it to get them move physically. More than that, it helps teachers to maximize instruction especially if they are given limited time, space, and resources in the transfer of learning to students. Furthermore, as students' population has gotten more and more overweight and unhealthier, some countries and institutions look at Physical Education with more importance (Solon, 2017). However, amidst the recognized benefits of Physical Education in the academic, social, psychological, and physical development of learners, it is still one of the most neglected subjects in the curriculum especially in public schools. For instance, in the locale of the study, most Physical Education teachers during sports competitions starting from school intramurals to the regional and national sports competitions become coaches of the participating athletes. And, most of them spend their time coaching and assisting players during trainings and competitions leaving the majority of their students in the classroom with their lectures and books; or worst, unattended. Consequently, teachers who are not



handling PE subjects relieve these PE instructors resulting to inadequate instruction of knowledge and skills to students as they are not well-inclined of teaching the subject. In connection to this, this GIF-enhanced instructional material in teaching Physical Education could help non-specialist teachers in the instruction process as it provides concrete descriptions or animated demonstrations of the Physical Education concepts or skills to be taught in contrast to text-based learning modules which are more of an abstract and traditional way of delivering information.

As such, this ICT-integrated instructional material could lessen the burden of PE teachers leaving a majority of their classes behind when engaged in coaching sports-related competitions outside the school and the locality within weeks or even months. Students can make use of the instructional material even with the absence of the teacher or with the guidance of non-PE teachers and not by just merely copying lectures from books without the topic being explained.

MATERIAL AND METHODS

This study examined the effectiveness of the Implementation of Graphic Interchanged Format (GIF) -Enhanced Learning Materials (ELM) to the Performance of students in Physical Education of Balibago Integrated High School, Schools Division of Sta. Rosa City. Specifically, this study sought answers to the following questions:

1. What is the level of effectiveness of Graphic Interchange Format (GIF)- Enhanced Learning Materials (ELM) in teaching Physical Education as perceived by the students in terms of:
 - 1.1 accuracy;
 - 1.2 significance; and
 - 1.3 presentation?
2. What is the mean level of enhanced students’ performance after using GIF ELM as perceived by the teacher?
3. Is there a significant difference between the mean scores of the pre-test and post-test?
4. Is there a significant relationship between the effectiveness of GIF-ELM in teaching Physical Education and enhanced students’ performance?

The study was conducted within the premise of the Balibago Integrated High School in the Division of Santa Rosa City. More specifically, the participants of the study will be Grade 8 students. This is to check and assess the implementation of Graphic Interchanged Format (GIF) -Enhanced Learning Materials (ELM) to the Performance of students in Physical Education of Balibago Integrated High School, Schools Division of Sta. Rosa City in which these learning resource materials will be implemented and administered. They are composed of one hundred (100) student participants.

The right to conduct the study strictly adhered through the approval of the principal and teachers. There were separate letters provided to the participants denoting their privacy, safety and safeguarding their personality. Issues of confidentiality was also

discussed during the orientation in separate venues; thus, they treated with respect. With due permission, a scheduled physical administration of the learning resource was administered to the Grade 8 students of the school. Analysis and interpretation of data was done after the retrieval of the responses. To better transpire in the data collection, data gathering procedure was organized and presented to the participants for validation and then came up with a summary.

This study utilized the Quasi-Experimental research design to further assess the effectiveness of implementation of Graphic Interchanged Format (GIF) -Enhanced Learning Materials (ELM) to the Performance of students in Physical Education of Balibago Integrated High School, Schools Division of Sta. Rosa City. Quasi experimental research designs, like experimental designs, test causal hypotheses in this study. A quasi-experimental design lacks random assignment. Furthermore, quasi-experimental designs identify a comparison group that is as similar as possible to the treatment group in terms of baseline pre-intervention characteristics. This design is defined as quantitative design since the results from the Pre-test and Post test will be analyzed and systematically scaled through quantifiable results and information from the students in the Grade 8 level.

Also, the researcher utilized the non-equivalent research design which is quasi-experimental in nature. The responses of a treatment group are compared on measures collected at the beginning and end of the research. Furthermore, this study will be using a developmental research design. Manguerra, (2018) mentioned that developmental research aims for knowledge creation anchored in data systematically derived from practice. It is a suitable type of research that tests "theory" based on hypotheses and validates them through training that has been extended essentially through various means. Moreover, this design seeks to establish new procedures, techniques, and tools anchored from a systematic analysis of specific circumstances. Hence, developmental research creates generalizable conclusions or statements of law or produces context-specific knowledge that serves as a problem-solving process.

The data gathered from the study was analyzed statistically based on the suggested statistical treatment. The researcher used mean and standard deviation as descriptive statistics in describing the performance level of the Grade 8 students in terms of their pretest and posttest. An Independent t-test will be used to determine if there is a significant difference between the pre-test and post-test of the students. A paired-sample t-test will be applied to assess if there is a significant difference between the pretest and post-test mean scores of the students Furthermore, Cohen’s d for effect size will be employed.

RESULTS AND DISCUSSION

Table 1.1 Level Effectiveness of Graphic Interchanged Format (GIF)- Enhanced Learning Materials (ELM)

Indicators	Mean	Interpretation
A. ACCURACY		
1. The learning materials that use GIF have its unique way on transmission of information.	4.03	Highly Effective
2. The references, credits or links that involve GIF are appropriate and relevant.	3.80	Highly Effective
3. GIF is accurate and up-to-date throughout the use of the materials.	3.57	Highly Effective
4. I can easily understand the learning content when GIF is employed in teaching and learning process.	3.91	Highly Effective
5. I highly appreciate the GIF as learning tools being utilized in teaching.	3.91	Highly Effective
Overall Mean	3.84	Highly Effective



Legend: 4.50 - 5.00 Very Highly Effective (VHE), 3.50 - 4.49 Highly Effective (HE), 2.50 - 3.49 Moderately Effective (ME) 1.50 - 2.49 Fairly Effective (FE) 1.00 - 1.49 Poorly Effective (PE)

As shown in table 1.1 on Effectiveness of GIF-ELM in terms of Accuracy indicator 1, on learning materials has its unique way on transmission of information got the highest weighted mean of 4.03 while indicator 3, on accurate and up-to-date GIF throughout the use of materials got the lowest weighted mean 3.57. Moreover, all the indicators such as; Students can easily understand the learning content when GIF is employed in teaching and learning process and Students highly appreciate the GIF as learning tools being utilized in teaching got the same weighted mean of 3.91 respectively, which falls under the interpretation of Highly Effective.

The overall weighted mean for the effectiveness of accuracy was 3.84 interpreted as Highly Effective. According to Manlapaz (2020), the outcome showed that accuracy is very beneficial and would enhance students' performance. As a result, information and communication technologies can be precisely and successfully learned using Graphics Interchange Format (GIF),

which is made possible by integrating these technologies into educational settings. These findings are supported by Tachibana's (2021) assertion that GIF serves as both a medium and a means of expressing the information that individuals transmit.

Every media has a distinct method and purpose for disseminating information, and they all work in a somewhat complimentary manner with one another. He added that the modern multimedia model for information communication is accurate, efficient, and convenient, replacing the outdated single transmission form of voice, visuals, and images. With the emergent of the 21st century education, the use of computers and new technologies has become an important aspect of teaching and learning. ICT integration or multimedia teaching enabled the classroom instruction to redefine some of the strategies and concepts of teaching and learning. Teachers increased the quality of their instruction with the help of new and modern technologies.

Table 1.2 Level Effectiveness of Graphic Interchanged Format (GIF)- Enhanced Learning Materials (ELM)

Indicators	Mean	Interpretation
B. SIGNIFICANCE		
1. The learning materials is unique, rare, contributes to the students' performance.	3.69	Highly Effective
2. The learning materials offer an innovative learning/teaching method.	4.00	Highly Effective
3. The learning materials material engages and motivates the students.	3.97	Highly Effective
4. The learning materials can be tailored for various curricula.	3.91	Highly Effective
5. The effectiveness is consistent throughout the learning materials.	4.03	Highly Effective
Overall Mean	3.92	Highly Effective

Legend: 4.50 - 5.00 Very Highly Effective (VHE), 3.50 - 4.49 Highly Effective (HE), 2.50 - 3.49 Moderately Effective (ME) 1.50 - 2.49 Fairly Effective (FE); 1.00 - 1.49 Poorly Effective (PE)

Table 1.2 on Effectiveness of GIF-ELM in terms of Significance, indicator 5, on GIF is consistent throughout the learning materials got the highest mean score of 4.03 interpreted as Highly Effective. Indicator 1, on learning materials has a rare contribution to the student's performance got the lowest mean score of 3.69 also interpreted as Highly Effective. More so the overall mean for effectiveness of GIF-ELM as perceived by the teachers was 3.920., interpreted as Highly Effectiveness. This revealed that Significance of Graphic Interchanged Format (GIF) plays an important role in the teaching and learning process.

According to Argundo (2019), it was determined that employing a visual stimulus had a noteworthy impact. It has been discovered that GIF presentations help learners understand the material and promote learning. Similar to this, the GIF-ELM is an invention meant to enhance the process of teaching and learning. In the teaching and learning process, GIF makes use of a variety of

media, tools, and approaches. In order to meet predefined learning objectives, it seeks to provide relevant learning experiences using a variety of media. Learning occurs from hearing what students hear; learning increases from seeing what students see; and learning continues from doing what students do. In order to concretize and substantiate learning, it is crucial to supply sufficient, appropriate, and varied instructional materials.

Based on the statement, Learning Materials are seen to be an important instrument or educational resources that help in improving students' knowledge, abilities and skills which has a large influence to the students' overall progress. Likewise, in this concept, learners will learn more if teachers relate the lesson to the students' experiences and interests. Parallel to this study, teachers are accountable of providing materials necessary to engage and motivate students' participation and learning.

Table 1.3 Level Effectiveness of Graphic Interchanged Format(GIF)- Enhanced Learning Materials (ELM)

Indicators	Mean	Interpretation
C. PRESENTATION		
1. Learning materials (including video, audio, photographs, etc) is presented with clarity, focus and organization.	3.83	Highly Effective
2. The learning materials is easy to navigate.	3.77	Highly Effective
3. The information is presented in ways that familiar to students.	4.00	Highly Effective
4. The learning material is well organized without distracting elements.	3.77	Highly Effective
5. Audio-visual quality of images, sounds, illustrations, videos, etc is good.	4.03	Highly Effective
Overall Mean	3.88	Highly Effective

Legend: 4.50 - 5.00 Very Highly Effective (VHE), 3.50 - 4.49 Highly Effective (HE), 2.50 - 3.49 Moderately Effective (ME) 1.50 - 2.49 Fairly Effective (FE); 1.00 - 1.49 Poorly Effective (PE)



As shown in the table 1.3 on Level of Effectiveness of GIF-ELM in terms of Presentation, indicator 5, on Good audio-visual quality of images, sounds, illustrations, videos got the highest weighted mean score of 4.03 interpreted as Highly Effective. Whereas indicator 2 & 4, the learning materials is easy to navigate and have a well-organized of elements got the same lowest weighted mean score of 3.77 also interpreted as Highly Effective. The overall weighted mean for this category was 3.88, interpreted as Highly Effective.

According to Alberto (2020), the use of Graphic Interchange Format in the creation of educational materials facilitates and eases the teaching process for students by illustrating the extent to which GIF animations, which are a byproduct of the integration of technology into education, appeal to students on a visual and educational level as well as how these animations can be used to enhance the visual and educational aspects of education. The researcher focused on the well-organized components and use of teaching aids that would match the needs of the learners based on the ways in using teaching and learning resources in the teaching and learning process. It also bears a striking resemblance to the

localization of educational resources, in which instructors adapt the lesson's content to fit a specific context.

In relation to the current study, GIFs are used in lesson exemplars particularly in Physical Education that will show how a particular movements and basic skills will be performed. Those animated images familiar to the students' drive to learn as they are more interested in technology-based materials rather than the traditional ones which merely focuses on lecture or demonstration style.

Table 2 on enhanced students' performance after using GIF-ELM, indicator 4, on Appreciate the GIF in teaching and learning process got a highest weighted mean of 3.94. Indicator 3 & 4, on Integrate GIF in teaching and learning process not just to inform but to transform; Present with multitude of avenues for learning got the lowest weighted mean of 3.86. Moreover, all the indicators such as Enhanced learning by using GIF; Improve their learning experience through the use of GIF got the same weighted mean of 3.91, all of which falls under the interpretation of Highly Effective. The overall average weighted mean for the Enhanced students' performance was 3.90 interpreted as Highly Effective.

Table 2 Enhanced Students Performance after using GIF-ELM

Indicators	Mean	Interpretation
1. Enhance learning by using Graphic Interchanged Format	3.91	Highly Effective
2. Improve their learning experience through the use of GIF.	3.91	Highly Effective
3. Integrate GIF in teaching and learning process not just to inform but to transform.	3.86	Highly Effective
4. Present with multitude of avenues for learning.	3.86	Highly Effective
5. Appreciate the GIF in learning process.	3.94	Highly Effective
Overall Mean	3.90	Highly Effective

Legend: 4.50 - 5.00 Very Highly Effective (VHE), 3.50 - 4.49 Highly Effective (HE), 2.50 - 3.49 Moderately Effective (ME) 1.50 - 2.49 Fairly Effective (FE) 1.00 - 1.49 Poorly Effective (PE)

Salleh (2021) asserts that animated images convey more information than static images and help viewers visualize it more clearly, particularly when it is divided into distinct micro steps. Animated GIFs might be compared to extremely brief videos. The abbreviation for Graphic Interchange Format is GIF. Strictly speaking, it's a series of condensed computer graphics that are

presented one after the other to mimic movement. The majority of GIFs are merely a few seconds long and only has a few frames. When selected thoughtfully, they convey just one message to the student.

Table 3 Difference on the pre-test and post-test after using GIF-ELM

	t-value	P-value	Decision
Pre-test Post-test	-50.771	.0000	There is significant difference between the mean scores of pre-test and post-test.

The table 3 explains the difference on the pre-test after using GIF-ELM revealed that with t-value of -50.771 and a level of significance of 0.0000, it can be gleaned from the table that there is a significant difference on the performance of the students in Physical Education using GIF-ELM.

By utilizing a variety of ICT technologies, PE teachers may work more efficiently and improve student learning. In addition to computerized tools like pedometers and heart rate monitors that track students' exercise habits, hardware and software for video analysis of student performance, and the use of the internet to engage students in PE and sport-related activities ranging from simple information searches to inquiry-based tasks, teachers can use GIF-ELM as an educational software to teach sport skills.

The table 4 explains on the test on the significant relationship of Effectiveness of the GIF-ELM and the performance of the students revealed that Since P-value of 0.0000 is less than the level of significance of 0.05 with 18 degree of freedom.

Providing instruction that is current, pertinent, and multimodal is made easier with the use of ICT integration. Additionally, digital solutions give pupils an even playing field. All students, regardless of needs, benefit from the opportunities to personalize and modify every learning scenario, making for a better and more differentiated educational experience. By doing this, we make sure that every young person gains the skills and information necessary to participate fully in the knowledge society and advance its advancement.

**Table 4 Test on the significant relationship of Level of effectiveness of the GIF-ELM in teaching Physical Education on the enhanced students' performance.**

	P-value	df	Level of significant	Decision
Level of effectiveness of the GIF-ELM in teaching Physical Education	0.0000	18	0.05	There is no significant difference between the mean scores of pre-test and post-test.
Enhanced students' performance				

CONCLUSION

Based on the result of the study, the overall weighted mean of "GIF-ELM in terms of Accuracy" is 3.84 which falls under "Highly Effective". With these results, it clearly reveals that the effectiveness of accuracy is highly effective that would support the student's performance. With this result, GIF-ELM is use as a learning tool of information and communication technologies effectively and accurately that can be achieved through the integration of these technologies into classroom environments.

The GIF-ELM in terms of Significance got the weighted mean of 3.92 which implies as "Highly Effective" by the teacher-respondents. This only proved that GIF-ELM has a significance effect in the teaching learning process and can effectively engage students in optimistic, innovative and technology-based in classroom situation.

The overall weighted mean of GIF-ELM in terms of Presentation" is 3.88 which can be interpreted as Highly Effective. This revealed that GIF-ELM presentation was practiced by the teacher-respondents. Hence, they are adapting technology-based on their teaching and learning process. The items taught in the lesson are usually chosen by the teacher rather than the learners because of the combination of text, sound, graphics, video or animation are being used in teaching physical education is becoming a common aspect of instructional practice in learning.

Diversity refers to the diversification and multiple dimensions in information transmission of technology that will enhance the performance of the Grade 8 students, the results revealed that it is Highly Effective based on its overall weighted mean the ratings of 3.90. With this result the utilization of learning materials that will stimulate students' concentration and awareness of the learning contents. The same viewpoint was stated in stressing that the presence of suitable learning material is a necessity for a smooth process of sharing information between the teacher and learners.

Meanwhile, based on the result the mean value, the test mean of pre-test have no significant difference on the test mean in the post-test after using GIF-ELM.

When tested for significant difference, the post-test mean scores of the two groups of students is statistically and highly significant, in favor of those students exposed to GIF-ELM. Hence, this intervention was effective. Therefore, there is a significant effect on the performance of the students in Physical Education using Graphic Interchanged Format-Enhanced Learning Materials.

Furthermore, based on the result the P-value of 0.0000 of the level of effectiveness of the GIF-ELM in teaching Physical Education has no significant relationship on the enhanced students' performance. The alternative hypothesis which state that there is a significant relationship on the enhanced students' performance is accepted therefore, there should be more coherent utilization of teaching aids and integration of relevant instructional materials.

REFERENCES

1. Argundo, A. (2019). *Information and communication technology and web mining techniques. Paper presented at Education Trust Fund Capacity Building Workshop for Knowledge-driven Growth for Universities Metro Manila-central zone held at University of the Philippines.*
2. Alberto, M. (2020). *ICT and multimedia in the primary school. In 16th conference on educational uses of information and communication technologies, Manila, Philippines.*
3. Chaamwe, N. (2020). *Integrating ICTs in the teaching and learning Physical Education: An overview. Education Technology and Physical Education (ETPE), 2020 Second International Workshop (IEEE), 1(1), 397400.*
4. Ghavifekr, S., Afshari, M.,(2022). *Management strategies for E-Learning system as the core component of systemic change: A qualitative analysis. Life Science Journal, 9(3), 2190-2196.*
5. Ghavifekr, S., & Sufean, H. (2020). *Management as visionary planning for dealing with systemic change: A case of Malaysian Open Distance Learning Institution.*
6. Hamidi, F., Meshkat, M., Rezaee, M., & Jafari, M. (2021). *Information technology in education. GIF: Procedia Computer Science, 3, 369-373.*
7. Hashim, Y. (2020). *Value literacy as conduit for managing change in higher education institutions through the use of GIF. The whirlwind in educational management and policy. Kuala Lumpur: UM Publication.*
8. *International Journal of Sustainable Development, 1(4), 79-85. (2021). Managing Systemic Change in a Technology-based Education System through GIF: A Malaysian Case Study. Procedia - Social and Behavioral Sciences, 28, 455-464.*
9. IEEE. Isleem, M. B. (2019). *Relationships of selected factors and the level of computer use for instructional purposes by technology education teachers in Ohio public schools: A statewide survey. Unpublished PhD thesis, The Ohio State University.*
10. Manlapaz, J. S. (2020). *Foreword. In Information and Communication Technology in Education: A curriculum for schools and programme for teacher development. University of the Philippines.*
11. Salleh, C. (2021). *Integrating technology for meaningful learning (5th ed.). Boston, MA: Houghton Mifflin.*
12. Solon, P. (2017). *Teaching vocabulary using multimedia: the case of U.S. international students. Global Journal of Foreign Language Teaching. 8(2), 68-75.*
13. Tachibana, J. (2021). *Knowledge management technology in education: An overview. Educ-Techno, 9, 28-33.*