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The Effect of Substitution, Augmentation, Modification and Redefinition Model on Students' Writing Skills

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Abstract

Purpose: *This study aimed to determine the effects of Substitution, Augmentation, Modification and Redefinition (SAMR) Model on Danao National High School Grade 12 students' writing skills. Specifically, it sought to determine if SAMR Model could enhance the writing skills of students.*

Approach/Methodology/Design: *The study only covered the writing skills which include ideas, organization, word choice, sentence fluency and convention (grammar and mechanics). The written outputs, specifically the rationale, significance of the study and scope and delimitation from the students' Practical Research 2 subject were the bases for the experimentation. The study utilized quasi-experimental method to determine the effectiveness of Substitution, Augmentation, Modification and Redefinition Model as the basis for technology integration on enhancing the students' writing skills. This study used the researcher-made pre-test and post-test questionnaire and raters were chosen to evaluate students' outputs.*

Findings: *It was found out that the level of the writing skills of the control and experimental groups did not change on their pre-test and post-test. Both groups showed an increase on their post-test results. The results of the experimental group indicated that SAMR Model has improved students' writing skills*

Practical Implications: *The utilization of this model on writing activities or subjects will likely create a new field of interest and widen students' perspectives on the different means or medium of writing. However, this tool would really take much time, effort and technological skills on the part of the facilitator to make it as effective as possible.*

Originality/value: *This study proposed Action Program to Improve Writing Instruction in Danao National High School.*

1. Introduction

Writing is a form of communication that allows students to put their feelings and ideas on paper, to organize their knowledge and beliefs into convincing arguments and to convey meaning through well-constructed text. It is one of the macro skills which should be well-developed among students. It is a thinking process which is characterized by a purposeful selection and organization of experience (Arapoff, 1975). Writing in the K-12 Curriculum,

especially in Senior High School is indispensable as this develops students' critical thinking and addresses the challenges of students regarding their poor writing skills.

According to Gustilo (2016), students considered as bad writers seem to be penalized by their getting low evaluations and failing marks. They seem to lack proficiency in terms of content and linguistic knowledge stored in their memory, the production processes they activate, the writing approach, and writing experience, hence, there is a need for writing to be reinforced in their classrooms. Furthermore, writing is not limited to pen-paper, for any means of writing is already possible nowadays. Writing to pose questions, to express oneself, to demonstrate intellectual flexibility and maturity and to preserve ideas to be reflected later may be done through social media like Facebook, Twitter, and Instagram, printed papers like newspapers, magazines, journals and technology software like Google Doc, Google Slide and Google Keep, proving that writing and technology have been working hand in hand.

Hence, educational institutions are challenged to produce citizens with better writing skills. According to Cecera (2017), Philippines is ranked second in terms of spoken English, but it is alarming to note that the Philippines is in the second to the last in terms of written English. The low writing proficiency is also observed by the researcher among her Grade 12 students in her workplace. Being a young teacher, the researcher has already tried several teaching strategies which range from lecture, group dynamics, and games but still these do not help the students improve their writing skills. She sensed though that an instruction aided with technology may help.

In line with this, the researcher intends to enhance students' writing skills through the integration of technology. The Substitution, Augmentation, Modification and Redefinition (SAMR) Model utilizes computer software which can assist both the teacher and students in the teaching-learning process particularly in writing activities. This study is purposed to find out if SAMR model would enhance students' writing skills. This proposed technology integration in students' writing activities will serve as a springboard to a new innovative teaching of writing, if proven effective.

2. Literature Review

Writing is an essential skill in the 21st century. It is the primary basis upon which one's work, learning, and intellect will be judged in college, in the workplace, and in the community. It helps one to move easily among facts, inferences, and opinion without getting confused to help others give feedback and to help refine ideas when others give feedback. Writing equips an individual with the communication and thinking skills needed to participate effectively. This study is based on three modern learning theories, namely: Constructivism, Innovation Diffusion Theory and Cognitive Flexibility Theory. Each of these shall be discussed comprehensively in relation to the present research.

Constructivist learning theory, also known as Constructivism asserts that people construct their own knowledge of the world based on individual experiences. Learning is based on how

the individual interprets and creates the meaning of his/her experiences. Roblyer (2006), as cited by Uriarte and Uriarte (2009) on their study entitled *Constructivism and Technology in the Classroom*, note that constructivists believe learning to occur when one constructs both mechanisms for learning and his or her own unique version of the knowledge, coloured by background, experiences, and aptitudes. Knowledge is therefore constructed and not transmitted, and students generate new knowledge through activities, experiences, and experiments.

This theory supports this study in a way that students can construct their own learning based on what they have experienced while doing the activities. Instead of having the students rely on someone else's information and accept it as truth, the students are exposed to data, primary sources, and the ability to interact with other students so that they can learn from the incorporation of their experiences. Their classroom experience should be an invitation for a myriad of different backgrounds and the learning experience. When students come together, they observe and analyze information and ideas through collaborating and giving feedback to one another in the form of writing, hence, learning can possibly take place.

Another theory that supports this study is the Innovation Diffusion Theory which predicts that interpersonal relationships, as well as media, provide information and influence opinion and judgment. It also states that information flow through networks and influence how users adopt new medium of information just like the Internet (University of Twente, 2018). Moreover, Rogers (1995), as cited by Wani and Ali in their article entitled *Innovation Diffusion Theory: Review and Scope in The Study of Adoption of Smartphones in India* (2015), stated that IDT is focused on understanding how, why, and at what rate innovative ideas and technologies spread in a social system.

IDT has four elements and one of which is the communication systems. This system serves as a channel through where individuals shares information with each other, and how that information is being diffused faster to a certain group of people. This theory is then basically connected to how this present study proceeds. Media, specifically Internet, is used throughout the instruction and feedbacking for the students' improvement of writing skills. Cognitive Flexibility Theory asserts that learning must have its specific environment or learning setting but being supported by information from various sources and fields (Ouyang &S Stanley, 2014). This theory has been a great influence in network and interactive technologies which emphasize the variety of learning scenarios learners must be exposed to, so, they could have a greater space to construct their own knowledge and apply appropriate strategies for a specific context.

This learning theory supports the skills needed by the 21st century. Learners who are placed into a learning environment based on this theory would also be using their cognitive flexibility to spontaneously restructure one's knowledge, in many ways, in adaptive response to radically changing situational demands (Cullata, 2018).Thus, in this study, this theory is evident on how the students will be able to adapt to a new learning scenario, which is different from the traditional one. This is through their sharing of information and ideas with

each other and correcting the works of their classmates through the use of the Google Docs. They will be able to interact with students while they are learning and receiving feedback using an online media and they can also share their knowledge and writing skills through technology, which manifest transfer of knowledge and skills beyond their initial learning situation and from a different perspective.

Technology integration is the use of technology resources – computers, mobile devices like smart phones and tablets, digital cameras, social media platforms and networks, software applications, the Internet, etc. – in daily practices, and in the management of school. It is using computers effectively and efficiently in the general content areas to allow students to learn how to apply computer skills in meaningful ways. When students are exposed to these resources, there is a greater chance that students learn to use computers flexibly, purposefully and creatively when they get to be in the real-world. In this manner, the curriculum drives technology usage and not technology driving the curriculum. Finally, technology integration in teaching organizes the goals of curriculum and technology into a coordinated, harmonious whole (Dockstader, 1999).

Indeed, technology integration paves the way for learners to experience instruction differently and challenges traditional methods of the teaching-learning process, and the way how education is managed. Moreover, technology integration in education enhances teaching skills and learning abilities of students. Students and teachers are both encouraged to integrate novel ways for the learning process to be more collaborative and progressive (Ghavifekr & Rosdy, 2015).Once technology is integrated in the teaching-learning process, the teacher must be conscious that writing is a functional and self-educative process that requires substantial block on uninterrupted time to write (Farric, 1993). To write clearly, one must understand the basic system of a language which includes knowledge of grammar, punctuation and sentence structure. Vocabulary is also necessary, as is correct spelling and formatting. All these elements compose good writing.

Writing skill in this study only refers to the ability of the students in writing basing from their ideas, organization, voice, word choice, sentence fluency, and convention (mechanics and grammar). Education Northwest (2012), these are the six (6) traits that define quality writing. The ideas are the main message or the content of the piece, together with all supporting details that enrich and develop the whole written output. The ideas are strong when the message is clear. Organization is the internal structure of a piece of writing, the thread of central meaning, the pattern and sequence, so long as it fits the central idea. If the piece's organization is strong, it becomes meaningful and creates a sense of anticipation.

Voice is the writer coming through the words, the sense that a real person is speaking to us and cares about the message. It is the heart and soul of writing. When the writer is engaged personally with the topic, s/he imparts a personal tone and flavour to the piece that is unmistakably his/hers alone—the individual something—different from all the others. Word choice is the use of rich, colourful, precise language that communicates not just in a functional way, but in a way that moves and enlightens the readers (Fouts, 2000). Strong

word choice is characterized not much by an exceptional vocabulary chosen to impress the readers, but more by the skill to use everyday words well. Sentence fluency is the rhythm and flow of the language and the sound of word patterns. Fluent writing has cadence, power, rhythm and movement. It is free of awkward word patterns that slow the readers 'progress. Sentences vary in length, beginnings, structure and style, and are so well crafted that the reader moves through the piece with ease. Convention is the mechanical correctness of the piece and includes five elements: spelling, punctuation, capitalization, grammar/usage and paragraphing. Writing that is strong in conventions has been proofread and edited with care.

These six traits of writing provide a common language when speaking about writing and guidelines for assessing writing. Besides, these will be an apt basis on the identification if there is a difference between the writing skills of students when technology is integrated and when it is not. Technology integration has shown to help create more authentic learning environments where the students are more motivated to attend, have a greater chance of communication and collaboration and have more opportunities to use higher order thinking and problem solving skills connected to real-life world applications (Fouts, 2000). Just like technology itself, technology integration in the classroom has its advantages and disadvantages. Based on the study entitled *Benefits of Technology Integration in Education* of Saba (2009), integrating technology in the classroom improves students' achievement on tests and quality of work, improves attitudes towards learning, provides individualized learning, acts as a catalyst of change and prepares students for the future.

However, Constitution Guru cites the disadvantages of technology integration. According to its page, even though many education experts tout the advantages of incorporating technology into the school curriculum and the classroom, technology can sometimes hinder learning and the educational process. Because schools occasionally purchase technology before their systems that educators are adequately equipped for and trained to use effectively, technology sometimes goes unused or prevents student learning. According to the online article entitled *Technology for ESL* by American TESOL Institute, some of its disadvantages are lack of support regarding its maintenance, inadequate teaching methodology, time-consuming due to the slow internet connection, upkeep maintenance and expenses and incompatibility issues. Becoming aware of some of the disadvantages in utilizing technology in the classrooms can allow schools to better prepare for the widespread use of computers and devices by their students and teachers.

While many schools may not be prepared for technology integration, the government has already recognized that this can happen in the future through the Republic Act (RA) No. 7722 known as the "Higher Education Act of 1994". This requires an updated curriculum which is more responsive to the demands of a rapid changing society and necessary to deal with the worldwide competitiveness. Thus, teachers are expected to think of novel teaching strategies that keep students abreast of this technological generation. Teachers should be updated with the latest in technology to enrich students' subject matter content and learning experiences. Integration of technology in the classroom has also advantages. Ganas (2006) pointed out that

integration of technology enhances the lesson itself but will also help in fostering cross-contents. It will not only progress education or the curriculum itself but also the life of students and its proper usage will result to technologically civilized and oriented citizens which could be a contribution to this 21st century.

The SAMR model as a basis for technology integration in enhancing students' writing skills can be considered as an innovative way in the teaching learning process. SAMR is a model in technology integration which is comprised of four activities, namely: Substitution, Augmentation, Modification and Redefinition. This offers a method of how computer technology might impact teaching and learning. It also shows a progression which educational technology often follows as they progress through teaching and learning with technology. The four elements of SAMR model will be further discussed basing from the different points of view.

Substitution: According to Gorman (2016), this is the lowest level of technology integration. At this stage, technology replaces an activity that may have been done before using an analogue version. This is the very first stage of enhancement of a lesson using technology. This might include letting students use word processing rather than handwriting it. Despite being the lowest level in integrating technology, students will still be able to see the utilize technology in its essence in this phase. This present experiment requires, students to type their rough drafts and final drafts of their research study's rationale, significance of the study and scope and delimitation in Google Documents rather than writing it on paper.

Augmentation: Based on a study entitled *The SAMR Model as a Framework for Evaluating Learning* by Idaho State University, this is the level of technology integration in which the technology provides a substitute for other learning activities but with functional improvements. Activities that fall within this level are said to enhance learning (Puentedura, 2012). One example of an activity conducted within the said study is the use of SMS text messages to help nursing students memorize information about medications. In this study, the students will be asked to share their written outputs (rationale, significance of the study and scope and delimitation) to their pair using the Google Docs. The student's pair will use the comment tool in the Google Doc to provide peer feedback and suggestions.

Modification: Schrock (2013) developed her own thoughts based on SAMR model of Puentedura through an online article entitled *Kathy Shcrock's Guide to Everything*. She interconnected SAMR model with Bloom's Taxonomy of Cognitive Skills, in which she was able to derive to a conclusion that modification in the SAMR is equivalent to Bloom's combined Applying, Analyzing and Evaluating levels. She also asserted that educators should design tasks that have significant impact on students' outcomes. In this study, each student rewrites on Google Docs the corrected research parts of their pair and they each of the research group member will look into it before sharing it to the Research adviser for feedback and corrections. The student will use the comment and suggesting tools to self-edit as they reconstruct their written outputs in the Google Docs.

Redefinition: According to the model created by Puentedura (2009) in his book, *As We May Teach: Educational Technology, From Theory into Practice*, computer technology allows for new tasks that were previously inconceivable. At this level, common classroom tasks and computer technology exist not as ends but as supports for student-centered learning. Students learn content and skills in support of important concepts. Collaboration and peer to peer interaction becomes necessary and technology allows such communication to occur. Questions and discussion is increasingly student generated. Sharing outputs for public viewing review and comments with the whole class or section through the Facebook page of the class will be the activity for the redefinition level. This will encourage collaboration among peers and teachers in enhancing students' writing skills.

A model of integrating technology such as SAMR is one way of transforming technology into a blended learning experience for this has become a necessity for those educators wanting to engage student-centered learning in the 21st century classroom. It is possible to create a successful and highly interactive student-based learning experience without technology, but it is technology that can amplify the learning experience. Through the work of Puentedura, this SAMR model provides a wonderful lens to look at the progression on how technology is being integrated into the classroom and how it is being used by the students. It should also be remembered that this model increases student engagement. The first two steps involve technology as an enhancement tool and the last two involve technology as a transformational tool.

This model also promotes cooperative learning within the integration of technology and enhancing students' writing skills, making students enjoy tasks given to them, displaying greater motivation and finishing tasks (Deutsch, 1990). While there is technology integration in SAMR Model, there is also cooperative learning which creates among learners a positive impact on the individual's self-esteem, helping behaviour, interest, personal liking, and mutual concern among peers, cooperation and attitude towards school learning, as a result of an observation made by Lazaworitz, Sharan and Steinberg (1980). Many may not agree whether an activity can be defined as one level or another, the important concept that needs to be grabbed in this certain kind of method is the level of students' engagement. As one moves along the continuum, computer technology becomes more important in the classroom but at the same time becomes more invisibly woven into the good demands of teaching and learning.

The researcher presents the critical reviews regarding SAMR. According to Love (2015) in his article *SAMR: A Model without Evidence*, the model is not a model of learning. There is no inherent progression in the integration of technology in learning within. It is overly simplistic, deeply lacking in peer reviewed academic research and its current prevalence in the world of education is almost entirely due to its adoption by a certain multi-national as a core pillar of educational technology. Moreover, Linderoth (2013), an associate professor at the Department of Education, Communication and Learning at the University of Gothenburg

and James O'Hagan, Director of Instructional Technology at Rockford Public Schools both question SAMR model because of its lack of peer-reviewed articles and lack of study's framework. The authors and educators who are opposed to do SAMR share the same notion that until there is a body of appropriate, peer-reviewed academic research, demonstrating the benefit of the SAMR model in improving outcomes for learners; it cannot be taken seriously by educators. There were few researches conducted locally which are worth reviewing. The findings of their studies would serve as bases for comparison and would provide the researcher more background on determining how effective SAMR model, for a kind of technology integration, in enhancing students' writing skills. The study of Lomarda (2010) on the effects of using technology-based instruction in college algebra is not that effective compared to traditional instruction. Yet, there was an effect on the students who were exposed to technology-based instruction compared to those of traditional instruction. It has been further stated in the study that educational technology helps to improve the overall efficiency of the teaching-learning process (Lucido and Borabo, 1997). Educational technology increases the quality of learning and improves the 21st century skills of the teachers without affecting educational quality.

According to the *Principles of Teaching 2* (2006), learning is a social activity. Learning is a cooperative and collaborative process. People enjoy functioning independently, but they also enjoy functioning interdependently. Thus, there is a need for a change or innovation in some of the teaching methodologies that will centre on having students who are willing and able to accept responsibility and control for their own learning. Moreover, Section 10 of Article XIV of the 1987 Philippine Constitution states that science and technology are essentials for national development and progress. In line with this, the same section provides that the state shall give priority to research and development, invention, innovation, utilization and the science and technology education, teaching and services. Thus, integrating technology in the classroom using the SAMR model may or may not allow students to enhance students' writing skills through a more concrete and technological way. This is a challenge to the 21st century teachers since the younger generation is growing up surrounded with all forms of technology. Many possibilities for improving students' skills using the Internet seem boundless.

If Section 10 of the constitution would be fully realized, technology integration would be almost possible to cater the needs and enhance the technological skills of the students which would undeniably be a great contribution in the teaching-learning process. The theories and related literature cited will help the researcher in this present study to determine whether Substitution, Augmentation, Modification and Redefinition model enhances students' writing skills.

3. Methodology and Procedures

Research Design

The study utilized quasi-experimental method to determine the effectiveness of Substitution, Augmentation, Modification and Redefinition model as the basis for technology integration on enhancing the students' writing skills. One group was assigned as experimental class integrating technology using the SAMR model while another class served as the control group being treated with conventional method-paper-pencil way. Both experimental and control groups undergone a pre-test to determine the level of their writing skills before the experimentation period. A post-test was also administered to both groups at the end of the experiment period to know if SAMR model as a basis for technology integration is effective in enhancing the writing skills of the Grade 12 students of Danao National High School.

Research Participants

The Grade 12 level of Danao National High is composed of five majors namely, Bread and Pastry, Electrical and Installation Maintenance (EIM), General Academic Strand (GAS), Information and Communication Technology (ICT) and Agriculture. In this study, fifty-six (56) Grade 12 students of Danao National High School served as the respondents of the study. Twenty-eight (28) students from the General Academic Strand served as the experimental group while twenty-eight (28) students from Information and Communication Technology major served as the control group. These groups of students were heterogeneous in nature (e.g. cognitive level and writing skills), yet, they have been chosen considering the number of students that they have.

Table 1: Distribution of Respondents

Group	Method
Experimental Group (Grade 12- General Academic Strand)	SAMR Model-based
Control Group (Grade 12- Information and Communication Technology)	Conventional method (Paper-pencil)

Source: Author

Research Environment

The study took place at Danao National High School. The school is located at Poblacion, Danao, Bohol. It is a public school under the Department of Education offering both Junior and Senior High School education. The Junior High School consists of eighteen (18) sections while the Senior High School is composed of six (6) sections.

Research Instruments

This study used a researcher-made pre-test and post-test questionnaire to assess the level of writing skills of the students. There was a pre-test conducted before the implementation of the study to both control and experimental groups to determine their proficiency level in

writing. After the experimentation period, a post-test was conducted to know if there was a difference on the writing skills of the students, especially to those who were treated with technology integration basing on the SAMR model. The 6-Point Writer's Rubric constructed by Education Northwest (2010) which was utilized by Ramada (2013) in her study entitled *Reading Comprehension in Relation to Writing Proficiency* was used by the raters in determining the level of writing skills of the students, specifically in terms of their organization, word choice, voice, sentence fluency, ideas and conventions (mechanics and grammar).The raters scored the students' writing outputs using the 6-Point Writer's Rubric wherein the following scores and description are indicated to all the categories:

Table 2: Raters' Scoring Basis

Range	Description
1.00-1.99	Beginning
2.00-2.99	Emerging
3.00-3.99	Developing
4.00-4.99	Capable
5.00-5.99	Experienced
6.00-6.99	Exceptional

Source: Author

Raters' Qualifications:

The raters of the pre-test and post-test were chosen based on these qualifications:

1. Raters should be graduates of Master of Arts in Education major in English. If possible, they should be currently taking up their doctor's degree in education majoring in language.
2. They should have been teaching English subjects for over five (5) years, regardless of the school being private or public, and the year level being taught—may it be secondary or tertiary.
3. Raters should have attended various seminars and trainings related to writing proficiency and updates for them to correct conventional errors and practices in the field of writing.

4. Research Procedure

Letters asking permission and approval from the Bohol Division Superintendent and the school principal of Danao National High School before the administration of the study were sent. The researcher also sent letters and talked personally to the respondents to orient them of the things that would happen onset of their discussion of the Practical Research 2 subject due to the study. Everything has been made clear to them so that their cooperation would be assured and to minimize lapses on the actual experimentation phase. The conduct of the study has been started upon approval.

A. Pre-test

Pre-test was both conducted to the Grade 12 General Academic Strand (experimental group) and Information and Communication Technology (control group) students as the respondents of the study (See Appendix D). Students were given half an hour to finish the test. After examination, the test papers were collected and checked by the raters to be able to gauge their level of writing skill, which were the basis of intervention and focus. The scores of the respondents were recorded for statistical data treatment.

B. Experimentation Phase

On the first month of the conduct of the study, the experimental group was taught and exposed to using computer and online resources, especially Google Docs which was mainly used in the study. The researcher let them do a hands-on training with navigating the Internet, creating their Google accounts, encoding, uploading, commenting and sharing documents using Google Docs. Moreover, they were advised to search for grammar checker sites online that would help them identify and correct their errors when making their Rationale, Significance of the Study and Scope and Delimitation parts of their research study. After assessing the knowledge of the experimental group through an individual hands-on demonstration, the researcher then proceeded to the start of the data gathering.

Both control and experimental groups were being discussed with the lessons on their Practical Research 2 subject, specifically on these parts: Rationale, Significance of the Study and Scope and Delimitation. The same lesson content was given to both groups. They only varied on their assessment, for the control group was exposed to the conventional way of writing and feedbacking, while the experimental group followed the Substitution, Augmentation, Modification and Redefinition (SAMR) Model.

The experimental group was exposed to the SAMR Model during their assessment on their Practical Research 2 subject, specifically on how to write these parts: Rationale, Significance of the Study and Scope and Delimitation. This was done for over a month. Here are the steps that were followed for the experimental group.

- **Substitution**- Students typed their written outputs in Google Docs.
- **Augmentation**- Students shared their written outputs to their pair through Google Docs for any corrections, feedback or suggestions using its comment feature.
- **Modification**- Students revised their corrected written output and then shared the revised document to their Research adviser for comments and suggestions.
- **Redefinition**- The class created a Facebook page in which they were able to upload their corrected and revised documents so that other classmates, students or teachers would be able to comment if there are any improvements or changes needed.

On the other hand, the control group was exposed to the conventional way of writing their outputs through the paper-pencil way. They just wrote their written outputs (Rationale,

Significance of the Study and Scope and Delimitation) and passed it to their adviser for corrections, after which, a one-on-one feedbacking session was then conducted by the teacher to the students for them to identify their errors and the ways on how to correct those.

C. Post-test

After a month, a post-test was given to both the control and experimental groups. The same test was given to the respondents. The post-test was conducted to see if there has been a difference on the students' writing skills through the integration of technology basing on the SAMR Model. Moreover, the control group was exposed to a one-on-one feedbacking session and to the SAMR Model for the remaining parts of the research paper, for them to experience what the respondents of the experimental group has also experienced.

Statistical Treatment

To determine the level of writing skills of the respondents in their pre-test and post-test, the average weighted mean was used. The formula is:

$$NM = \frac{\sum fx}{N}$$

Where: f = frequency
X = level of writing skill
N = number of cases

To identify the difference between the experimental and the control groups' pre-test and post-test results, so as with the difference between the experimental and the control groups' pre-test and post-test results after being exposed to different treatments, t-test was used with the formula:

$$t = \frac{\bar{D}}{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{n}}{n(n-1)}}}$$

Where: $\bar{D}$ = the mean difference between the pre-test and post-test
$\sum D^2$ = the sum of square of the difference between the pre-test and post-test
$\sum D$ = the summation of the difference between the pre-test and the post-test
n =the sample size

5. Results and Discussion

The first part of this section presents the descriptive information of both control and

experimental groups' level of writing skill. These are the preliminary bases that helped the researcher verify her contention of her observations as a classroom teacher. The second part is the inferential presentation, analysis and interpretation of the data intended to identify the difference between the control and experimental groups.

Table 2 shows the profile of both control and experimental groups' level of writing skills categorized into ideas, organization, voice, word choice, sentence fluency and convention (mechanics). After the participants wrote their written composition during the pre-test, the evaluators adjudged it based on the six criteria mentioned. The table shows that the participants of the experimental group were on the ***Developing*** level with a grand mean of 2.83 during their pre-test. This means that they already have the skill in writing, but they still need improvement to be proficient in it. Moreover, it is evident that during the pre-test, the organization and ideas of the participants in the control group are already on the ***Developing*** level, getting a mean of 2.46 and 2.70. However, their convention, sentence fluency, voice and word choice, are left a level behind, falling on the ***Emerging*** level, gaining 2.46, 2.62, 2.51 and 2.70 respectively.

Table 3: Respondents 'Pre-test and Post-test Level of Writing Skills

Category	**Pre-test**				**Post-test**			
	Experimental		**Control**		**Experimental**		**Control**	
	Mean	**Description**	**Mean**	**Description**	**Mean**	**Description**	**Mean**	**Description**
Organization	3.10	Developing	2.75	Developing	3.19	Developing	2.79	Developing
Conventions	2.68	Developing	2.46	Emerging	2.73	Developing	2.40	Emerging
Sentence Fluency	2.94	Developing	2.62	Emerging	2.93	Developing	2.60	Emerging
Voice	2.76	Developing	2.51	Emerging	3.05	Developing	2.71	Developing
Ideas	2.76	Developing	2.70	Developing	3.50	Developing	3.08	Developing
Word Choice	2.74	Developing	2.57	Emerging	2.85	Developing	2.64	Emerging
Grand Mean	2.83	Developing	2.61	Emerging	3.04	Developing	2.70	Emerging

Legend**: 1.00-1.83 **Beginning**; 1.84-2.6 **Emerging**; 2.68-3.50 **Developing**; 3.51-4.33 **Capable**; 4.34 5.17 **Experienced**; 5.18-6.00 **Exceptional
Source: Author

The table also presents the post-test results of both groups. The participants had been exposed to different interventions during the experimentation phase to determine if it would improve

their level of writing skills. Based on Table 3, the participants who were exposed to the SAMR model had a consistent improvement in their organization, convention (mechanics), voice, ideas and word choice categories. The level of writing skills may not have increased after the experiment, yet it was noteworthy that the participants' organization, conventions, voice, ideas and word choice had all increased from 3.10 to 3.19, 2.68 to 2.73, 2.76 to 3.05, 2.76 to 3.50 and 2.74 to 2.85 respectively. However, the participants' sentence fluency decreased from 2.94 to 2.93.

The students' post-test scores had increased after being exposed to SAMR Model. The grand mean of 3.04 indicates improvement of their writing skill. This result is being supported by the constructivist learning theory, stating that students construct their own knowledge of the world based on their individual experiences and their learning is based on how they interpreted, created and constructed both mechanisms for learning and his or her own unique version of the knowledge, colored by background, experiences, and aptitudes (Uriarte and Uriarte, 2009). In other words, following the SAMR Model allowed the students to construct their own learning based on what they have experienced while doing the activities tasked to them. Instead of letting them rely on someone else's information and accept it as truth, they were exposed to data, primary sources, and the ability to interact with other students so that they can learn from the incorporation of their experiences. Moreover, as cited by Roblyer (2006), on the study entitled *Constructivism and Technology in the Classroom*, their classroom experience became acts of different backgrounds and the learning experience wherein they were able to come together, observe and analyze information and ideas through collaborating and giving feedback to one another in the form of writing, with the integration of technology.

The improvement of the students' sentence fluency was not achieved because the students have different ways of writing, not being proficient in putting words, phrases and clauses together to form a sentence and the time frame given during the test. The same as what Peha (2003) stated in his online article entitled *Looking for Quality in Student Writing*, individuals cannot start every sentence the same way, so as with their writings' length and structure. Moreover, people tend to construct sentences unconsciously, neglecting the importance of the sentence structure and fluency. Another factor for this was the time allotted during the test, with consideration to the students' level of writing in terms of sentence fluency. Lannin (2007), as cited by Atasoyand Temizkan (2016) on their study *Evaluation of Secondary School Students' Writing Fluency Skills stated* that fluency in writing is a concept related to the number of words written within a time frame with a degree of harmony and cohesion of ideas. This further supported the notion that non-fluent writers have to ponder over on not just what to write, but also when, where and how to write it. Their writing was understood to be frequently interrupted and requires considerable revision, resulting to lack of harmony among texts and sentences. Thus, to improve sentence fluency and structure, being conscious of how sentences are being put together and a substantial writing experience were required.
The control group was exposed to the conventional way of writing their outputs through the paper-pencil way. They just wrote their written outputs (Rationale, Significance of the Study

and Scope and Delimitation) and passed it to their adviser for corrections. After which, they revised it basing on the feedback or suggestions that the teacher indicated. During the pre-test, it is evident that the group participants' sequencing and organizing of ideas begin to slowly emerge, basing on the obtained mean of 2.76. However, the obtained mean of 2.46 on their convention indicates that they have serious grammar usage problems of every kind that make comprehension difficult.

After over a month of experimentation, the students in the control group were able to improve more on their ideas, getting a mean of 3.08. This indicates that they were able to improve on their main idea and topic presentation, though details may still be lacking focus and specificity. The least mean of 2.40, was on their conventions. This implies that the feedback from the teachers were helpful enough to guide students in establishing their main topic clearly, however, it does not improve the students' knowledge in terms of writing mechanics.

The students' improvement on the writing categories during the post-test is being supported by Huang (2016) on his study *Perception of Teacher Written Feedback – A Case Study, stating* that the nature of written feedback of the current day teaching philosophy is more on nurturing partnerships with students for skill development and changing a pure summative evaluation to a dialogue between teachers and students, making the latter appreciate and follow the feedback given to them. However, the study also reflected the fact that caution must be drawn considering that students use different methods to respond to teacher written feedback, resulting to no improvement at all. These methods include grammar correction, change in tone and style and deletion can be implemented by following written feedback closely, but there is a good reason to believe that the students may choose deletion simply to avoid issues, or them revising the writing with no real understanding as to why it is necessary.

Table 4: Difference between Control and Experimental Groups' Pre-test and Post-test Scores

Groups		**Mean**	**Computed t**	**p- value**	**Decision**
Experimental	Pre-test	16.976	2.051	0.050	Reject H_o
	Post-test	18.238			
Control	Pre-test	15.860	0.560	0.580	Accept H_o
	Post-test	16.226			

Source: Author

Table 4 shows the difference between the pre-test and post-test of the experimental and the control groups. The experimental group exposed to the SAMR model was able to get a p-value of 0.050, proving that there is a difference on the students' level of writing skills before and after the experimentation. This is backed up by the Experiential Learning Theory asserting that students learn better while doing tasks and is designed and delivered with particular respect to technology and in ways that develop the knowledge and skills needed by the students in a digital age (Moon, 2004), proving that integrating technology in the

classroom using the SAMR model allows students to enhance students' writing skills through a more concrete and technological way. However, the control group shows no difference at all after being exposed to teacher written feedback considering the factor that some students may have been revising the writing with no real understanding as to why it is necessary (Hyland, 2003). The difficulty of making sense with the feedback on the papers may have also been a factor, which is in line with the findings of the study entitled *Teacher Written Feedback on Student Writing: Teachers' and Learners' Perspectives,* by Agbayahoun (2016) stating that students find it difficult to decode, understand, make sense of the corrections, and let them be overwhelmed with their teachers' corrections.

Table 5: Difference between Control and Experimental Groups' Level of Writing Skill (Pre-test)

Category	Group	Mean	Computed t	p-value	Decision
Organization	Experimental	3.10	0.133	0.895	Accept H_o
	Control	2.75			
Conventions	Experimental	2.68	1.300	0.205	Accept H_o
	Control	2.46			
Sentence Fluency	Experimental	2.94	1.985	0.058	Accept H_o
	Control	2.62			
Voice	Experimental	2.76	1.313	0.201	Accept H_o
	Control	2.51			
Ideas	Experimental	2.76	0.157	0.876	Accept H_o
	Control	2.70			
Word Choice	Experimental	2.74	0.762	0.453	Accept H_o
	Control	2.57			

Legend**: 1.00-1.83 **Beginning**; 1.84-2.6 **Emerging**; 2.68-3.50 **Developing**; 3.51-4.33 **Capable**; 4.34 5.17 **Experienced**; 5.18-6.00 **Exceptional

Source: Author

Table 5 presents the difference between the experimental and control groups in all the categories of writing during the pre-test. As the table shows, the null hypothesis is accepted because the p values are greater than .05. This means that both groups have almost similar level of writing skills before the experimentation period. Furthermore, it indicates that the Grade 12 students of Danao National High School need intervention to improve their level of writing skills.

This pre-test result of the respondents is being aligned with the statement of Gustilo (2016) that students who are considered as bad writers seem to lack proficiency in terms of content and linguistic knowledge stored in their memory, the production processes they activate, the writing approach, and writing experience, hence, there is a need for writing to be reinforced in their classrooms. Thus, SAMR Model comes in to be experimented on for the students' improvement of writing skills.

Table 6: Difference between Control and Experimental Groups' Level of Writing Skill (Post-test)

Category	Group	Mean	Computed t	p-value	Decision
Organization	Experimental	3.19	2.211	0.036	Reject H_o
	Control	2.79			
Conventions	Experimental	2.73	1.681	0.105	Accept H_o
	Control	2.40			
Sentence Fluency	Experimental	2.93	1.890	0.070	Accept H_o
	Control	2.60			
Voice	Experimental	3.05	1.619	0.118	Accept H_o
	Control	2.71			
Ideas	Experimental	3.50	2.385	0.025	Reject H_o
	Control	3.08			
Word Choice	Experimental	2.85	0.884	0.385	Accept H_o
	Control	2.64			

Legend**: 1.00-1.83 **Beginning**; 1.84-2.6 **Emerging**; 2.68-3.50 **Developing**; 3.51-4.33 **Capable**; 4.34 5.17 **Experienced**; 5.18-6.00 **Exceptional
Source: Author

Table 6 presents the difference between the experimental and control groups in all the categories of writing during the post-test. Based on the data presented in this table, the null hypothesis is being rejected. This indicates that there is a difference of the levels of writing skills between the two groups in terms of their organization and ideas. The p-values 0.036 and 0.025 indicate that the experimental group has improved more on the logical ordering of ideas and having new ideas, purpose, theme and details compared to the control group. The other four areas considered – convention, sentence fluency, voice and word choice –both groups do not manifest any difference.

The difference that has been evident on the post-test results of the respondent's manifests that the students were somehow able to restructure their own knowledge and adapted to a new learning situation which is in line with the Cognitive Flexibility Theory proposed by Spiro, Feltovitch and Coulson. Cullata (2018), on his online article regarding Cognitive Flexibility Theory stated that learners are given an opportunity to develop their own representations of information in order to properly learn, which is then aligned with the data presented above which emphasizes the improvement of the experimental group on several areas of their writing skills.

This study aimed to determine the effects of Substitution, Augmentation, Modification and Redefinition Model to students' writing skills of Grade 12 students of Danao National High School of the academic year, 2018-2019. Specifically, this study sought to determine the following: 1.) The level of writing skills of the experimental and control groups in their pre-test and post-test; 2.) The possible difference of the pre-test and post-test of both experimental and control groups in terms of their organization, convention (mechanics), sentence fluency, voice, ideas and word choice; 3) The attitude of the participants under the experimental group towards SAMR Model; and 4) The relationship between the students' level of writing skill and their attitude towards SAMR Model. The study utilized the quasi-

experimental research design wherein both control and experimental groups underwent pre-test and post-test before being exposed to different treatments. The experiment spanned for a month and two weeks. Two sets of questionnaires were used—the pre-test/post-test and the writing attitude survey questionnaires. The raters used the 6-Point Writer's Rubric constructed by Education Northwest (2010) in determining the students' level of writing skills. The raters were chosen based on certain qualifications that would guarantee their expertise in the field of writing and English language.

Findings

The thorough examination of the data enabled the researcher to arrive at the following findings:

1. In their pre-test, the level of writing skills of the experimental group is *Developing*, while the control group is *Emerging*. In the post-test, both groups' level of writing skills remained the same.
2. There was a significant difference on the pre-test and post-test of the experimental group. However, there was no significant difference between the pre-test and post-test of the control group.
3. There was no difference between the experimental and control groups' level of writing skill during the pre-test. However, during the post-test, there was a significant difference on both groups' organization and ideas.
4. Both control and experimental groups' level of writing skill on their post-test in terms of organization, convention, word choice, sentence fluency, ideas and voice belong to *Not Proficient***.** This result requires an action plan with more activities that would cater the development of each category of writing skill.

6. Conclusion and Suggestion

Based on the analyses of the data, the study concludes that Substitution, Augmentation, Modification and Redefinition model has a positive effect on enhancing students' writing skills, even though it does not really offer a very high improvement on the students' writing skills. This is because the students have different ways of writing, not being proficient in putting words, phrases and clauses together to form a sentence and the time frame given during the test. On the other hand, the conventional way of writing and feedbacking also poses a positive effect on the students' writing skills, but not as high as the results to those who were exposed to the SAMR Model.

The following recommendations are made based on the results of the study:

1. Considering the "Not Proficient" level of writing skills that Grade 12 students have, teachers must expose them to various writing activities which would enhance their writing skills.

2. It was found out that both SAMR Model and teacher feedback increase students' level of writing skills, thus, it is recommended that technology integration following the SAMR Model may be utilized during writing activities. Moreover, teachers' roles should not be taken for granted for they still play an important role on their students' improvement.
3. The decrease of the students' scores in terms of their sentence after being exposed to both SAMR Model and conventional method calls for an intervention, such as remedial lessons on structure of English and sentence construction.
4. If SAMR Model is to be utilized during writing activities, topics should be more interesting and engaging for students to improve their attitude towards the technology integration model.
5. This study may be replicated with consideration on increasing the time of experiment and utilizing another area or skill in which SAMR model would be deemed applicable.
6. This study was limited to two groups—control and experimental groups. The experimental group was composed of 28 Grade XII General Academic Strand major students, while the control group was composed of another 28 Grade XII Information and Communication Technology major students.
7. The study only covered the writing skills which include ideas, organization, word choice, sentence fluency and convention (grammar and mechanics). The written outputs, specifically the rationale, significance of the study and scope and delimitation from the students' Practical Research 2 subject were the bases for the experimentation. As for the control group, they were only limited to write and pass their written outputs through paper-pencil way. On the other hand, the experimental group used technology in submitting their papers, specifically, Google Docs. Another limitation with this study was the varying level of writing skills of students in a section considering that the two sections were grouped heterogeneously. Moreover, the level of technological skills of the students under the experimental group also posed as a limitation of this study for the reason that they were exposed to the internet and computer which needed their navigation and computer skills.
8. The experiment was conducted within two (2) months in Danao National High School. The control group was exposed to a one-on-one feedbacking session and to the SAMR Model for the remaining parts of the research paper, for them to experience what the respondents of the experimental group has also experienced.

Conflict of Interest

The author of the article declares no conflict of interest.

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Appendix

A Proposed Action Program to Improve Writing Instruction in Danao National High School

Rationale

Technology nowadays is helping hand-in-hand with writing which is reflected through social media like Facebook, Twitter, and Instagram, printed papers like newspapers, magazines, journals and technology software like Google Doc, Google Slide and Google Keep. Technology being integrated with writing activities, with the effective facilitating and guidance of teachers, students' level of writing skills is possible to be enhanced in any means possible. The study revealed that the level of the students' writing skill is still at a developing level, meaning, they were not yet proficient in terms of writing effective sentences and paragraphs. It is evident that they are not yet capable in the six criteria used to measure their level of writing skills, namely: organization, convention (mechanics), sentence fluency, voice, ideas and word choice. These findings made to arrive to a need of making an action plan to enhance the teaching of writing specifically in Danao National High School.

Program Description

This action plan shall be tentatively called as Level of Writing Skill Enhancement Plan. It will include a whole semester wherein subjects concerning writing are given the most emphasis. Moreover, the administration, as well as the teachers handling writing subjects are the ones highly involved and are given the most emphasis for this action plan highlights the activities in improving the level of students' writing skills through different writing activities, with and without the aid of technology. Its objectives are to be able to:

1. Expose the students to variety of writing activities, with or without technology integration, that would motivate them to enhance their writing skills;
2. Improve the students' level of writing skills through a series of writing activities that would serve as their constant practice;
3. Engage both learners and teachers to innovative ways of writing that would let them collaborate and feedback with one another;
4. Develop teachers' innovativeness and patience in teaching and guiding the students during writing lessons or activities;
5. Enhance the specific set of writing skills like organization, convention, sentence fluency, voice, ideas and word choice of students through different sets of writing activities that would address such concern;
6. Inculcate to students the essence of writing and its advantages if being partnered with skills, knowledge, collaboration and technology.

Level of Writing Skill Enhancement Program

Area of Concern/Activities	Objectives	Strategies/Suggested Activities	Persons Involved	Time Frame	Success Indicator
Organization	To guide students in organizing their thoughts and ordering it logically	Teach the students more about transitional devices Train students to always write a topic outline and a sentence outline first before writing paragraphs	Teachers and students	Whole semester	Based on the 6+1 Writing Rubric, the students should be able to have an average score of 4 in each area of concern
Convention	To let students write a written output following the correct and proper writing technicalities	Conduct refreshers to students regarding the rules of grammar, capitalization, spelling and punctuation.	Teachers and students	Whole semester	
Sentence Fluency	To develop students' fluency in constructing sentences and putting them together	Recall sentence structure topics Train students how to construct sentences properly	Teachers and students	Whole semester	
Voice	To bring out students' feelings and message through their writing purpose	Introduce to the students the different patterns of paragraph development. Let them write an essay on each pattern of paragraph development that would clearly manifest their purpose of writing it	Teachers and students	Whole semester	
Ideas	To enrich students' ideas and knowledge through letting them think and collaborate with their pair or peers	Pair or group students and let them exchange ideas or brainstorm about a topic	Teachers and students	Whole semester	
Word Choice	To integrate reading articles during writing activities to unlock unfamiliar words that students have difficulty understanding with.	Students are allowed to read articles, essays, novels or any written outputs and let them list all the words that they have difficulty in understanding with	Teachers and students	Whole semester	