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Development of Multimodal Instructional Materials in Language Teaching

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ABSTRACT –

In this digital and globalization era, communication and information technology have evolved and explored especially in education. The rapid development rendered influence in education, especially in language teaching in the time of pandemic. This study focused on developing multimodal instructional materials in language teaching. This study employed a mixed method using descriptive-evaluative design in analyzing the researcher-made RBI radio lesson scripts. The compliance of the five prepared lesson scripts to the eight factors of the Evaluation Tool of Script for Radio-based Instruction was 81% or Substantial Compliance. The following were the percentage of compliance per factor: Intellectual Property Rights Compliance is 65% or Substantial Compliance; Learning Competencies is 56% Mid-range Compliance; Instructional Design, Presentation and Organization is 78% or Substantial Compliance; Assessment is 78% or Substantial Compliance; Accuracy and Timeliness is 87% or Full Compliance; Language is 88% or Full Compliance; Scriptwriting Conventions is 96% or Full Compliance and Technical Design is 97% or Full Compliance. It can be noted from the result that the prepared radio lesson scripts had full compliance with Accuracy and Timeliness, Language, Scriptwriting Conventions and Technical Design and can still be improved in terms of Intellectual Property Rights, Instructional Design, Presentation and Organization, and especially the Learning Competency which comprised the lowest percentage of 56% or Mid-range Compliance. The result of the need analysis of the RBI lesson scripts served as the basis for developing the multimodal instructional materials.

An eLearning software called Active Presenter was used in the development of the material which focused on incorporating the recommendations in the need analysis drawn from evaluating the radio lesson scripts using the eight factors in radio scriptwriting and illustrated through a rundown of segments with their specific purpose. The features of the multimodal instructional materials in language teaching focused on four (4) main themes namely: modes, meaning-making, interactivity and accessibility.

Keywords: Radio-based Instruction, Multimodal Learning, Language Teaching, Multimodal Instructional Materials

INTRODUCTION

The communication and information technology have also evolved and explored especially in education. The internet has become the center of today's literacy. It has changed the way people access, use and exchange information, especially students who have become immersed in a new reality. On the other hand, as the pandemic has presented a changing culture to reach students, institutions need to adapt to this culture through remote learning (Westine et al., 2019).

Radio-based Instruction has contributed a lot in leveraging education during the pandemic. It can be assumed that the implementation of RBI in the Division of Camarines Sur has reached a wide scope of radio broadcasts as it was aired in five partner radio stations: Hot FM, Radyo Natin to Naga, Radyo Partido, DZRP, and DWEB-Nabua with two (2) one-hour slots per day or four (4) 30-minute slots per day which is equivalent to 10 lessons per week for elementary and secondary, respectively. However, the time allotment needed to be increased to cover the prescribed MELC per quarter and grade level. This means some lessons should have been discussed, which may be a prerequisite before the next lesson. Some lessons could not be discussed through RBI, especially if the concepts required visual representations.

In a larger sense, the success of RBI goes along with modular distance learning as the main modality. The self-learning modules or learning activity sheets were still distributed to the students prior to the airing of the lesson. It would be difficult for the students to cope with and follow the discussion without printed material as their guide. Also, considering there is no re-airing of lessons, when the learner misses the on-the-air, replay is least possible even for review or clarification.

The consequence lies in the education implementer, the need to adapt and become digitally proficient and extend the range of literacy pedagogy so that it does not unduly privilege alphabetical representations but brings into the multimodal classroom representations, particularly those types of digital media.

This shift in roles of the learner as a reader demanded more improved and diverse instructional materials. The materials that enabled the students to explore through manipulation and active engagement for developing a specific skill or learning competency.

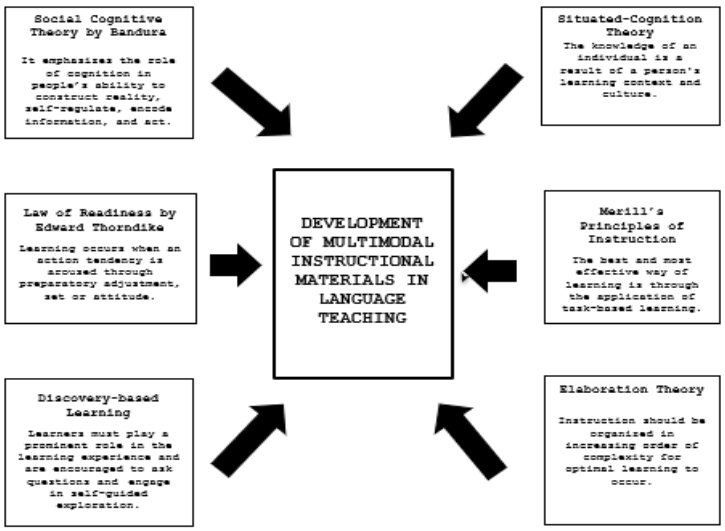
Generally, this study focused on developing multimodal instructional materials in language teaching. This centered on the design of the development of multimodal materials instructional materials using validated radio lesson scripts. This study therefore will be beneficial to the school stakeholders, especially the students to improve learning and encourage them to work independently through creative meaning-making.

FRAMEWORK

This study was based on the following theories and principles related to the development of multimodal instructional materials

Figure 1:

Theoretical Paradigm



Bandura's Social Cognitive Theory. The social cognitive theory of Albert Bandura emphasizes the role of cognition in people's ability to construct reality, self-regulate, encode information, and act. The theory suggests that people are seen as self-organizing, proactive, self-reflecting, and self-regulating rather than simply reactive organisms shaped by environmental forces or driven by basic inner impulses.

In the present study, social cognitive theory offers a vantage point from which to examine the influence of mediated content on audiences' attitudes and behaviors (Bandura, 2001, 2002, 2004). Based on the theoretical explanation, this suggests that for a mediated instructional material to positively affect the students' behavior, the students must pay attention to attractive or multimodal and contextualized models. Furthermore, social-cognitive theory proposes that human functioning is the product of reciprocal determinism, or the dynamic interplay of (a) personal factors, (b) behavior, (c) environmental influences, which interact to influence human behavior.

Situated-Cognition Theory. As noted, a core principle of the situated cognition approach is that human judgments, decisions, and adaptive behaviors are generally constructed from locally available resources and situational cues.

This theory advocates the development of multimodal instructional materials which emphasizes the interaction between the learner and the context. This means that the students' social thinking will be stimulated by materials which are not only stable nor printed.

Thorndike's Law of Learning. This study is anchored on Thorndike's Law of Readiness or also known as "Law of Action Tendency" which states that learning occurs through the development, set or attitude. Thorndike also said that the preparation of action is also a key element of readiness. This theory stresses the importance of readiness to achieve a certain goal.

In terms of readiness, the instructional materials to be developed must adhere to the concept of mood-setting or motivation. The students must be offered with preliminary activities to prepare them for the more complex concepts and to ensure that the learning process and pace is advantageous to the students.

Merrill's Principles of Instruction. The Merrill's Principles of Instruction is developed by M. David Merrill. In these principles, Merrill stated that the best and most effective way of learning is through the application of task-based learning. It involves four basic principles: activation, demonstration, application, and integration.

Relating this theory to the present study, the developed instructional materials have activities that follow the principles of task-based approach. The instructional materials were composed of a series of activities such as simulations or situations that provide learners with contextualized and authentic learning experiences. These activities will enable the students to draw or construct their own understanding from the existing knowledge.

Elaboration Theory. This theory was founded by Charles Reigeluth an educational theorist and is an extension of the work of Ausubels' advance organizers and Bruner's spiral curriculum.

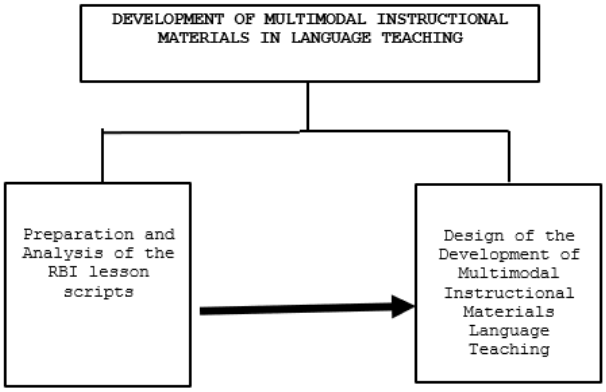
In the present study, the learners may develop the so-called meaningful contexts through the aid of instructional materials that observe the concept of elaborative sequencing. This can be done through epitomizing or on the basis of a single type of content which involves learning of fundamental or representative ideas or skills at the application level.

Discovery-based Learning. This was introduced by Jerome Bruner which suggests that learning sessions must be well-designed, highly-experiential and interactive. The students play prominent roles and are encouraged to ask questions and engage in self-guided exploration. Moreover, teachers should use stories, games, visual aids and other attention-grabbing techniques that will build curiosity and interest and lead learners in new ways of thinking, acting and reflecting.

The conceptual framework is illustrated using a concept map to show the interrelationship of concepts and themes related to the development of multimodal instructional materials in language teaching. The first figure represented the main topic of the study which is the development of multimodal instructional materials in language teaching. This served as the springboard in exploring the related concepts and themes. The next figure below on the left side represents the preparation and analysis of the RBI lesson scripts. The scriptwriting process was based on the DM-CI-2020-00244 DepEd Guidelines on the Development of Learning Resources for Radio-based Instructions and the Division Memo no.45 s.2020 on the Guidelines on Radio-based Instruction Production and Airing and evaluated using the Evaluation Tool for Radio-based Instruction.

Figure 2:

Conceptual Paradigm



OBJECTIVES OF THE STUDY

This study aims to develop multimodal instructional materials in language teaching.

RESEARCH DESIGN

Multi-method using descriptive-evaluative design was employed in this study. It enabled the researcher to obtain valuable data to describe the research objective in detail. The analysis, interpretation, and integration of data allowed the researcher to identify the areas for enhancement in the design and development of the multimodal instructional materials in language teaching as an offshoot of the study.

METHODS AND PROCEDURE

The researcher prepared five radio lesson scripts patterned to the Learning Activity Sheet in English 7 3rd Quarter and based on the format and guidelines set by DM-CI-2020-00244 Guidelines on the Development of Learning Resources for Radio-based Instruction and Division Memo no.45 s.2020 on the Guidelines on Radio-based Instruction Production and Airing. The radio lesson scripts were evaluated using the Evaluation Tool of Script for Radio-based Instruction. The criteria were as follows: a.) Adherence to the Intellectual Property Rights Law; b.) Alignment to Learning Competencies; c.) Instructional Design, Presentation and Organization of the Topic; d.) Appropriateness of Assessment; e.) Accuracy and Timeliness of Information; e.) Accuracy and Appropriateness of Language; f.) Compliance with Script writing Standards; and g.) Quality of Technical Design. The radio lesson script

was validated according to their compliance and non-compliance to the standards in the criterion items under the eight factors. The validated radio scripts served as the basis for developing the multimodal instructional materials in English 7. compliance adjectival rating, respectively. The analysis and evaluation of the scripts deduced substantial compliance and non-compliance of the scripts to be sustained and enhanced respectively depending on its suitability to the developed multimodal instructional materials in language teaching. The audio element was then combined with visual aspects through videos and interactive activities.

DATA ANALYSIS TECHNIQUE

The researcher prepared and validated the radio lesson scripts were validated according to their compliance and non-compliance to the standards in the criterion items under the eight factors. An adjectival rating was utilized to describe the compliance and non-compliance of the investigated radio lesson scripts. The researcher's evaluation of the radio lesson scripts was interpreted through a scale with the following equivalence: 1-20%, 21-40%, 41-60%, 61-80 and 81-100% interpreted as very low compliance, low compliance, mid-range compliance, substantial compliance and full compliance adjectival rating, respectively. The analysis and evaluation of the scripts deduced substantial compliance and non-compliance of the scripts to be sustained and enhanced respectively depending on its suitability to the developed multimodal instructional materials in language teaching. The audio element was then combined with visual aspects through videos and interactive activities.

RESULTS AND DISCUSSION

Inputs to the Development of Multimodal Instructional Materials

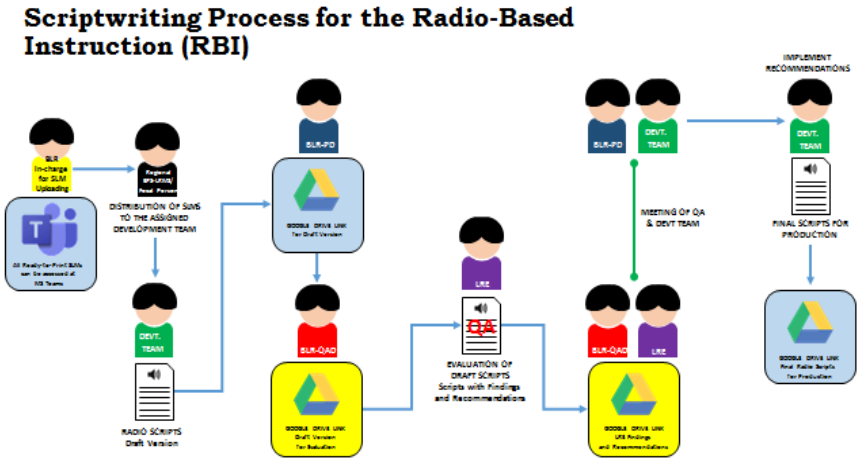
In this phase, the researcher prepared five radio lesson scripts and conducted an evaluation of the radio lesson scripts using the Evaluation Tool of Script for Radio-based Instruction.

Radio Scriptwriting

Figure 3 summarizes the scriptwriting process for the radio-based Instruction based on the DM-CI-2020-00244 DepEd Guidelines on the Development of Learning Resources for Radio-based Instructions. The SLMs were distributed by the Bureau of Learning Resources In-charge for SLM uploading to the assigned development team. The submission of scripts through the drive/link was monitored by BLR-PD. The development team was advised to do an internal quality assurance of the scripts using the evaluation tool provided before the submission to BLR. The evaluation and final review of the scripts developed by the regional/division offices were managed by the BLR team to ensure that the scripts were of suitable quality and conformed with the DepEd standards and specifications. Then, the QA team members conferred with the development teams to discuss the evaluation, findings, recommendations and the suggested revision made by the development teams. The revision and finalization of the scripts were done by the scriptwriter based on the comments and suggestions of the quality assurance team.

Figure 3:

Scriptwriting Process for Radio-based Instruction



Moreover, as per Division Memo no.45 s.2020 on the Guidelines on Radio-based Instruction Production and Airing, the scripts shall follow the following details: complete name and school of the host and radio teacher shall not be mentioned in the scripts; the host should mention his/her name at the end of the program as part of the closing statement; only "Good day!" shall be used for time signals in the scripts, do not mention time check or date; pauses shall be indicated for long sentences and paragraphs; quarter number, module and lesson number as well as the title number of the modules shall be indicated in the scripts which shall also be included in the lines to be delivered by the voice talents to facilitate the preparation of the learners; and quotations and thoughts to ponder can be used in extro/ closing statement of the radio teacher.

The prepared radio lesson scripts were patterned to the Learning Activity Sheets (LAS) after it was implemented in lieu of SLMs. Learning Activity Sheets (LAS) are supplementary learning resources in which learners can engage, such as individualized learning exercises that further develop the desired knowledge and skills they acquire from different lessons (DepEd Order n0. 36, s. 2021). An activity sheet is typically a piece of paper with questions or activities on which students can either write their answers or participate in the activity (DepEd, 2016). The LAS adhered to the MELC which provided a shorter lesson discussion and focused more on the activities. The use of LAS as the basis for radio scriptwriting lessens the discussion segment by providing a simplified discussion of the topic at hand and provided increased time for answering activities and later write their reflections. The five radio lesson scripts were Q3 LAS 2: Oral Language, Stance and Behavior; Q3 LAS 3 Influences in Developing Selections; Q3 LAS 4 Influences in Developing Selections; Q3 LAS 5 Expression of Beliefs and Convictions and Q3 LAS 6 Evidences to Support General Statement.

Evaluation of Scripts

The prepared radio lesson scripts were evaluated based on eight factors/standards: a.) Adherence to the Intellectual Property Rights Law; b.) Alignment to Learning Competencies; c.) Instructional Design, Presentation and Organization of the Topic; d.) Appropriateness of Assessment; e.) Accuracy and Timeliness of Information; e.) Accuracy and Appropriateness of Language; f.) Compliance with Script writing Standards; and g.) Quality of Technical Design. These eight factors/standards in radio script writing aided the researcher in scrutinizing specific characteristics and distinctiveness and deduced substantial compliance and non-compliance of the scripts to be sustained and enhanced, respectively. Table 1 shows the compliance of the five prepared lesson scripts to Evaluation Tool of Script for RBI. The following were the percentage of compliance per factor: Intellectual Property Rights Compliance is 65% or Substantial Compliance; Learning Competencies is 56% Mid-range Compliance; Instructional Design, Presentation and Organization is 78% or Substantial Compliance; Assessment is 78% or Substantial Compliance; Accuracy and Timeliness is 87% or Full Compliance; Language is 88% or Full Compliance; Scriptwriting Conventions is 96% or Full Compliance and Technical Design is 97% or Full Compliance.

Table 1: *Compliance of the RBI lesson scripts to the Eight Factors/Standards in Radio Scriptwriting*

Standard/ Criterion Item	**S1**	**S2**	**S3**	**S4**	**S4**	**Mean**
Factor 1: INTELLECTUAL PROPERTY RIGHTS COMPLIANCE						
1.1 The content of the script has no copyright violations.	70	60	65	70	60	**65**
1.2 The third-party content/non-original/copyrighted music, songs, sound effects (SFX), and texts have copyright permission.	85	80	80	75	75	**79**
1.3 The third-party content/non-original/copyrighted music, songs, sound effects, and texts are properly attributed.	55	50	50	55	50	**52**
% of Compliance to Factor 1	**65% - Substantial Compliance**					
Factor 2: LEARNING COMPETENCIES						
2.1 The topic of the script is aligned with the specific learning competencies/objectives of the learning area and grade level for which it is intended.	55	60	50	50	65	**56**
% of Compliance to Factor 2	**56%- Mid-range Compliance**					
Factor 3: INSTRUCTIONAL DESIGN AND PRESENTATION AND ORGANIZATION						
3.1 The content of the script is suitable to the learner's level of development.	75	80	80	85	80	80
3.2 The content is logically presented and organized.	70	80	80	75	85	78
3.3 The content of the script provides and communicates clear learning goals.	70	75	80	85	80	78
3.4 Content is designed using strategies to help pupils learn the information and skills that are in focus.	65	65	70	70	75	69
3.5 The content meets the interests of the learners.	80	85	85	75	80	81
3.6 The content is engaging.	80	85	80	75	80	80

3.7 The content is easily understandable.	80	85	85	80	85	83
3.8 Sequencing of content and activities within the script facilitates achievement of objectives.	70	80	85	75	80	78
3.9 The content is compliant to the social content guidelines.	80	90	85	85	90	86
3.10 The content develops the learner's 21st Century and/or higher-order thinking skills.	75	75	70	75	75	74
3.11 The content enhances the development of desirable value/s and trait/s.	75	80	80	85	80	80
3.12 Motivational strategies are provided.	70	80	70	75	75	74
3.13 The content provides an opportunity for practice and deepening skills / competency.	70	80	70	75	70	73
% of Compliance to Factor 3	**78% Substantial Compliance**					
Factor 4: ASSESSMENT						
4.1 The script employs varied assessment approaches that help the teacher evaluate the learner's progress in mastering the target competencies.	75	80	75	80	70	76
4.2 Assessments are aligned with the specific objectives and content.	70	75	90	80	85	80
% of Compliance to Factor 4	**78% Substantial Compliance**					
Factor 5: ACCURACY AND TIMELINESS OF INFORMATION						
5.1 The script does not contain conceptual errors.	70	80	80	75	85	78
5.2 The script does not contain factual errors.	75	80	75	70	85	77
5.3 The script does not contain grammatical errors.	90	90	85	90	90	89
5.4 The script does not contain computational errors.	100	100	100	100	100	100
5.5 The script does not contain obsolete information.	80	80	85	80	85	82
5.6 The script does not contain typographical and other types of errors.	98	97	98	97	97	97
% of Compliance to Factor 5	**87% Full Compliance**					
Factor 6: LANGUAGE						
6.1 The language used is informal and conversational.	90	95	93	92	95	93
6.2 The vocabulary level and words are within the level of the learner's experience and understanding.	75	80	75	80	80	78
6.3 Use of alliteration, homonyms, words with sibilant sounds, and tongue twisters are avoided.	90	92	95	90	93	92
6.4 The sentences are brief and simple observing one idea-one sentence rule.	90	95	90	85	90	90

6.5 When appropriate, sentences are in active voice and in present tense.	90	90	85	85	90	88
6.6 The content uses appropriate descriptive words to enhance learners' imagination.	80	75	80	85	80	80
6.7 Pronunciation guides / phonetic spelling for unfamiliar names, words, jargons, and/or terminologies are provided.	90	95	95	90	95	93
6.8 Punctuation marks used suit reading style.	95	95	90	85	90	91
6.9 Transition devices/ words are properly provided.	90	90	85	90	87	88
% of Compliance to Factor 6	**88% Full Compliance**					
Factor 7: SCRIPTWRITING CONVENTIONS						
7.1 The length of the script is within the prescribed running time.	90	85	90	80	95	88
7.2 The script discusses one topic / lesson only.	85	90	90	95	95	91
7.3 Scriptwriting rules on abbreviations, acronyms, numbers, figures, and fractions are accurately and properly observed.	95	97	95	95	97	96
7.4 Markings (e.g., single underline, double underline, jagged lines, dotted lines, slash, brackets) are properly and accurately observed as needed.	98	97	95	98	97	97
7.5 Messages conveyed are repeated as necessary.	98	97	98	98	97	98
7.6 Sentences start in words not in numbers.	97	98	98	98	97	98
7.7 The script is complete in elements/parts.	100	100	100	100	100	100
7.8 The script follows radio script format and layout.	100	100	100	100	100	100
% of Compliance to Factor 7	**96% Full Compliance**					
FACTOR 8: TECHNICAL DESIGN						
8.1 Music and sound effects are suitable for educational purposes and situation presented.	98	98	98	98	98	98
8.2 Music and sound effects engage the interest of learners and enhance the content of the script.	98	98	98	98	98	98
8.3 Cues for music and sound effects are accurately and properly indicated for smooth and coherent integration and transitions.	98	98	96	95	97	97
% of Compliance to Factor 8	**97% Full Compliance**					
Overall compliance of the lesson scripts to the Eight Factors in RBI Scriptwriting	**81% Substantial Compliance**					

Factor 1: The compliance of the radio lesson scripts to the intellectual property rights was found to have 65% or Substantial Compliance to the Republic Act 8293 or the "Intellectual Property Code of the Philippines," which recognizes intellectual property systems and protects individuals' and entities' intellectual property.

The school recognizes the importance of copyright standards that govern the creation of learning materials which in turn enabled the LAS and RBI scripts to gain protection from any form of copyright violations such as plagiarism. Furthermore, the Guidelines on the Development of Learning Resources for RBI (DM-CI-2020-00244) reminded the development team to secure permission from copyright owners/ holders of third-party content added to the radio/audio lessons which may not be part of the SLM or LAS.

Thus, whenever possible, it is recommended that references and citations must be displayed after every learning resource. Teachers must be encouraged to attend training and programs to further enhance their skills in citing sources and creating bibliographies. This will allow teachers to have adequate knowledge of copyright violations. Also, the school may create a review and quality assurance committee to address minimal cases such as typographical errors, miscopied links, missing bibliography and misplaced references.

Factor 2: The compliance of the radio lesson scripts to the Learning Competencies Standard was 56% or Mid-range Compliance. The topics of the radio lesson scripts were aligned with the most essential learning competencies/ objectives in English 7. The MELCs/objectives used were reflected exactly the same as what was provided by DepEd. Based on the analysis of the alignment of the learning competencies/objectives to the learning area and grade level, the learning competencies and objectives were not consistent with the targeted learning tasks of Grade 7 students which may result in failure in meeting the expected competencies. This implied that the MELCS are found broad which caused the material to target the expected outcomes and supposed skills of the students.

In response to this concern, the order of the lessons may be rearranged based on the MELC; prerequisites must be considered to ensure that students have and can apply their prior knowledge to the existing lesson. It is further recommended that teachers as the prime implementer of education should unpack lessons and competencies and determine repetitive lessons and competencies. It was also observed that some teachers lack knowledge in unpacking lessons and competencies. Thus, it is further recommended that the teachers must receive sufficient training to improve their abilities in unpacking lessons and competencies.

Factor 3: Instructional Design, Presentation and Organization. The compliance of the radio lesson scripts to the Instructional Design, Presentation and Organization garnered an average of 78% or Substantial Compliance. There were positive points in this factor, such as the inclusion of a review of the previous lesson in the script despite its absence in the LAS. However, it can be noted that some lessons were disarranged, that is why, there was difficulty in integrating the previous into the existing lesson.

In this regard, it is suggested that the MELC/ learning objectives must be presented before proceeding to the lesson proper. This will offer a preview of what will transpire and allow them to set their own learning target. The review of the previous lesson must also be included so the students can already capitalize on what they have previously learned and connect it to the lesson at hand.

Factor 4: Assessment. There was 78 % or Substantial Compliance with the Assessment Standard. It was noticeable that the tasks in the lesson tried to employ varied approaches. However, there were misalignments in specific objectives. While most of the assessment or evaluation activities were not attainable for the given time, thus it is most of the time regarded as an assignment. The bombardment and misalignment of tasks and assessments to the specific objectives posed drawbacks in the motivation and engagement of the learners. The learning gaps must be considered by the teacher to prevent hindrance to the progress of the learners in the achievement of the supposed skills and expected lesson outcomes. In attaining learning, breaking down the competency into objectives is advantageous in targeting skills, knowledge and goals. Deregios et al. (2014) emphasized that the components of SLMs must be incorporated for students to be guided on what they need to accomplish.

In this regard, it is recommended that tasks and assessments in the radio lesson scripts must be deduced and incorporate simpler activities that are attainable within the time allotted for the subject. The alignment of assessment to the learning objectives must be considered without compromising the necessity to maintain the interest and excitement as they go through the learning material.

Factor 5: Accuracy and Timeliness. The radio lesson scripts were found to have 87% or Full Compliance with Accuracy and Timeliness. This indicates that the scripts were free from factual and conceptual errors, grammatical errors and especially computational errors. Despite the goal of DepEd to give students relatable and relevant content, it is inevitable to sometimes commit some factual and conceptual errors. Teachers must also consider the crucial role of proofreading to ensure that the learning resources satisfy the standard of instructional quality.

Factor 6: Language**.** The compliance of the radio lesson scripts to the Language Standard was 88% or Full Compliance. This means that the lesson scripts comprise suitable and appropriate use of words for the target learners which ensures the quality of learning.

Thus, it is suggested to strengthen the grammar and language use in crafting the radio lesson scripts. The clarity and ease of the material must be strengthened by replacing difficult or unfamiliar vocabulary with those of the learner's level to guide them toward learning success. RBI is usually informal and conversational, which involves the listeners talking to them in a normal conversation. Since it is conversational, it would be beneficial if the students could at least see the teacher.

Factor 7: The compliance of the radio lesson scripts to Scriptwriting Conventions was 96% or Full Compliance. Among eight items in this factor, item 7.1 got the low- Full Compliance percentage which refers to the length of the script. Some scripts were shorter or longer than the prescribed 30-minute running time.

As per Division Memo no. 45 s. 2020 on the Guidelines on Radio-based Instruction Production and Airing, the scripts followed the following details: the name and school of the host and radio teacher shall not be mentioned in the scripts; the host should mention his/her name at the end of the program; only “Good day” shall be used for time signals in the scripts, no time check or date; pauses shall be indicated for long sentences and paragraphs, quarter

number, module lesson number as well as the title number of the modules shall be indicated in the scripts which shall be included in the lines to be delivered by the voice talents to facilitate the preparation of the learners and quotations and thoughts to ponder can be used in closing statement of the teacher.

Factor 8: Technical Design**.** The compliance of the radio lesson scripts to the Technical Design was 97% or Full Compliance. This means that the music and sound effects used were suitable. The music and sound effects enhanced the content and engaged the learners in the discussion. It was undeniable how the background music and sound effects have impacted the radio lessons in the implementation of RBI. It captured the learners' attention to keep listening to the lesson scripts. There were also infomercials inserted which were usually about health and safety practices during the pandemic.

The radio lesson scripts can still be improved in terms of the following factors: Intellectual Property Rights, Intellectual Instructional Property Rights Design, Presentation and Organization, and Assessment, especially the Learning Competencies which comprised the lowest percentage of 56% or Mid-range Compliance.

Thus, it is suggested to modify the radio-based Instruction by incorporating various modes in the audio. In terms of development and production, a teacher alone can prepare multimodal instructional materials with very minimal resources needed. This will also provide ease to the teachers in facilitating learning in and outside the classroom.

Process of the Development of Multimodal Instructional Materials

In this phase, the process of the development of multimodal instructional materials was based on the need analysis result of the developed radio lesson scripts using the Evaluation Tool of Scripts for Radio-Based Instruction.

With the need analysis, the dependence of the RBI to the printed material means its inability to become a stand-alone learning modality. It would be advantageous to design a learning resource to address the identified gaps. The development process must not be burdensome on the part of the teachers and ensure that learning happens despite distance and other factors.

The researcher utilized an eLearning software called Active Presenter with advanced video recording and editing features. It allows the creation of various eLearning content types such as video demos, software simulations, quizzes, and games. Using responsive design and HTML5, the content is truly device-independent it looks good and runs perfectly on any modern web browser and device.

Table 2 shows the rundown sheet for multimodal instructional material. In the multimodal instructional materials, the time duration is only 20 minutes which already included introduction, presentation of MELC/objectives of the lesson, review of previous lesson, unlocking of difficulties, introduction of the new lesson, lesson proper, activities/assessment feedback/goodbyes, citations and references.

For the introduction, a self-recorded introductory video was prepared by the teacher-researcher. This is a one-minute video which introduces the lesson at hand and the teacher as a guide to the fun- learning in English. The researcher welcomed the learner with a greeting without a specific time of the day. The appearance of the teacher in the video captured the attention of the students which made it more convincing for them to behave like a student in a classroom. The aim of this video is to establish rapport between the teacher and the students and inform them that they will not be alone in the learning process. This enabled the students to engage themselves in the lesson at hand and participate in all succeeding activities. This introductory video was utilized for all video lessons with a one-minute time duration. The next segment is the display of the Most Essential Learning Competencies (MELC) and lesson objectives. This segment varied for all video lessons since every lesson was based on MELC with codes and specific lesson objectives. Moreover, the lessons were rearranged because there were lessons that were prerequisites to discussing the other lesson and there were also lessons that could be combined based on its lesson objectives.

Table 2: *Sample Rundown Sheet for Multimodal Instructional Materials*

Content	**Running Time**
Introduction	1:00
MELC/ Lesson Objectives	0:50
Review of Previous Lesson	2:00
Introduction of the New Lesson/ Unlocking of Difficulties	3:00
Lesson Proper	5:00
Activities/ Assessment	7:00
Feedback and Goodbyes	1:00
Citations/ References	0:50
Total:	20:00

The third part of the multimodal material is the review of the previous lesson. This two-minute recapitulation of the previous lesson strengthens the connection between the material already learned and linked to the new one. This also prepares the learners to devise new strategies to learn the new material.

The next segment is the introduction of the new lesson and unlocking of difficulties. This part of the lesson introduces the lesson for the day. Then the definition of difficult words to help the students better understand the discussion part. The lesson proper is given a five-minute time duration characterized by a short and simplified discussion of the lesson at hand. The discussion was aided by visuals, animations and narration by the teacher.

Next segment is the activities and assessment. There were three practice tasks and one assessment per lesson. The interactivity feature of the materials enables an active learner. The student is given the opportunity to manipulate the material and decide whether to continue and review the presentation. They are also provided with immediate feedback on their responses depending on the type of tasks and assessment. These interactive activities are designed to provide immediate feedback as the students answer the activities and assessments, which will enable the students to develop and practice self-assessment. There will be two attempts provided for the students and if they fail to answer correctly, they can always go back to a specific part of the lesson.

Thus, it is recommended that the instructional materials must include salient segments, interactive quizzes with immediate feedbacking system, ample time to finish the tasks and assessment and the benefit of reviewing the lesson discussion from time to time. The feedback/goodbyes segment was another self-recorded video of the teacher researcher to provide general feedback to the students for their performance. It is also one way to express gratitude for their active participation and wish them a good day ahead and remind them to be safe for the rest of the day.

Lastly, the display of citations and references reinforced full compliance to the intellectual property rights. The third-party content such as texts, images, videos and sound effects use must be properly attributed.

The entire material utilized background music adopted from the RBI since it was educational, non-destructive and captured the interest of the learners.

Overall, the multimodal instructional material was a 20-minute lesson that covered seven parts of the lesson: introduction, presentation of MELC/ lesson objectives, review of previous lesson, introduction of new lesson/unlocking of difficulty, lesson proper, activities/assessment and feedback/goodbyes. All segments were aided with images, texts, animation and narration of the teacher-researcher based from the validated radio lesson scripts.

Output of the Development of Multimodal Instructional Materials

The output of this study is discussed through the unique features of the multimodal instructional materials in language teaching which focused on four (4) main themes namely: modes, meaning-making, interactivity and accessibility.

A. Modes. Multimodal learning is a cognitive theory of learning popularized by Richard E. Mayer. The theory has broadly been defined by Mayer's cognitive theory of multimedia learning, in which learning happens when the combination of words and pictures build mental representations. It is an important consideration that a learning resource developer must consider the type of modes to be integrated and combined and focus on which will add value to the material and connect to the end-user.

The use of ActivePresenter made it possible to combine all modes in one material. The editing of videos and audio can be done directly to the software itself without the aid of other editing applications. According to Lubin (2012), an interactive learning system for learning an application program, such as a word processing program, includes three types of Instruction: interactive audio-visual lessons, reference information, and experience utilizing the application program being learned. The instructional materials blended various multimodal features of visual, auditory, and other sensory cues to provide students the experience of authentic and comprehensible material to approximate activities and engage students and result in authentic communication.

It is suggested to develop and utilize multimodal instructional materials in teaching to engage more learners in the lesson. Also, it advocates individualized learning. The students can do the tasks at their own pace and at the same time monitor their own learning progress.

B. Meaning-making. One great way to assess the success of combining modes to produce a learning resource is the ability of the material to cater varied proficiency levels of the students and later on lower the affective filter. According to Albers et al. (2010), "literacy is entangled, unable and willing to be separated from the other modes, media and language systems that constitute the very messages that are sent, read and/or interpreted".

In the context of language teaching, literacy today does not only consist of the ability to read and write. Therefore, we should think of multimodal instructional material as something whole with different facets of literacy. The use of these materials seemed authentic and parallel to how we encounter information today.

C. Interactivity. Interaction plays an important role in language learning since it allows the students to practice their acquired knowledge and skills. In creating meaningful interaction among learners, materials that promote such interaction have to be chosen. Schiffrin (1996) points out that traditional books very often provide insufficient content of the target language and they fail to give students communicative inputs. It was also supported by Yükselir et al. (2017). The use of online videos in English classrooms allows students to communicate and interact in a proper way to develop language competence and later on transmit learning in an easy way.

Therefore, incorporating multimodal instructional materials such as those that exhibit audio-visual quality and where the students can freely manipulate and interact with will offer greater contribution to learners in different ways and levels to improve their communication skills.

D. Accessibility. By nature, the majority of online learning materials which are done synchronously depend entirely on technological devices and the internet. It is undeniable that technology is one of the most pressing challenges in implementing online learning, especially if those involved are not digitally competent. Some issues may include lack of knowledge on the usage of applications, unstable internet connection and incompatible browsers.

While some students from low socio-economic families cannot afford broadband connection and pertinent devices(computers/laptops) to support their learning. Instead, they are using smartphones to access lessons and learning materials, complete assignments and take exams (Chea et al., 2020).

With accessibility concerns, the multimodal instructional materials can be readily accessible through android phones where the students may opt to answer online or download for offline use. This material does not require the student to have complex knowledge on using multimedia since it only applies simple commands. On the other hand, the teacher as developer of this material does not require to be digitally competent and knowledgeable in all software applications, since editing and exporting were readily available in the eLearning software.

LITERATURE CITED

BOOKS

Bandura, A. (2004). Self-efficacy. In E.W. Craighead & C. B. Nemeroff (Eds.). *The Concise Corsini Encyclopedia of Psychology and Behavioral Sciences*, pp. 859–866. New York: Wiley.

Mayer, R. E. (2005). Principles of multimedia learning based on social cues: personalization, voice, and image principles. In R. E. Mayer, (Ed.) *The Cambridge Handbook of Multimedia Learning*. New York: Cambridge University Press.

JOURNALS/PERIODICALS

Dousay, T., & Darrington, B. (2015). Using multimodal writing to motivate struggling students to write. *TechTrends, 59*(6),29-34.

https://doi.org/10.1007/s11528-015-0901-7

Nilson, L. B., & Goodson, L. A. (2018). In online teaching at its best: Merging instructional design with teaching and learning research. *Journal of Public Affairs Education*, p. 264.

Serafini, F. (2012b) Reading multimodal texts in the 21st Century. Research in Schools, 19 (1), 26-32. Retrieved from: http://www.learntechlib.org/p/91510

Unsworth, L., & Wheeler, J. (2002). Re-Valuing the Role of Images in Reviewing Picture Books. *Reading*,36(2), 68–74. https://doi.org/10.1111/1467-9345.00189

Walsh, M. (2010). In Pedagogic Potentials of Multimodal Literacy. In L. Tan Wee Hi & R. Subramanian (Eds), Handbook of Research on New Media Literacy at the K-12 Level: Issues and Challenges, US: IGI Global.

ELECTRONIC RESOURCES

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https://doi.org/10.31004/basicedu.v5i6.1756

Bandura, A. (2002). Social cognitive theory in cultural context, 51(2), 269–290. https://doi.org/10.1111/1464-0597.00092

BBC-Language Teaching (n.d.) A Task-Based Approach. Retrieved from https://www.teachingenglish.org.uk/article/a-task-based-approach on January 12, 2021.

Bezemer, J, & Kress, G (2008). Writing in Multimodal Texts: A Semiotic Social Account of Designs for Learning, Written Communication, 25 (2), 166-195 http://dx.doi.org/10.1177/0741088307313177

DM-CI-2020-00244 Guidelines on the Development of Learning Resources for Radio-based Instruction. Retrieved January 2, 2023 from https://www.scribd.com/document/484462714/DM-CI-2020-00244-Memo-on-RBI-Guidelines-1-docx

Fang-O. Kuo, Pao-Ta Yu, Wei-Hung Hsiao (2015) Develop and Evaluate the Effects of Multimodal Presentation System on Elementary Student Learning Effectiveness: Within Classroom English Learning Activity, Procedia - Social and Behavioral Sciences, 176 (2015), 227-235, https://doi.org/10.1016/j.sbspro.2015.01.465.

Gee, J. P. (2005). Learning by design: Good video games as learning machines, *E-Learning*, (2), 5-16 https://doi.org/10.2304/elea.2005.2.1.5

Jewitt, C., & Sarah, P. (2012). Multimodal approaches to wide video analysis of digital learning environments. Proceedings of BCS HCI 2012 Workshops. https://doi.org/10.1177/1468794118796992

Kalyuga, S., Chandler, P. & Sweller, J. (1999). Managing split attention and redundancy in multimedia instruction. *Applied Cognitive Psychology*, 13, 351-371. https://doi.org/10.1002/acp.1773

Kozma, R. B. (1991). Learning with media. *Review of Educational Research*, pp. 61, 179–211. https://doi.org/10.3102/00346543061002179

Mayer, R. E., Sobko, K., & Mautone, P. D. (2003). Social cues in multimedia learning: role of speaker's voice. *Journal of Educational Psychology*, 95, 419-425. https://psycnet.apa.org/doi/10.1037/0022-0663.95.2.419

Pollock, E., Chandler, P., & Sweller J. (2002).

Tuscano, F. (2020). It is not about Online Learning: A Reflection on the "New Normal" in Education, Retrieved August 16, 2020 from www.francisjimtuscano.com

Yi-Hsuan Lee, Chan Hsiao, Chin-Husan Ho, The effects of various multimedia instructional materials on students' learning responses and outcomes: A comparative experimental study, Computers in Human Behavior, Volume 40 (2014) 119-132,

https://doi.org/10.1016/j.chb.2014.07.041.(https://www .sciencedirect.com/science/article/pii/S0747563214004154)