

Usability Validation of Strategic Intervention Materials (SIMs) in Teaching Elementary English 4

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ABSTRACT

The study aims to develop and validate the usability of the Strategic Intervention Materials (SIMs) in teaching Elementary English 4 as instructional materials in mastering Elementary English 4. The study underwent three phases namely: planning, development and validation. The first stage is planning in which the least learned competencies (LLC) were identified based on the item analysis of the periodic tests. The researcher made eight (8) SIMs based on the identified LLC. Second stage is the development in which the intervention materials were developed based on Vygotsky's Scaffolding, Keller's Personalized System of Instruction, Renner's Curriculum Model of Instruction based on Curriculum Development Theory (CDT) of Dewey and Sweller's Cognitive Load Theory. After developing the SIMs, the usability experts validated the usability of the materials. The experts were purposively chosen. They were the master teachers of the intermediate grade levels who have been teaching English in public schools for five (5) years. The researcher – made instrument was used in validating the materials. The developed SIMs were rated “very satisfactory”. This implied that the usability experts considered the SIMs as teacher support materials that can be used to master the competencies in elementary English 4. The researcher improved the aspects of the materials that were rated “satisfactory”. It is recommended that the teachers should develop more strategic intervention materials for other subject areas to address the pupils' least learned competencies.

Key Words: development, , least-learned competencies, Strategic Intervention Materials, usability validation

1 Introduction

The K-12 Basic Education Curriculum has caused major changes in the educational system in the Philippines. The present curriculum is challenged by the issue on the dearth of learning materials. According to Legaspi (2014), the Department of Education agreed that there have been delays in the delivery of learning materials such as activity sheets and modules for the pupils. The lack of learning materials is a perennial issue even before the change of the curriculum. The shortage of instructional materials and also teachers' lack of knowledge on material development is a persisting problem among the public and private elementary schools. Although DepEd boldly declared that all learning materials shortages will be wiped out before the end of 2013 and even promised to have a one to one or 1:1 ratio for student to textbook within school year 2012 – 2013, but in the actual classroom setting, one textbook is shared by two to three and even more pupils. The same issue is experienced

in several elementary public schools in Caraga Region. According to Dios (2014), the Basic Education Information System (BEIS) revealed that a few schools in Caraga have 1: 3 ratio of learner to textbook. This situation may cause an academic disadvantage to children who were not afforded with the learning materials.

Because of this issue, teachers should look for ways to develop and provide instructional materials which may be used as alternative materials to aid the pupils' understanding of the lesson. The materials should also be attractive, interesting, and available to pupils for use in classes. The use of sufficient, and strategically designed instructional materials suited for the type of learners is greatly encouraged for learning materials in teaching especially English play an integral role in the teaching – learning process. Its use greatly affects student's academic performance particularly in the English subject as mentioned in Dahar, (2011 as cited in Salviejo, 2014). Moreover, instructional materials (IMs) such as textbooks, workbooks, modules, et cetera are essential learning tools for they allow learners to interact with words, images and ideas in ways that develop their abilities in multiple skills such as reading, listening, speaking, writing and viewing.

In the teaching of language, IMs are thought to be useful as the primary source of convenience and confidence for English language teachers. They find it easy to impart knowledge to pupils if there are IMs available for them to use. This is basically the reason why the accessibility and availability of IMs is a necessity in every classroom (National Council of Teachers of English, 2014). The development of SIMs and their use in teaching elementary English is then encouraged. SIMs are instructional materials which may be used to aid the pupils in understanding the lesson. They are usually intended for pupils who failed to master the competencies. They may also be utilized for remediation purposes.

The researcher developed SIMs for the Grade Four pupils who failed to master the competencies in listening, reading, speaking and writing in the English IV – first and second grading period. The usability validation of the SIMs is essential to determine whether the materials are useful to pupils. The SIMs in English 4 are considered the first of its kind. Since the SIMs' intended users are the grade 4 pupils, they should be designed in such a way that they can attract pupils' attention and at the same time should help them to master the least learned competencies.

2. Research Methodology

The study utilized the descriptive – developmental research design. The least learned competencies in listening, reading, speaking and writing in the first and second grading lessons in Elementary English 4 were identified hence it is considered descriptive and it also aimed to develop Strategic Intervention Materials (SIMs) as teacher support material to pupils thus, it is developmental. The usability of the SIMs was carefully examined in order to determine their usefulness as teacher-support materials.

The researcher used the purposive sampling technique in the selection of the five (5) usability experts. These teachers have been teaching English for at least three (3) years in the five (5) big schools in Butuan City and have attended various trainings on language material making. They validated the usability or pedagogical aspects of the developed materials.

The least- learned competencies which were made as bases in the development of the SIMs were taken from the consolidated item analysis of the four (4) low performing classes among the eighteen (18) grade four classes.

The locale of the study is Butuan Central Elementary School, the biggest elementary school in Butuan City. It is considered second to the biggest school in Caraga Region. The researcher gathered the data of the study through a researcher –made instrument. Some of its parts were adapted from the Instructional Material Evaluation Rubric Form of the Nevada Department of Education (2013). The revisions made were based on the suggestions of the thesis adviser, SIM experts, colleagues and instrument validators.

There were three phases of the study that include; planning phase, development phase and validation phase. In planning phase, the item analyses of the first and second periodical tests of the four grade four classes were examined. This was made in order to identify the least learned competencies in listening, reading, speaking and writing. The identified competencies were used as bases for the construction of the intervention materials. The data were made as bases in the selection of topics and drafting of the activities that were included in each SIM.

In the development phase, the actual making of the intervention materials which include the identification of the skills or topics specified in the Basic Education Curriculum or BEC, the selection of the activities and the adoption of the format, theories, approaches and the curriculum model of instruction.

Each SIM is consist of five cards: guide card; activity card; assessment card; enrichment card; and reference card. However, some changes were made that include the additions of the introduction card after the guide card that were added in order for the pupils to help answer the activities in the preceding cards by presenting first the discussion or explanation of the concept, the answer card which was placed in the last portion of the material in order for the learner to check his or her own work and the exit card which was included in order for the learner to identify the skills or ideas that he or she had learned after answering the material.

The first drafts of the SIM went through informal validation. Each developed SIM was tried and tested to pupils in one English class in order for the researcher to pre-assess each one of them. Subsequently, they were presented to the adviser and colleagues.

After which, the insights of the SIM experts were sought in order to determine the strong and weak points of the developed SIMs. Comments and suggestions were considered for the improvement. There were eight (8) SIMs which were developed based on Vygotsky's Scaffolding, Keller's Personalized System of Instruction, Renner's Curriculum Model of Instruction, Curriculum Development Theory (CDT) of Dewey and Sweller's Cognitive

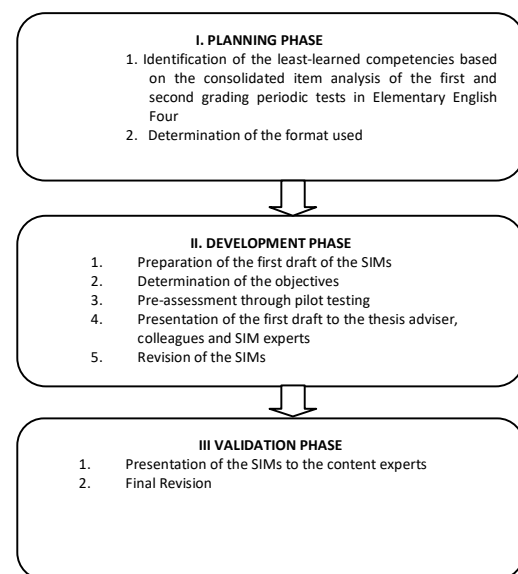


Fig. 1 Flowchart of the phases of development and validation of the SIMs

Load Theory. The usability experts formally validated the SIMs. The final drafts were done after the formal validation. Their suggestions, comments and recommendations were considered in writing the final drafts.

The data acquired from the evaluation of the usability experts were computed. The mean rating per item and overall mean ratings were included in the computation.

The usability experts used the material evaluation form that includes the following criteria such as ease of administration and scoring; expenses; time; and other factors.

3. Results and Discussion

3.1 The Least-learned Competencies of the Grade 4 Pupils in English

The least-learned competencies were identified based on the item analysis in the first grading and second grading period of the four (4) low performing grade four classes in Butuan Central Elementary School. The identification of the least-learned competencies were based on those skills which got the lowest percentage of correct responses per macro-skill namely listening, speaking, reading and writing in the first and second grading periodic tests.

Table 3.1 shows the consolidated item analysis of four (4) low-performing grade four classes in the first and second grading period in English in which the least learned competencies in the four macro-skills were obtained.

Table 3.1 Blueprints of the Strategic Intervention Material in Teaching English 4

Grading Period	Competencies	Topics	SIM No.	Title
First	Distinguish rising and falling intonation	Rising and Falling Intonation	1	The Rise and Fall
First	Use stress and unstressed syllables in sentences	Stress	2	No Stress on Stress
First	Identify the meaning of the words with affixes	Affixes: Prefixes and Suffixes	3	Easy with Affixes
First	Write sentences/paragraphs giving simple directions in doing something	Following and Giving 3 to 4 directions	4	Follow Me
Second	Give the main idea of a selection	Getting the Main Idea of Paragraphs	5	What's the Big Idea?
Second	Use a variety of sentences - declarative - interrogative - imperative - exclamatory	Kinds of Sentences	6	What Kind of Sentence are You?
Second	Find action words or verbs in sentences	Action Words	7	Lights, Camera Action Words
Second	Write a thank you letter observing the correct format	Writing a Thank You Letter	8	Thanking Through a Letter

It can be gleaned from the table that in the first and second grading period there were eight (8) least learned competencies identified. From them, there were eight (8) strategic intervention materials (SIMs) developed and they were named The Rise and Fall for SIM No.1, No Stress on Stress for SIM No.2, Easy with Affixes for SIM No. 3, Follow Me for SIM No.4, What's the Big Idea? For SIM No.5, What Kind of Sentence Are You? for SIM No.6, Lights, Camera Action for SIM No.7 and Thanking Through a Letter for SIM No. 8.

Comments and suggestions of the researcher's adviser, colleagues and SIM experts in the first draft were taken into consideration. The usability experts validated the SIMs. Their recommendations were sought and followed.

3.2 Validity of the Usability of the Strategic Intervention Materials (SIMs) by the Experts

The evaluation in terms of usability of the developed SIMs was based on the different criteria (see Appendix G).

The mean distribution on the validation in terms of the usability of Strategic Intervention Material No.1 titled *The Rise and Fall* is illustrated on Table 3.2.1 on the next page.

Table 3.2.1 Usability of SIM No. 1

As presented in Table 3.2.1, the highest mean rating given by the usability experts was 5.00 which was interpreted as very satisfactory. The indicators having this rating were 'ease of administration' and 'ease of scoring'.

The result shows that the instructions in every activity in the material are understandable. Another is that the answer keys for the activities in each material are provided. Also, the answers in each activity in the material are objective.

The lowest mean rating of the usability experts was indicator 'time' with a mean 4.27 which was interpreted as satisfactory. This means that the material needs a little more time to be administered. The researcher made the directions or instructions of the activities in the material clear and understandable so to avoid more time to answer.

The grand mean presented in Table 3.2.1 was 4.53 which means that SIM no.1 was viewed by the usability experts as very satisfactory.

The mean distribution on the validation of SIM no.2 titled *No Stress on Stress* in terms of its usability is presented on Table 3.2.2

INDICATORS	RESPONDENTS					Mean	Interpretation
	1	2	3	4	5		
I.Ease of Administration							
II. Ease of Scoring	4.5	4.3	5.0	4.4	4.5	4.53	Very Satisfactory
III. Expenses	4.5	4.5	4.8	5.0	5.0	4.75	Very Satisfactory
IV. Time	4.6	4.0	4.0	4.9	4.0	4.29	Satisfactory
V. Other Factors	4.3	4.0	4.7	4.3	4.0	4.27	Satisfactory
	5.0	4.2	5.0	5.0	4.8	4.80	Very Satisfactory
Grand Mean	4.58	4.18	4.68	4.71	4.47	4.53	Very Satisfactory

Table 3.2.2 Usability of SIM No. 2

INDICATORS	RESPONDENTS					Mean	Interpretation
	1	2	3	4	5		
I.Ease of Administration	4.6	4.0	5.0	4.6	4.1	4.48	Satisfactory
II. Ease of Scoring	4.8	4.0	4.5	5.0	5.0	4.65	Very Satisfactory
III. Expenses	4.9	4.0	4.3	4.9	4.0	4.40	Satisfactory
IV. Time	5.0	4.0	4.7	4.7	4.0	4.47	Satisfactory
V. Other Factors	4.8	4.0	5.0	5.0	4.8	4.73	Very Satisfactory
Grand Mean	4.81	4.00	4.69	4.83	4.39	4.54	Very Satisfactory

As gleaned in Table 3.2.2, the highest mean rating given by the usability experts was 4.73 which was interpreted as very satisfactory. The indicator bearing this rating was ‘other factors’. The result shows that the material can be administered in an ordinary classrooms. The instructions in every activity are properly laid out. Another is that the answer keys for the activities in each material are provided. Also, the answers in each activity in the material are objective. Furthermore, the pupil’s answer sheets are included in

the material to facilitate easy recording of answers. Lastly, the material does not promote discrimination or bias towards pupils and it can be used for remedial purposes

The lowest mean rating of the usability experts was indicator ‘expenses’ with a mean 4.40 which was interpreted as satisfactory. This means that the material does need minimal corrections. The researcher reviewed the material and corrected the typographical errors, omitted the excess punctuation marks and pieced the syllables together in the text.

The grand mean presented on Table 3.2.2 was 4.54 which means that SIM no.2 was viewed by the usability experts as very satisfactory.

The mean distribution on the validation of SIM no.3 titled *Easy with Affixes* in terms of its usability is presented on Table 3.2.3

Table 3.2.3 Usability of SIM No. 3

As displayed in Table 3.2.3, the highest mean rating given by the usability experts was 4.77 which was interpreted as very satisfactory. The indicator having this rating was other factors.

This means that the material can be administered in ordinary classrooms. Also, the instructions in every activity in the material are understandable. The instructions in every activity are properly laid out. In addition, the material does not

INDICATORS	RESPONDENTS					Mean	Interpretation
	1	2	3	4	5		
I. Ease of Administration	4.9	4.0	5.0	4.8	4.5	4.63	Very Satisfactory
II. Ease of Scoring	4.8	4.0	4.8	5.0	4.0	4.50	Very Satisfactory
III. Expenses	5.0	4.0	4.0	4.9	4.0	4.37	Satisfactory
IV. Time	5.0	4.0	4.7	4.3	4.3	4.47	Satisfactory
V. Other Factors	4.8	4.0	5.0	5.0	5.0	4.77	Very Satisfactory
Grand Mean	4.89	4.00	4.68	4.79	4.37	4.55	Very Satisfactory

need too much explanation from the proctor . Furthermore, pupil’s answer sheets are included in the material to facilitate easy recording of answers. The material does not put the pupil in an embarrassing situation and it does not promote discrimination or bias towards pupils. Another is

that the material can be used for remedial purposes. Finally, the material helps achieve mastery of English lessons.

The lowest mean rating of the usability experts was 4.37 which was interpreted as satisfactory under the indicator ‘expenses’. This means that teachers may spend a little for them to use or reproduce the materials. The researcher reviewed the material and reduced the number of pages, items, and colors used in some activities in order for the teachers to reduce the cost of reproducing it.

The grand mean presented on Table 3.2.3 was 4.55 which means that SIM no.3 was viewed by the usability experts as very satisfactory.

The mean distribution on the validation of SIM no.4 titled *Follow Me* in terms of its usability is presented on Table 3.2.4.

Table 3.2.4 Usability of SIM No. 4

INDICATORS	RESPONDENTS					Mean	Interpretation
	1	2	3	4	5		
I. Ease of Administration	4.9	4.0	4.9	4.6	4.4	4.55	Very Satisfactory
II. Ease of Scoring	4.8	4.0	4.8	5.0	5.0	4.70	Very Satisfactory
III. Expenses	5.0	4.0	4.0	4.9	4.0	4.37	Satisfactory
IV. Time	4.7	4.0	4.7	4.7	4.0	4.40	Satisfactory
V. Other Factors	5.0	4.0	5.0	5.0	4.8	4.77	Very Satisfactory
Grand Mean	4.86	4.00	4.66	4.83	4.44	4.56	Very Satisfactory

As browsed in Table 3.2.4, the highest mean rating given by the usability experts for SIM no. 4 was 4.77 which was interpreted as very satisfactory. Indicator ‘other factors’ got such rating.

The result shows that the instructions in every activity in the material are understandable.

The lowest mean rating of the usability experts was 4.37 under the indicator ‘expenses’ which was interpreted as satisfactory. This means that teachers may spend a little

for them to use or reproduce the materials. The researcher carefully reviewed the material and reduced the number of items in the activities and lessened also the colors used in the material so it will easily be reproduced and copied.

The grand mean presented on Table 3.2.4 was 4.56 which means that SIM no.4 was viewed by the usability experts as very satisfactory.

The mean distribution on the validation of SIM no.5 titled *What’s the Big Idea?* in terms of its usability is presented on Table 3.2.5.

As shown in Table 3.2.5, the highest mean rating given by the usability experts for SIM no. 5 was 4.77 which was interpreted as very satisfactory. The indicator ‘other factors’ got such rating. It can be noted that based on the result, the answer keys for the activities in each material are well- provided and that the material can be used for remedial purposes.

The lowest mean rating of the usability experts was 4.29 which was interpreted as satisfactory under the indicator ‘expenses’. This means that teachers may spend a little for them to use or reproduce the materials. The researcher carefully reviewed the material and reduced the number of items in the activities and lessened also the colors used in the material so it will easily be reproduced and copied

Table 3.2.5 Usability of SIM No. 5

INDICATORS	RESPONDENTS					Mean	Interpretation
	1	2	3	4	5		
I. Ease of Administration	4.9	4.0	4.8	4.4	4.4	4.48	Satisfactory
II. Ease of Scoring	4.8	4.3	5.0	4.8	5.0	4.75	Very Satisfactory
III. Expenses	4.7	4.0	4.0	4.7	4.0	4.29	Satisfactory
IV. Time	4.7	4.0	4.7	4.3	4.3	4.40	Satisfactory
V. Other Factors	4.8	4.2	5.0	5.0	4.8	4.77	Very Satisfactory
Grand Mean	4.77	4.08	4.68	4.63	4.51	4.54	Very Satisfactory

The grand mean presented on Table 3.2.5 was 4.54 which means that SIM no.5 was viewed by the usability experts as very satisfactory.

The mean distribution on the validation of SIM no.6 titled *What Kind of Sentence are You?* in terms of its usability is presented on Table 3.2.6.

Table 3.2.6 Usability of SIM No. 6

INDICATORS	RESPONDENTS					Mean	Interpretation
	1	2	3	4	5		
I.Ease of Administration	4.8	3.9	4.8	4.3	4.5	4.43	Satisfactory
II. Ease of Scoring	5.0	4.3	5.0	5.0	5.0	4.85	Very Satisfactory
III. Expenses	4.9	4.0	4.0	5.0	4.0	4.37	Satisfactory
IV. Time	5.0	4.0	4.7	4.3	4.3	4.47	Satisfactory
V. Other Factors	5.0	4.3	5.0	5.0	5.0	4.87	Very Satisfactory
Grand Mean	4.92	4.09	4.68	4.72	4.57	4.60	Very Satisfactory

As displayed in Table 3.2.6, the highest mean rating given by the usability experts for SIM no. 6 was 4.87 which was interpreted as very satisfactory under the indicator ‘other factors’.

The result means that the answer keys for the activities in each material are well-provided. Also, pupil’s answer sheets are included in the material to facilitate easy recording of answers. In addition, the material can also be used for remedial

purposes.

The lowest mean rating of usability experts was 4.37 which was interpreted as satisfactory under the indicator ‘expenses’.

This means that teachers may spend a little for them to use or reproduce the materials. The researcher carefully reviewed the material and reduced the number of items in the activities and lessened also the colors used in the material so it will easily be reproduced and copied.

The grand mean presented on Table 3.2.6 was 4.60 which means that SIM no.6 was viewed by the usability experts as very satisfactory.

The mean distribution on the validation of SIM no. 7 titled *Lights Camera Action Words* in terms of its usability is presented on Table 3.2.7.

Table 3.2.7 Usability of SIM No. 7

INDICATORS	RESPONDENTS					Mean	Interpretation
	1	2	3	4	5		
I. Ease of Administration	4.8	4.0	4.9	4.8	4.5	4.58	Very Satisfactory
II. Ease of Scoring	5.0	4.3	4.0	4.8	3.3	4.25	Satisfactory
III. Expenses	4.9	4.0	4.0	4.7	4.9	4.49	Satisfactory
IV. Time	4.7	4.0	4.7	4.0	4.3	4.33	Satisfactory
V. Other Factors	5.0	4.2	5.0	5.0	5.0	4.83	Very Satisfactory
Grand Mean	4.85	4.08	4.51	4.64	4.39	4.50	Very Satisfactory

As shown in Table 3.2.7, the highest mean rating given by the usability experts for SIM no.7 was 4.83 which was interpreted as very satisfactory under the indicator ‘other factors’.

The result shows that the material can be used for remedial purposes.

The lowest mean rating of the usability experts was 4.25 which was interpreted as satisfactory. The indicator which obtained this rating was ‘ease of scoring’.

This means that the pupil needs help or assistance from the proctor in accomplishing the material. The researcher reviewed the material and modified the activities so that the learners can answer them all by himself or herself.

The grand mean presented on Table 3.2.7 was 4.50 which means that SIM no.7 was viewed by the usability experts as very satisfactory.

The mean distribution on the validation of SIM no. 8 titled *Thanking Through a Letter* in terms of its usability is presented on Table 3.2.8

As gleaned in Table 3.1.8, the highest mean rating given by the usability experts for SIM no.8 was 5.0 which was interpreted as very satisfactory. The items having this rating were number 9 under ease of scoring and number 27 under other factors .

The data means that the answer keys for the activities in each material are provided and the material can be used for remedial purposes.

Table 3.1.8 Usability of SIM No. 8

INDICATORS	RESPONDENTS					Mean	Interpretation
	1	2	3	4	5		
I.Ease of Administration	4.8	4.0	4.8	4.8	4.5	4.55	Very Satisfactory
II. Ease of Scoring	5.0	4.3	4.8	4.8	5.0	4.75	Very Satisfactory
III. Expenses	5.0	4.0	4.0	4.7	4.6	4.46	Satisfactory
IV. Time	4.0	4.0	5.0	4.0	4.7	4.33	Satisfactory
V. Other Factors	5.0	4.2	5.0	5.0	5.0	4.83	Very Satisfactory
Grand Mean	4.75	4.08	4.70	4.64	4.75	4.58	Very Satisfactory

The lowest mean rating of the usability experts was 4.33 which was interpreted as satisfactory under indicator ‘time’. This means that the material needs a little more time to be administered. The researcher made the directions or instructions of the activities in the material clear and understandable so to avoid pupils from taking much time to answer.

The grand mean presented on Table 3.2.8 was 4.58 which means that SIM no.8 was viewed by the usability experts as very satisfactory.

4. Findings

The data obtained in the study revealed the following findings:

1. The least-learned competencies were identified based on the item analysis of the first and second periodic tests. There was one least –learned competency per macro skill identified per grading period. Since there were four (4) macro skills in each grading period, logically there were also four (4) LLC in every grading period. In all, there were eight (8) LLC that were considered in the study namely: the rising and falling intonation, stress, affixes, following three to four step-directions, getting the main idea, kinds of sentences, action words and writing a thank you letter;
2. The development of the intervention materials was based on the identified least-learned competencies. From the eight (8) least learned skills, there were eight (8) SIMs developed based on Vygotsky’s Scaffolding, Keller’s Personalized System of Instruction, Renner’s Curriculum Model of Instruction based on Curriculum Development Theory (CDT) of Dewey and Sweller’s Cognitive Load Theory and they were validated by the five (5) usability experts;
3. The usability experts rated the developed SIMs “very satisfactory”. This result implied that the usability experts considered the SIMs as teacher support materials that can be used to master the competencies in elementary English 4.

5. Conclusions

Once the curriculum changes, one of the issues that will be felt by the implementers particularly the teachers is the dearth of instructional materials because change of the curriculum means change of the teacher-support-materials too especially if the former curriculum is far different than the new one. The implementation of the Kindergarten to Grade 12 or K-12 Basic Education Curriculum has brought about lots of challenges to the Philippine educational system. The lack of instructional materials tops the list of challenges. This study developed and evaluated Strategic Intervention Materials (SIMs) in Teaching Elementary English 4. Eight (8) least learned skills were identified and were made as bases in designing the SIMs. The eight (8) SIMs were developed based on Vygotsky’s Scaffolding, Keller’s Personalized System of Instruction, Renner’s Curriculum Model of Instruction based on Curriculum Development Theory (CDT) of Dewey and Sweller’s Cognitive Load Theory. The Strategic Intervention Materials (SIMs) are considered by the usability experts as suitable and appropriate for the grade four pupils in order for them to master the competencies in the first and second grading. The Strategic Intervention Materials (SIMs) may also be used as grade four teacher-support materials to master the competencies in the first and second grading.

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