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Contextualized Learning Materials Based on Tomlinson's Model to the Learner's Interest and Higher Order Thinking Skills

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Abstract*—This study focuses on ascertaining the effect of Contextualized Learning Materials based on the Tomlinson Model to the Learners' Interest and Higher Order Thinking Skills. To answer the study's objectives, the following hypothesis was tested: There is no significant difference in the learners' interest as a group according to different learning styles. There is no significant difference in the learners' higher-order thinking skills as a group according to different learning styles. The quantitative research approach, particularly descriptive-experimental methods, was used in this study. The respondents were sixty students purposively selected from Grade 7 students of Prudencia D. Fule Memorial National High School enrolled in School Year 2024-205. A range of instruments was used to assess the effect of Contextualized Learning Materials based on the Tomlinson Model on the learners' skills and interests. To analyze the participant responses, statistical analysis will be conducted using mean and standard deviation. In addition, an Analysis of Variance (ANOVA) was conducted to determine significant differences across different learning styles. The result of the study is that the level of contextualized learning materials based on the Tomlinson model across different learning styles was all verbally interpreted to a very great extent. In terms of learners' interest in terms of motivation, engagement, and satisfaction, and readiness as a group to different learning styles was interpreted as very high. Furthermore, the learners exhibit a satisfactory performance in terms of creating. In evaluating, the visual and verbal were interpreted as Fair, satisfactory for Auditory. Lastly, in terms of analysis, the different learning styles are interpreted as very satisfactory. The research study found that there is no significant difference between the level of learners' interest across different learning styles. In the level of higher-order thinking skills, on the other hand, it is also not significant in terms of analyzing and creating, but significant in terms of evaluating. The recommendation suggests that materials should be constantly refined by educators and formulated into classroom activities that promote critical thinking and problem-solving skills. Educators could develop new methods by introducing more interactive activities, advanced games, experiments, simulations, and project-based learning. The effectiveness of the individualized learning strategies added evidence for teachers to apply varied types of visual, auditory, verbal, and kinesthetic techniques that will respond to any learning need. Finally, future researchers could investigate other aspects influencing students' interest and engagement, such as teaching approaches, classroom climates, and incorporating technology into learning.*

I. INTRODUCTION

Education systems worldwide are shifting towards pedagogical approaches catering to learners' creative learning, engagement, and rational thinking. In line with this, shifting to the more advanced technique involves incorporating contextualized learning materials during the teaching process. The learning materials that are achievable inside the four corners of the classroom are used to ascertain and connect every discussion with real-life applications relevant to the learner's interest. Creating an effective connection pedagogy between what learners learn and their personal experiences aims to enhance the cognitive domain, or knowledge acquisition, and the development of critical thinking abilities (HOTS), including creativity, analysis, and assessment.

The focus on contextualized learning materials aligns with the constructivist theory, where the learners do not passively acquire knowledge through direct instructions. Instead, they construct their learning through experiences, interests, and social interactions that integrate with their prior knowledge to create more engaging and advanced knowledge. Research has shown that students or learners are when learning resources respond to their' areas of expertise and interest, students become more observant and involved. As suggested by Deci and Ryan (2020), contextualization can lead to the improvement of different students' domains, such as cognitive, affective, and psychomotor, which is crucial for developing and fostering the learners' higher-order thinking. In addition, the students are likely focused on deeper inquiry, problem-solving, and critical reflection in the approach for the best-trusted source of knowledge, as people are continuous learners and doers.

The contextualized learning material is based on the Tomlinson Model by Carol Tomlinson. Differentiated learning materials, based on the learner's profile, interests, and readiness, allow the facilitator to tailor the content, process, and output to significantly cater to and fill the gaps of the learners. The consideration of student readiness to achieve improved learning outcomes, learning profiles, and interests is all possible when making these modifications. Furthermore, the significance of maximizing the contextualized learning materials based on the Tomlinson Model, fostering the learner's interest, and enhancing the process of their higher-order thinking skills in science subjects with a particular focus on aligning their materials to the learner's profile, such as verbal, visual, and auditory to optimize the engagement, attention, and cognitive growth.

1.1 Statement of the Problem

Problem/s which were addressed by the research

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This study aimed to determine the learners' interest and higher-order thinking skills as seventh-grade learners exposed to contextualized learning materials based on the Tomlinson Model.

This study sought to answer the following questions:

1. What is the level of assessment in contextualized learning materials based on the Tomlinson model used by visual learners in terms of:
   1.1 Visual Element;
   1.2 Accessibility of the materials; and
   1.3 Graphic Quality?
2. What is the level of assessment in contextualized learning materials based on the Tomlinson model used by the auditory learners in terms of:
   2.1 Sounds Quality;
   2.2 Clarity; and
   2.3 Pacing and Timing?
3. What is the level of assessment in contextualized learning materials based on the Tomlinson model used by verbal learners in terms of:
   3.1 Comprehensibility;
   3.2 Word Familiarity; and
   3.3 Voice and Video Quality?
4. What is the level of learners' interest in using contextualized learning materials as a group according to different learning styles in terms of:
   4.1 Learner's Motivation;
   4.2 Enjoyment and Satisfaction; and
   4.3 Learner's Readiness?
5. What is the level of assessment of learners' higher-order thinking skills as a group according to different learning styles in terms of:
   5.1 Creating;
   5.2 Evaluating; and
   5.3 Analyzing?
6. Is there a significant difference in the learners' interest as a group according to different learning styles?
7. Is there a significant difference in learners' higher-order thinking skills as a group according to different learning styles?

II. Methodology

This study used a quantitative research design, specifically descriptive-experimental methods. The respondents were sixty students purposively selected from Grade 7 students of Prudencia D. Fule Memorial National High School enrolled in School Year 2024-205. A range of instruments was used to assess the effect of Contextualized Learning Materials based on the Tomlinson Model on the learners' skills and interests. To analyze the participant responses, statistical analysis will be conducted using mean and standard deviation. In addition, an Analysis of Variance (ANOVA) was conducted to determine significant differences across different learning styles.

III. Results and Discussion

This section discusses the data collected in this study and presents the various findings. All specific questions in Chapter 1 under the statement of the problem were answered in this chapter, supported by tables. It presents the data gathered about the significant difference between learners' higher-order thinking Skills (HOTS) and learners' Interest in the Grade 7 students in the Motion Topic.

Level of Contextualized Learning Materials Based on the Tomlinson Model used by visual learners

In this study, the level of Contextualized Learning Materials Based on the Tomlinson Model used by visual learners refers to Engagement, Visual Elements, Accessibility of the materials**,** and Graphic Quality. The following tables show the statement, mean, and standard deviation. Remarks and verbal interpretation from the perspectives of respondents.

TABLE 1 Level of Contextualized Learning Materials Based on the Tomlinson Model used by visual learners in terms of Visual Element

The contextualized learning material…	Mean	SD	Remarks
Has symbols and a color scheme that make the instructional materials more appealing and enjoyable to use.	4.40	0.60	Strongly Agree
Visual elements such as text, symbols, and shapes are easy to understand.	4.40	0.68	Strongly Agree
The arrangement, such as symbols and charts, is well-organized.	4.15	0.67	Agree
The visual elements, such as the use of text and characters, are consistent and aligned with the objectives of the topic	4.40	0.60	Strongly Agree
Has a visual element that is appropriate to my age.	4.45	0.76	Strongly Agree
Weighted Mean	**4.36**		
SD	**0.66**		
Verbal Interpretation	**Very Great Extent**		

Table 1 shows the result of contextualized learning materials used by visual learners in terms of visual elements. With a weighted mean average of 4.36 and a standard deviation of 0.66, the study's results suggest that the material was visually appealing and well-received. The most rated feature was the suitability of images of the learners' age group, with a mean of 4.45 (SD = 0.76), with a very good written interpretation. The learners considered the images appropriate and related to their age group. In contrast, the lowest rated feature was the symbols and charts organization, which got a mean of 4.15 (SD = 0.67) but still had a strongly agree rating. It is possible due to the complexity or variety of elements in the visual layout that affects the comprehension of learners. Generally, the results show that the contextualized learning materials successfully apply visual aids to increase engagement and understanding of learners.

The effectiveness of using appropriate images based on age group was supported by the suggestion by Guarnera (2019), that it has a crucial function in enhancing visual perception and memory performance processes. It involves the ability to manipulate mental images to accomplish a specific learning task.

Table no 2 shown above is the data result of contextualized materials based on Tomlinson used by visual learners in terms of accessibility. It has a weighted mean of 4.36 and a standard deviation of 0.72; general perception towards accessibility was

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rated remarkably to a very great extent. The highest mean is indicator 5, which the learners learn effectively using the contextualized materials with a mean of 4.60 (SD = 0.50) interpreted as Strongly Agree. The lowest mean is Indicator 2, ease of use on a cellphone, with a mean rating of 4.15 (SD = 0.81) and still with an Agree verbal interpretation. This result likely suggests that there is an issue of device compatibility due to screen size. When used in cellphones, especially with smaller screens, text can be difficult to see and read, images may not display correctly, or buttons may be less responsive. Despite the limitations in terms of accessibility of learning materials, the results identify that the contextualized learning materials based on the Tomlinson Model are suitably designed to facilitate, easy to navigate, and usable.

TABLE 2. Level of Contextualized Learning Materials Based on the Tomlinson Model used by visual learners in terms of Accessibility of the materials

The contextualized learning material…	Mean	SD	Remarks
Can be easily navigated	4.40	0.60	Strongly Agree
Is easy to use on a cell phone	4.15	0.81	Agree
Is simple, concise, and straightforward in choice of words.	4.40	0.82	Strongly Agree
Can be navigated both online and offline	4.25	0.79	Strongly Agree
Helps me to learn effectively.	4.60	0.50	Strongly Agree
Weighted Mean	**4.36**		
SD	**0.72**		
Verbal Interpretation	**Very Great Extent**		

The significance of accessibility of materials is upheld by the study of Owoko (2015), the term resources refer not only to teaching methods or strategies by the facilitators but also to the time available for instruction, the knowledge, and skills through experience that give importance in designing mobile-responsive educational content to ensure the accessibility of contents. Teaching learners with accessibility of materials helps them to familiarize themselves with and deepen their understanding and learning of the subject matter across multiple devices.

TABLE 3. Level of Contextualized Learning Materials Based on the Tomlinson Model used by visual learners in terms of Graphic Quality

The contextualized learning material…	Mean	SD	Remarks
It is clear and of good quality.	4.30	0.57	Strongly Agree
The relevance of the graphics supports the learning objectives.	4.25	0.55	Strongly Agree
The image and text have enough space between lines to make them readable.	4.40	0.60	Strongly Agree
Clearly explain the examples and description of the topic.	4.50	0.51	Strongly Agree
Helps understand problem-solving or the application part.	4.65	0.49	Strongly Agree
Weighted Mean	**4.42**		
SD	**0.55**		
Verbal Interpretation	**Very Great Extent**		

The level of contextualized learning materials based on the Tomlinson Model used by visual learners in terms of Graphic quality is shown in Table 3. The result shows that indicator 5 got the highest mean of 4.65 with a standard deviation of 0.49, with a remark of strongly agree. This indicates that the subject matter is especially useful in guiding the students in navigating through real applications of the topic. Conversely, the lowest rated was the graphic relevance to the learning objectives, which scored 4.25 (SD = 0.55), but still a strongly agree rating. There is a possibility of a gap between the visuals used and the direct alignment with the specific learning goals. Some images or visual components were seen as decorative rather than as a learning instructional tool in such as it may have looked appealing, but did not reinforce or give objectivity to the topic. Although the lowest, this data rating reflects that the graphics were still relevant and valuable.

Level of Contextualized Learning Materials Based on the Tomlinson Model used by auditory learners

In this study, the level of Contextualized Learning Materials Based on the Tomlinson Model used by auditory learners refers to sound quality, Clarity, and Pacing and Timing. The statement, mean, standard deviation, remarks, and verbal interpretation from the respondents' perspectives are shown in the tables below.

TABLE 4. Level of Contextualized Learning Materials Based on the Tomlinson Model used by the auditory learners in terms of Sound Quality

The sound of the contextualized learning material…	Mean	SD	Remarks
Is clear to understand, including its pronunciation of words.	4.55	0.69	Strongly Agree
Is consistent throughout the learning material, without a sudden pause.	4.80	0.52	Strongly Agree
Is relevant to the topic being discussed.	4.65	0.67	Strongly Agree
Is free of distracting background noise.	4.70	0.47	Strongly Agree
Helps me to engage in learning and finish the recorded lesson.	4.40	0.75	Strongly Agree
Weighted Mean	**4.62**		
SD	**0.63**		
Verbal Interpretation	**Very Great Extent**		

The assessment of contextualized learning material based on the Tomlinson Model for auditory learners is shown in Table 4. The results indicate that the materials were effective at facilitating student learning. With a weighted mean of 4.62 and a standard deviation of 0.63, the overall impression of the material is, to a very great extent. Indicator 2 has the highest mean of 4.80 (SD = 0.52), indicating that the learning material is consistent throughout the learning session without a sudden pause, and it has a verbal interpretation of strongly agree. On the other hand, indicator 5 got the lowest mean of 4.40 with a standard deviation of 0.75, very good, potentially due to individual differences in terms of attention span or distractions listening environment since it is conducted inside the classroom and lack in interactivity. Moreover, the data reflect that the sound quality is relevant and helpful, emphasizing that the contextualized learning materials are afforded clear, relevant, and distraction-free audio.

As stated by Hanczakowski et al. (2018), the time frame of the research procedure was linked to auditory disturbances in the environment. The participants' strategic choices were judged by the amount they spent on various research items. At

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the same time, it was anticipated that the people who participated would devote further time to research when they heard a decent quality of sound.

TABLE 5. Level of Contextualized Learning Materials Based on the Tomlinson Model used by the auditory learners in terms of Clarity

The contextualized learning material…	Mean	SD	Remarks
Is simple and easy to understand.	4.85	0.37	Strongly Agree
Is concise and makes the complex topic easier.	4.80	0.41	Strongly Agree
Emphasizes the concepts and important details of the topic.	4.50	0.69	Strongly Agree
The explanation is clear throughout the audio.	4.50	0.69	Strongly Agree
is effective, and it avoids confusion for the learners.	4.50	0.69	Strongly Agree
Weighted Mean	**4.63**		
SD	**0.60**		
Verbal Interpretation	**Very Great Extent**		

The clarity of the contextualized learning materials, as outlined in the Tomlinson Model for auditory learners, was evaluated in Table 5. The average mean is 4.63 and the standard deviation of 0.60, with a verbal interpretation of very great extent among respondents. The highest rated characteristics were simplicity and ease of understanding of the material, with a mean of 4.85 (SD= 0.37) and a strongly agree verbal interpretation. This shows that students highly appreciate the good access and comprehensibility of the materials. In addition, indicators 3, 4, and 5 have the same mean and standard deviation of 4.50 and 0.69, and lower indicators, respectively. However, it is still strongly agreed. This score indicates a minor inconsistency in how the researcher recorded content being delivered. These inconsistencies might include the tone of voice, volume, or pacing that affect the flow and continuity of the auditory learners' experience. The findings on the contextualized learning materials offered simple, concise, and well-structured explanations that grasped complex topics in the subject matter.

Having a clear strategy is correlated with achievement and encourages students to engage in learning activities. In an environment where they perceive a high degree of clarity in terms of teaching strategies and learning content tend to perform better in several aspects, including cultivating leadership skills, open-mindedness to diversity and challenges, insight into moral reasoning, and a positive disposition towards literacy [11] (Blaich et al., 2016).

Table 6 shows the pacing and timing assessment of the contextualized learning materials based on the Tomlinson Model for auditory learners. The results suggest that the materials maintain a very appropriate pace and duration for learning, with a weighted mean of 4.79 and a standard deviation of 0.41, implying a very great extent. The three highest-rated aspects, which received a mean score of 4.85 (SD = 0.37), were the presence of pauses in the audio for key terms, enough time to meet learning objectives, and the capacity of the materials to enhance understanding and retention, with a verbal interpretation of strongly agree. These findings suggest that the students perceived the whole learning pace as well-structured and helpful to the learning process. The lowest aspect was the capability to change and control speed playback, which received 4.65 (SD = 0.49), still rated strongly agree. This shows that this feature is helpful but slightly less successful than the other pacing and timing components. The findings show that contextualized learning materials are paced, timed well, and structured for better comprehension; hence, they are best for auditory learners.

TABLE 6. Level of Contextualized Learning Materials Based on the Tomlinson Model used by auditory learners in terms of Pacing and Timing

The contextualized learning material…	Mean	SD	Remarks
There is a sudden pause in the audio to remember the words or key terms being discussed. (Reread the words, pause the audio to complete the task).	4.85	0.37	Strongly Agree
The time duration is enough (not too long and not too short) to discuss and meet the objectives.	4.85	0.37	Strongly Agree
Helps me improve my understanding and retention of the content.	4.85	0.37	Strongly Agree
It is easy to identify. I can change and control the playback speed.	4.65	0.49	Strongly Agree
It is free from technical issues.	4.75	0.44	Strongly Agree
Weighted Mean	**4.79**		
SD	**0.41**		
Verbal Interpretation	**Very Great Extent**		

Cayetor et al. (2022) present substantial evidence supporting the use of localized lecture videos as practical instructional tools. Their study shows that these videos are suitable, widely accepted, and well-regarded by teachers and students regarding content quality, design, and accessibility. Similarly, research by Lapada & Lapada (2017) emphasizes the advantages of pacing and timing on audio instruction in enhancing student performance. Both studies reinforce the positive impact of incorporating modern visual aids into the curriculum to improve learning outcomes. The results demonstrate that the use of pacing and synchronization in any audio-visual or multimedia educational material helps the student to maintain their attention and has a favorable impact not only on their physical health but also on their emotional well-being.

Level of Contextualized Learning Materials Based on the Tomlinson Model used by verbal learners

In this study, the level of Contextualized Learning Materials Based on the Tomlinson Model used by verbal learners refers to Comprehensibility, Word Familiarity, Voice, and Video Quality**.**

The following tables show the statement, mean, and standard deviation. remarks and verbal interpretation from the perspectives of respondents.

The evaluation of the comprehensibility in contextualized learning materials based on the Tomlinson Model for verbal learners is reflected in Table 7. The review shows that the materials are very effective in presenting clear and well-structured written text, with a weighted mean of 4.59 and a standard deviation of 0.70; thus, their clarity is mostly perceived to a very great extent The most highly rated aspect was not having repetitive words, scoring a mean of 4.85 (SD = 0.49), and receiving a strongly agree verbal interpretation. It

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suggests that students found the text well-phrased and engaging, with no repeated terms that may block the learning process. The least rated aspect was the text style's ability to keep interest and attention, scoring 4.30 (SD = 0.98) but still gaining an interpretation of strongly agree. This data reflects that text still effectively achieves its role and may need improvement in formatting or visual design to keep learners engaged. Findings indicate that contextualized learning materials provide explicit and logically structured readable casts, which means they will be invaluable to verbal learners in attaining comprehension and recall.

TABLE 7. Level of Contextualized Learning Materials Based on the Tomlinson Model used by verbal learners in terms of Comprehensibility

The contextualized learning material…	Mean	SD	Remarks
is readable and easy to memorize.	4.60	0.68	Strongly Agree
is appropriate to my level of understanding.	4.50	0.61	Strongly Agree
is in logical order all throughout the materials.	4.70	0.57	Strongly Agree
text style keeps me interested and maintains my attention to the presentation.	4.30	0.98	Strongly Agree
Choice of words is not too repetitive.	4.85	0.49	Strongly Agree
Weighted Mean	**4.59**		
SD	**0.70**		
Verbal Interpretation	**Very Great Extent**		

According to Graesser (2015), it involves constructing meaning, drawing inferences, and interpreting the author's intentions and purpose through written language. In academic settings, the clarity of written text plays a crucial role in enhancing students' comprehension and analytical skills. Well-structured and written materials help learners process information effectively, make logical connections, and fully grasp key concepts, leading to improved academic performance. When texts are logically organized, readable, and engaging, students can better retain information, develop critical thinking skills, and apply their knowledge more effectively.

TABLE 8. Level of Contextualized Learning Materials Based on the Tomlinson Model used by verbal learners in terms of Word Familiarity

The contextualized learning material…	Mean	SD	Remarks
Gives an impact on my learning experience about Motion.	4.60	0.75	Strongly Agree
Clearly explained during the discussion.	4.65	0.59	Strongly Agree
easily remembered the vocabulary words and other terminologies after I used the materials.	4.50	0.61	Strongly Agree
Is appropriate to my level of understanding.	4.65	0.67	Strongly Agree
Easily applied the vocabulary words in any situation about the topic.	4.80	0.52	Strongly Agree
Weighted Mean	**4.64**		
SD	**0.63**		
Verbal Interpretation	**Very Great Extent**		

Table 8 gauges the effectiveness of word familiarity in contextualized learning materials based on the Tomlinson Model for verbal learners. The materials greatly help in the retention and comprehension of vocabulary, with a mean of 4.64 and a standard deviation of 0.63, meaning it was very great extent supportive. Ease in applying vocabulary words in various related situations upon the topic was rated the highest, recorded with a mean of 4.80 (SD = 0.52) in strongly agree verbal interpretation. This indicates that students found the vocabulary practical and adaptable to real life. The lowest-rated combination was remembering vocabulary words and other terminologies with relative ease after using the materials, given a score of 4.50 (SD = 0.61) and ranked as strongly agree. While this is commendably high, some students would still need a bit more reinforcement for retention in the long term. Some learners may have also found that some texts used in the learning materials are inconsistent and less engaging. The findings demonstrate that the contextualized learning materials provided clear, well-structured, and meaningful vocabulary instruction, thus enabling these verbal learners to understand, retain, and apply new terms effectively in their academic learning.

Alqahtani (2015) asserted that an understanding of vocabulary is frequently regarded as an essential asset for individuals learning a second language, as a restricted vocabulary can hinder effective communication. He asserted that acquiring a language without the use of words is an impossibility, while acknowledging that human communication fundamentally relies on words. It will also add to their learning process to use the word not only in an academic based but also in some personal experiences. Moreover, according to Viera (2017, p. 90), "Vocabulary knowledge is considered a vital instrument for learning any language ability, and it also aids in the comprehension of written and spoken materials. As a result, the more often learners encounter new terms, the better able they are to deduce the meaning of words they don't know from context." He continued his statement with, "Words are one of the fundamental components in the mental processes to acquire languages, which are learned in both ways: incidental and intentional."

TABLE 9. Level of Contextualized Learning Materials Based on the Tomlinson Model used by verbal learners in terms of Voice and Video Quality

The contextualized learning material…	Mean	SD	Remarks
Is clear and easy to understand.	4.50	0.69	Strongly Agree
Explain the concept based on our level of understanding.	4.50	0.76	Strongly Agree
Has a clear voice and video of the speaker.	4.85	0.37	Strongly Agree
Has the quality of the video added to my participation	4.40	0.94	Strongly Agree
Encourage me to listen to and watch the text of the presentation.	4.40	1.10	Strongly Agree
Weighted Mean	**4.53**		
SD	**0.81**		
Verbal Interpretation	**Very Great Extent**		

Table 9 exhibits evaluation processes regarding the quality of voice and video of contextualized learning materials using the Tomlinson Model for verbal learners. The results show that they were effective for comprehension and engagement, having a weighted mean of 4.53 and a standard deviation of

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0.81, indicating that the quality was significantly viewed as very great extent. The most rated aspect was the speaker's clarity of voice and video, getting a mean score of 4.85 (SD = 0.37) with strongly agree verbal interpretation. This implies that the students found the audio-visual components well-produced, which made the learning experience more effective and engaging. The least rated aspects were the video quality that promotes participation and qualities that encourage listening and watching a presentation, with scores of 4.40 but with higher standard deviations (SD = 0.94 and 1.10, respectively). Though these aspects are rated as strongly agree. The lower scores could mean that the video elements have been perceived as less engaging for these students or that improvements in presentation style could further facilitate participation. In general, the results are indicative of how clear sound alongside high-quality visuals greatly aids students in their comprehension and participation, therefore motivating them to learn.

According to study, students have a greater opinion of the learning experience when they watch digital instructional videos (Bharani et al., 2017; Bond et al., 2018; Nadeak & Naibaho, 2020). The effective contextualized learning materials, especially concerning voice and video quality for verbal learners. Instructional videos that are clear, organized, and of high quality improve comprehension and engagement with and retention of information on the part of students. While good audio quality ensures that explanations can be readily comprehended, attractive visuals ensure participation and interest. The clarity of voice and video in contextualized materials is thus a central tenet to better and easier learning for verbal learners, respectively educational and social contexts. Generally, learners enjoy and are satisfied when using contextualized learning materials. These findings further point to contextualized materials' effectiveness in engaging learning, creating curiosity, and boosting students' confidence to express their thoughts.

Level of Learners' Interest in Using the Contextualized Learning Materials

In this study, the level of Learners' Interest in using the Contextualized Learning Materials refers to learners' motivation, Enjoyment, and Satisfaction**,** and learners' Readiness.

The following tables show the statement, mean, and standard deviation. remarks and verbal interpretation from the perspectives of respondents.

The findings on the given table above (Table 10) indicate that learners, regardless of their preferred styles- visual, auditory, or verbal exhibited a very high level of interest and motivation when using contextualized learning materials. The weighted mean and standard deviation of visual, auditory, and verbal are 4.55 (0.59), 4.37(0.69), and 4. 71(0.50), respectively, recommend that learners persistently found these materials engaging, effective in maintain the attention, and valuable in helping them to be more participative n achieving the learning goal. The result also highlights the positive impact of contextualized materials to have an interactive and meaningful learning experience. Furthermore, the results underscore the importance of catering to different learning styles to maximize student engagement.

Republic Act 10533 emphasizes that the curriculum should be learner-centered, inclusive, developmentally appropriate, relevant, and responsive, but still contextualized and globally competitive. However, schools will have enough flexibility to localize, indigenize, and enhance it based on their respective educational and social contexts. Given this principle, contextualized learning materials have contributed to strengthening student motivation since, when designed, they reflect the real-life experiences of the learners. Relevant local examples and applications create a certain appeal in the minds of these students, leading them to become more engaged in and passionate about lessons. With such engagement, students will appreciate how much learning connects to life, propelling them to take the initiative to cooperate, investigate, and master the subject in question for retention and academic success (Ligsanan, 2017).

Table 11 demonstrates the learners across learning styles such as visual, auditory, and verbal- the verbal interpretation in each learning style is "very high" in terms of learning interest in enjoyment, and satisfaction among learners. This suggests that contextualized learning materials consistently adhere to the learner's needs and interests, making the learning process more relevant, interactive, conducive, and meaningful.

TABLE 10. Level of learners' Interest in terms of Motivation as a group according to different Learning Styles

	Visual			Auditory			Verbal		
The contextualized learning materials…	**M**	**SD**	**R**	**M**	**SD**	**R**	**M**	**SD**	**R**
engage myself in the discussion during and after using the contextualized learning materials	4.60	0.60	SA	4.35	0.81	SA	4.55	0.69	SA
Focused on learning and mastery of the topic being discussed.	4.65	0.49	SA	4.50	0.51	SA	4.75	0.44	SA
I never got bored with the topic being discussed.	4.40	0.68	SA	4.25	0.79	SA	4.70	0.47	SA
It is valuable and highly effective in maintaining attention to the topic.	4.60	0.68	SA	4.35	0.67	SA	4.80	0.41	SA
I find it engaging to achieve my goal of learning the topic.	4.50	0.51	SA	4.40	0.68	SA	4.75	0.44	SA
Weighted Mean	**4.55**			**4.37**			**4.71**		
SD	**0.59**			**0.69**			**0.50**		
Verbal Interpretation	**VH**			**VH**			**VH**		

For visual learners, the learning materials were found to be appropriate to their learning preferences, helping them to absorb the complex ideas and gradually break them down into simpler concepts. Auditory learners, on the other hand, appreciated how these materials encouraged interaction, discussion, and exploration of ideas. The slight variability in the respondents' responses suggests that some areas on the topic may have required additional auditory-based

reinforcement. Lastly, the verbal learners responded positively to the materials, indicating they are more confident in sharing ideas and actively fascinated and collaborating with others in the learning process. It also shows how these learning materials cater to and support diverse learning styles and promote deeper understanding of scientific concepts.

The result is supported by Gray and DiLoreto (2016), familiarity with a lesson builds academic integrity, which encourages such behaviors as students completing assigned tasks, taking examinations, and engaging in activities fairly, consumed less by the urge to find alternatives, such as copying or using unauthorized materials. Knowing what one is talking about gives the students the confidence to express themselves fluently, hence being able to ask for clarifications through meaningful discussions. It enhances the positive emotional aspects of learning: the sense of accomplishment and genuine satisfaction about the progress made. Within contextualized learning materials, this added enjoyment and engagement based on students connecting the lessons with their real-life experiences. Such experiences make learning meaningful, interactive, and fulfilling.

TABLE 11. Level of learners' interest in terms of enjoyment and satisfaction as a group according to different learning styles

	Visual			Auditory			Verbal		
The contextualized learning materials…	**M**	**SD**	**R**	**M**	**SD**	**R**	**M**	**SD**	**R**
The materials are appropriate to my needs and personal interests.	4.55	0.60	SA	4.50	0.69	SA	4.60	0.60	SA
I find satisfaction while learning the topic from complex to simpler concepts.	4.70	0.57	SA	4.35	0.81	SA	4.70	0.47	SA
The materials improve my self-confidence to share my thoughts and express myself.	4.40	0.68	SA	4.30	0.73	SA	4.75	0.44	SA
The contextualized learning materials help me to stimulate and improve my curiosity and to explore more about the Motion topic.	4.65	0.49	SA	4.55	0.69	SA	4.50	0.76	SA
The eagerness to interact with my peers and every teaching-learning process.	4.40	0.68	SA	4.30	0.86	SA	4.75	0.44	SA
Weighted Mean	**4.54**			**4.40**			**4.66**		
SD	**0.61**			**0.75**			**0.55**		
Verbal Interpretation	**VH**			**VH**			**VH**		

TABLE 12. Level of learners' interest in terms of readiness as a group according to different learning styles

	Visual			Auditory			Verbal		
The contextualized learning materials…	**M**	**SD**	**R**	**M**	**SD**	**R**	**M**	**SD**	**R**
Helps me to recognize my prior knowledge that can be used to clearly understand the concept being discussed.	4.70	0.47	SA	4.55	0.69	SA	4.80	0.41	SA
Keeps me interested in the topic addressed in the contextualized learning material.	4.75	0.44	SA	4.35	0.75	SA	4.45	0.60	SA
Meets my preferred learning style.	4.40	0.82	SA	4.35	0.67	SA	4.60	0.60	SA
Helps me to become ready in making connections between my learning about the concept to the real-world applications.	4.45	0.60	SA	4.35	0.67	SA	4.80	0.41	SA
Identify my strengths and limitations.	4.45	0.60	SA	4.65	0.49	SA	4.90	0.31	SA
Weighted Mean	**4.55**			**4.45**			**4.71**		
SD	**0.61**			**0.66**			**0.50**		
Verbal Interpretation	**VH**			**VH**			**VH**		

Table 12 shows the result on the level of learners' interest in terms of readiness as a group according to different learning styles. All learning styles express a "very high" on the effectiveness of contextualized learning materials in enhancing their learning experience in the Motion topic. The overall weighted mean of visual is 4.55 (SD= 0.61), 4.45 (SD= 0.66) for auditory, and 4.71 (SD= 0.50) for verbal learners. This amplifies the idea of contextualized learning materials provide a structured, engaging, and relatable technique to learning, making lessons more relevant and inclusive to learners' experience and cognitive learning process.

For visual learners, the materials support their ability to familiarize prior knowledge and help to understand new concepts. It benefits them to connect their learning to real-world applications, making sure that lessons do not just rely on the concepts or theoretical, but also practical. Auditory learners sustain the interest and align with their preferred style, allowing them also to engage in every discussion to enhance comprehension. Meanwhile, verbal learners highly value the use of contextualized learning materials to identify their strengths and limitations for self-assessment and personal growth. It also helps them to easily express their ideas and integrate the lesson.

The level of learners' higher-order thinking Skills as a group according to different learning styles.

In this study, the level of Higher Order Thinking Skills in the Motion topic exposed in Contextualized Learning Materials on the Tomlinson model refers to assessment.

The following tables show the mean, standard deviation, frequency, descriptive equivalent, and verbal interpretation of the respondents' scores.

TABLE 13. Level of learners' higher-order thinking skills as a group according to different learning styles in terms of creating

Type of Learner	Mean	SD	Verbal Interpretation
Visual	11.30	3.20	Satisfactory
Auditory	11.05	3.73	Satisfactory
Verbal	11.90	4.29	Satisfactory

The findings from Table 13 demonstrated that learners from all learning styles in higher-order thinking skills (HOTS) using contextualized learning materials had a "satisfactory" verbal interpretation. The mean scores exhibit that these learning materials effectively foster student engagement and comprehension despite differences within each group. Visual learners, with a mean score of 11.30 (SD=3.20), show improvement using the learning materials but may further

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enhance their understanding with additional features such as illustrations or charts. Auditory learners, scoring 11.05 (SD=3.73), might need opportunities for verbal discussions and add more audio-based learning experiences to reinforce key concepts. Moreover, verbal learners, who had the highest mean of 11.90 (SD=4.29), demonstrated a better performance.

These results imply that contextualized learning materials provide meaningful learning experiences; they should be optimized further to meet the diverse needs of learners. This can ensure that all learners move beyond the satisfactory level toward deeper comprehension, mastery of the subject matter, and creating an output. It also helps the learners to get more involved in any learning activities, especially when they can use their strengths, because the learning materials are aligned with their learning profiles or strategy.

Cubillas (2020) noted that the Contextualized Learning Material (CLM), designed to cater to the needs of learners, was approved by content experts as appropriate and effective in bridging the learning gaps. These materials immensely helped learners develop skills that were challenging during the first grading period. The experts further mentioned that CLMs serve as an essential material to augment their teaching modes since they are simple to implement and, assessment-wise, provide a decent utility for improving instruction. Coupled with that is the fact that it also enhances the creativity skills of the pupils within the Motion topic; such Contextualized Learning Materials have shown considerable improvement in their cognitive realm of externalizing new ideas. By providing the application in a real-world context, these materials help involved learners deeply analyze concepts, design innovative solutions, and creatively demonstrate their understanding of any given context.

TABLE 14. Level of learners' higher-order thinking skills as a group according to different learning styles in terms of evaluating

Type of Learner	Mean	SD	Verbal Interpretation
Visual	7.50	2.96	Fair
Auditory	9.75	3.09	Satisfactory
Verbal	7.90	3.01	Fair

Table 14 shows the data results of the level of learners' higher-order thinking skills as a group according to different learning styles in terms of evaluating. The findings from Table 14 demonstrated varying levels of performance when using contextualized learning materials, which have important implications for the development and enhancement of higher-order thinking skills. Auditory learners, who achieved a "satisfactory" level (M= 9.75, SD= 3.09), may have benefited from discussions, the art of questioning techniques, and interactive communication that stimulated critical thinking and problem solving. In contrast, visual learners (M= 7.50, SD= 2.96) and verbal (M= 7.90, SD= 3.01) with a verbal interpretation of "fair", which means that the materials may not have fully engaged them in activities that promote deeper cognitive learning processing. From this result, designing contextualized materials may incorporate more real-world problem-solving activities and inquiry-based learning, so the facilitator ensures that all learners are actively engaged in the teaching and learning process.

In addition, Ogates et al. (2023), which sought to determine the effects of contextualized learning activity sheets in modular distance learning, supports the finding, indicating a notable increase in pupils' performance in mathematics. Their findings help improve instruction and provide remediation for those students struggling to keep up, facilitating an effective way of monitoring their progress and overall academic improvement. Similar contextualized learning materials on the topic of Motion foster the development of students' higher-order thinking skills and evaluation functions. Adequate analytic and decision-making abilities are developed on the part of students, thus increasing understanding and performance. The study strengthens the idea that contextualized learning materials are preferable in reinforcing academic success in different aspects of study and skill grades.

TABLE 15. Level of learners' higher-order thinking skills as a group according to different learning styles in terms of analyzing

Type of Learner	Mean	SD	Verbal Interpretation
Visual	8.10	1.37	Very Satisfactory
Auditory	8.35	1.53	Very Satisfactory
Verbal	8.45	1.36	Very Satisfactory

The given table above indicates that learners across learning styles- visual, auditory, and verbal interpreted as "Very Satisfactory" of performance in enhancing their analytical skills using contextualized learning materials. The mean scores for visual (M= 8.10, SD= 1.37), auditory (M= 8.35, SD= 1.53), and verbal (M= 8.45, SD= 1.36) suggest that materials effectively foster and engage in deeper concepts about Motion and other ideas related to science, allowing the learners to break down information and examine the relationships within the concepts in learning activities. To further enhance learning during the cognitive process, educators should continue designing appropriate learning experiences that encourage rational examination, comparison, and problem-solving. Differentiated instruction develops strong analytical skills that allow them to navigate complex ideas and apply the knowledge effectively.

Hadisaputra et al. (2020) stressed that contextual learning materials related to real-world experiences could positively impact students' scientific literacy. As a result, traditional science teaching that mainly relies on mere textbooks may not engage students or make learning meaningful. Contextualized learning materials will help the students connect theoretical concepts to real-world applications, thus leading to more relevant and engaging lessons. Such an approach is constructive in enhancing the higher-order thinking skills of the learners in the Motion topic. Contextualized learning helps the students analyze, evaluate, and develop ways of solving real-world motion applications. It stimulates students' critical and creative thinking processes, which enables a deeper understanding of scientific concepts beyond textbook-based learning.

To test the significant difference between the Learners' Interest of Grade 7 students in Motion topics exposed in Contextualized Learning Materials based on the Tomlinson Model, they were treated statistically using Real Statistics Data Analysis Tools using the Test of difference.

TABLE 16. Test of difference in learners' interest as a group according to different learning styles

Learners Interest	Visuals	Auditory	Verbal	F	p-value
Motivation	4.55	4.37	4.71	2.89	0.064
Engagement	4.54	4.40	4.66	1.56	0.218
Readiness	4.55	4.45	4.71	2.01	0.144

Note: *p<.05 significant

Table 16 discussed the difference in learners' interest as a group according to different learning styles. The motivation, engagement, and readiness when using contextualized learning materials demonstrate a high value for interest. The mean scores for motivation (4.55 for visual, 4.37 for auditory, 4.71 for verbal, engagement (4.54 for visuals, 4.40 for auditory, and 4.66 for verbal), and readiness (4.55 for visual, 4.45 for auditory, and 4.71 for verbal) that all groups found the materials effectively stimulated the interest of the learners. However, the p-value of all groups of learning styles indicates "no significant difference" in learners' motivation (F= 2.89, p= 0.064), engagement (F= 1.56, p= 0.218), and readiness (F= 2.01, p= 0.144) as all p-values are greater than 0.05. As no significant differences were discerned in learning styles, it shows that future research can make well-interactive and stimulating contextualized materials that can add to the development of the students' interest, engagement, and willingness to learn. As [17] Chen et al. (2017) described, "motivation theory focuses on students' perceptions of the style of teaching and the development of self-efficacy, which is a crucial component of the Contextualized Teaching and Learning (CTL) Approach. The lesson and materials encourage students to think about their thoughts and experiences. Students are more likely to see the relevance of what they are learning in the real world when they are encouraged to consider the material in the context of their own life experience. This is because the CTL Approach prioritizes thinking about the content in this way. As a result, they become engaged and motivated".

To test the significant difference between the learners' higher-order thinking Skills of Grade 7 students in Motion topics exposed in Contextualized Learning Materials based on the Tomlinson Model, they were treated statistically using Real Statistics Data Analysis Tools using the Test of Difference.

TABLE 17. Test of difference in learners' higher-order thinking skills as a group according to different learning styles

Higher-order thinking skills	Visuals	Auditory	Verbal	F	p-value
Analysis	8.10	8.35	8.45	0.32	0.726
Evaluating	7.50	9.75	7.90	3.16	0.050*
Creating	11.30	11.05	11.90	0.27	0.765

Note: *p<.05 significant

Table 17 shows the performance of higher-order thinking skills (HOTS) across various learning styles—visual, auditory, and verbal—indicates that students performed well in analysis, evaluation, and creation when contextualized learning materials are utilized. Mean scores show that students showed better abilities in creating (M = 11.30 for visual, M = 11.05 for auditory, and M = 11.90 for verbal) than analysis (M = 8.10 for visual, M = 8.35 for auditory, and M = 8.45 for verbal) and evaluation (M = 7.50 for visual, M = 9.75 for auditory, and M = 7.90 for verbal). F-values and p-values indicate that differences in analysis (F = 0.32, p = 0.726) and creation (F = 0.27, p = 0.765) are not significant between the three learning modes. But there is a considerable difference in the skill of evaluation (F = 3.16, p = 0.050), suggesting that auditory learners excelled visual and verbal learners in judgments and evaluation.

"One of the skills that students need to acquire in the modern era is critical thinking and evaluating of ideas or any situation. This is in keeping with the increasingly complex demands made on students worldwide, wherein they must be able to accurately and precisely analyze, evaluate, and draw conclusions about the material in addition to being able to memorize and repeat it. Students need critical thinking abilities to overcome a variety of obstacles in the real world. A crucial component of education that aids in graduates' success is critical thinking". (Damme et al., 2023)

Based on the study of Damme (2023), to further enhance the evaluation abilities of students, specifically in areas needing to be improved, differentiated approaches need to be incorporated carefully into instructional design according to learners' profiles. For visual students, formal graphic organizers like Venn diagrams, flowcharts, and cause-effect maps can be used to help them systematically organize and compare information. Comparative images, such as side-by-side graphs or photo-based case studies, enable learners to see the balance of alternatives, results, or arguments. Further, self-assessment tools such as visual rubrics or reflective rating scales can promote autonomous judgment and critical reflection by enabling students to measure their comprehension or performance against predetermined criteria.

Conversely, the verbal learner learns best through language-intensive tasks calling for expression and word-based reasoning. Writing critiques of reading materials or project results and building argumentative essays to support the learning process of the students.

IV. Conclusion and Recommendations

There is no significant difference in the learners' interest as a group according to different learning styles was accepted. The data suggested that the learning materials were equally engaging for all students, regardless of their preferred learning style, but did not directly affect the variable of learners' interest.

There is no significant difference in the learners' higher-order thinking skills as a group according to different learning styles was also accepted in terms of Creating and Analysis, but significant in terms of Evaluating. It is suggested that contextualized materials based on the Tomlinson Model be engaged in tasks in synthesizing the information and breaking down complex concepts. But, evaluating the student's ability to make judgements, critique ideas, notably depending on their learning styles.

Based on the findings of this study, several recommendations are suggested and proposed to enhance learners' academic performance and engagement further.

The students are encouraged to be actively involved and to collaborate in contextualized learning materials, as this accommodates their learning preferences and real-life experiences. It can maximize their engagement in activities such as peer reviews, debates, or journal reflections to enhance their evaluation skills. The development of skills and understanding in the teaching and learning process contributes to shaping responsible citizens and is an integral part of the educational community.

Teachers as instructional leaders are encouraged to implement and embed contextualized learning materials and strategies. They can incorporate evaluation tasks more deliberately, such as comparative analysis, critiquing ideas, and some multimedia modalities, and Socratic questioning that has still alignment with students' learning profiles so it can build a more dynamic, inclusive, and interactive learning environment that can support the diverse needs of the learners and foster the acquisition of their higher-order thinking skills.

The administration with school heads is encouraged to facilitate the mainstreaming of localized and culturally meaningful content into textbook materials, curricula, and classroom activities. They can also have more focused training or learning action cell sessions about HOTS-Based Instructions that foster empowerment evaluation tasks in lesson planning. On top of that, the use of flexible and multiple assessment tools helps the diverse abilities, gifted, talented, and areas needing improvement, to maintain equal excellence.

Parents involved themselves to continue in monitoring and support their child's educational process at home. It can be done by asking the children some questions that require and can use their rational reasoning, decision-making, and their personal opinions to be progressive in terms of evaluative thinking. These can additionally enhance students' motivation and responsibility, promoting both academic achievement and individual growth.

Future researchers are encouraged to explore and investigate more extensively the application of contextualized learning materials in different subject fields and levels of education, either content-focused or transversal curriculum. Researchers can also extend the methodological framework to continuously improve the contextualized learning materials to create more balanced, diverse, and engaging strategies and materials across various academic practices and disciplines.

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