



(RESEARCH ARTICLE)



## Teach- Nology: A tool for improving phonemic awareness of non- graded learners with special education needs (LSEs)

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### Abstract

This study aimed to determine the effects Teach-Nology as a tool for improving phonemic awareness of non- graded Learners with Special Education Needs (LSEs). Parameters were based on pretest and posttest. The researchers used the experimental descriptive design thus, applying different statistical treatment such as mean, standard deviation and dependent t- test.

Overall mean results for pretest and posttest for the phonemic awareness were 4.20 and 7.00 having Fairly Satisfactory and Very Satisfactory verbal interpretation. The overall mean result in the posttest was greater compared to pretest, this implied that there was an increase in the alphabet recognition of the subjects before and after the exposure to Teach-Nology.

Also, the dependent t-test results revealed that the level of performance in alphabet recognition of respondents after the exposure to Teach-Nology differ significantly since the p-value is less than 0.05. With such results, the null hypothesis is rejected with verbal interpretation of significant.

In conclusion, Teach-Nology helps in improving the level of performance in phonemic awareness of students, specifically the non-graded learners with special educational needs of Guronasyon Foundation Inc. National High School. However, continuous effort and emphasis on enhancing the level of performance in alphabet recognition should be given to improve their skill.

**Keywords:** Phonemic Awareness; Learners with Special Needs; Technology; ICT; Inclusive education

### 1. Introduction and rationale

In modern world, we are witnessing gradual erasure of borders. Hence, ICTs offer a great potential to support lifelong learning for all groups of students, including those who have special educational needs. The application of it enhances independence, integration, and equal opportunities for such people and in this way will facilitate their inclusion in society as valued, respected, and contributing members. Further, Information and Communication Technology has a unique and valuable contribution to make to the learning experiences of pupils with special educational needs (Dikumar, 2018).

However, the coronavirus pandemic has posed unique challenges for educators, school administrators, students, and their parents. Remote learning has taken the place of the in-person classroom environment. Also, teaching special education online pose greater dilemma. While all teachers are struggling with the new normal, special education

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teachers and even learning facilitators in particular are facing unparalleled challenges transitioning both their teaching—and their students and families—to home-based instruction tailored to each student’s needs.

Thus, achieving the right to education for persons with disabilities in basic education is a challenging task, the Department of Education continuously improve itself specially for the benefit of its no.1 clientele, the learners. With its commitment to give quality educational services to children with special needs, DepEd, as anchored in DO 50, s. 2010 – Strengthening Special Education Program at the Basic Education Level it states that:

- “The Special Education Program (SPED) is necessary to provide equitable access to basic education by learners with exceptionalities.”

Technology is perhaps much more significant in special education than in general education because it makes the complicated simple and meets the learner's individual needs. To serve their students with disabilities through distance learning, special education teachers have been using education technology and creative approaches. They collaborate with parents and caretakers to provide the home setting, instruction, and services that engage students and satisfy their IEP plans (Rev.com, 2020).

Adding to the plethora of benefits that technology may be used, it can help develop instruction in developing phonemic awareness. Thus, many children with learning disabilities have deficiencies in their ability to process phonological information. They do not readily learn how to relate letters of the alphabet to language sounds (Nittrouer, Shune, and Lowenstein, 2011).

In light, this study provided more information regarding the use of technology in teaching students with learning disabilities. On the part of the researchers, this paper may serve as a guide on presenting English lessons specifically in improving phonemic awareness in a more meaningful way. It will also make them aware of the learners' needs and difficulties and address these concerns to make their learning more enjoyable and purposeful even at the comfort of their home.

With that, the proponents emphasized the utilization of Teach- Nology as a tool for improving phonemic awareness of Non- Graded Learners with Special Education Needs (LSEs). Through this, LSEs will be more engaged in learning English and enhance their phonemic awareness.

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## 2. Innovation, intervention, and strategy

Special education programs and services adapt content, teaching methodology and delivery instruction to meet the appropriate needs of each child (Teach.com, 2018). Further, to give the LSEs (Learners with special educational needs), equal opportunity in teaching and learning process following UNESCO’s goal for in promoting EFA or Education for All, specialized training course about ICTs in Education for People with Special Needs provide specialists involved in education of people with SEN a view of the principles, ways, and methods of SNE design, taking into account the ICT diversity in all areas of education (UNESCO, 2006) most specially now with the advent of the pandemic.

There are differing opinions about the nature of instructional technology. Hence, this study is anchored on Adaptive Learning by Arkansas State University (2017) which stipulated that learning comes from the idea of personalized learning — the concept that all instructors tailor their lessons slightly for the needs of each individual student — and it is a practice that most instructors learn intuitively in the classroom. By using technology in the classroom, teachers can more readily assess their students, which creates more finely tuned lesson plans. To add, this study also made use of presidential Commission on Instructional Technology (1970) as cited by Edyburn (2004) which stated that instructional technology is a systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication, and employing a combination of human and nonhuman resources to bring about more effective instruction.

Following, typical applications of instructional technology may use conventional media such as videotapes, computer assisted instruction, or more complex systems, such as hypermedia instruction programs and the World Wide Web (Web). Okolo (2000) describes additional ways that technology may be used to support instruction of students with LD, such as the use of electronic books, anchored instruction, and network-based learning. Concepts related to the universal design for learning (Rose and Meyer, 2000) also have significant implications for the delivery of instruction.

Through continuous effort in promoting quality education, likewise, supporting the education for all cause of the DepEd, the researchers utilized 10 non- graded learners with special education need (LSEs) of Guronasyon Foundation Incorporated National High School during the school year 2020 – 2021 as the subject of the study. Thus, they are clinically tested with low IQ level and are considered as learners who are consistently struggling with the level of academic requirements in their respective grades.

To make this happen, the sample plan for phoneme track may be used as reference:

**Table 1 Sample Learning Plan**

Goals	Student will practice phoneme manipulation, segmentation, and blending. This will help students to develop phonemic awareness and visual discrimination, essential skills for reading and spelling.
Strategy	A. Phoneme Take-Aways "bill" take away phoneme "b"= ill B. Phoneme changes replace phoneme "o" in "log" with "e"= leg C. Phoneme chains change one phoneme at a time to give the correct chain such
Materials	Flash cards, handouts, flash drive (audio storage), gadget/ equipment
Introduction	The student will listen to a flannel history , "a cat, a rat and a bat". They will identify the main characters of the story, "a cat, a rat and a bat"
Development	The Teacher/ Learning Facilitator will help the students to identify the phoneme that had changed to write cat, rat, bat. They will use flash card to demonstrate the actions take- away, and changes, forming new words.
Engagement	Teacher/ Learning Facilitator will play flash cards taking way and replacing phoneme in a word to create a new 2-3 word chains.
	*Teacher will customize levels of difficulty and will keep track of all records that each student may make.
	*Learning Facilitator can make use of the audio file of lesson/ lecture as reference
Assimilation	A. Teacher will ask the student what they have learned. B. They (students) may be able to answer the questions: What happened when we change, take away a phoneme, and will create a chain changing one phoneme? Teacher will use flash cards to give clue.
	Students will fill the blank _at, in a worksheet with pictures of a cat, a rat and a bat.
Reflections	If the students are able to fill in the blanks with the appropriate phoneme under each picture, teacher can form new chains taking away and changing phonemes.

With this, Teach-Nology could be of great help in developing phonemic awareness by encouraging lots of talking, listening, and playing with sounds. The learner hears phonemes in words and sees the written representation of the phonemes. This essential skill will help students with phonological difficulties.

Using this approach to language teaching and learning will help present, reinforce, and assess material to be learned. It presents itself as a capable and consistent partner to teachers, parents, and students that may change the way languages are being tamed (Stevie, 2018).

### 3. Action research questions

This study aimed to determine the utilization of Teach- Nology as a tool for improving phonemic awareness of Non-Graded Learners with Special Education Needs (LSEs) in Guronasyon Foundation Incorporated National High School for school year 2020 - 2021.

Specifically, the action research sought to answer the following guide questions:

- What is the level of performance in phonemic awareness of non- graded learners with special education need (LSEs) in Guronasyon Foundation Incorporated National High School?
- Is there a significant difference on the level of performance in phonemic awareness of non- graded learners with special education need (LSEN) in Guronasyon Foundation Incorporated National High School before and after the exposure to Teach- Nology?

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### 4. Significance of the study

Since Information and Communication Technology has a unique and valuable contribution to make to the learning experiences of pupils with special educational needs, providing multimedia during the process of teaching and learning is a technique that may be used in improving their academic needs and may help them to develop English language skills specifically phonemic awareness (Imperial, 2014).

As the school remains the backbone of our educational delivery system, it adheres to improve itself as the conventional venue for teaching and learning. It maximizes the use of educational innovations and technology, both appropriate and straightforward or advance, where applicable – to reach out to and keep more children and enable them to learn better. With that it can be said that this study could be beneficial on the following:

For school heads and administrators, they may further realize that integration of multimedia into instruction can help to reduce curriculum barriers and improve learning for all students. Support on the use and inculcation of technology-aided language learning will be good for both teachers and students.

For teachers, they may appreciate and recognize that interactive, and fun ways in teaching specially to learners with special educational needs are vital to a successful teaching and learning process. Engaging and extensive successful learning experiences play vital role in the development of learners' proficiency. Teaching technique needs to be modified regarding with the development of the technology in the learning process.

For parents, they may open greater avenues among LSEs by letting them be engaged on various learning applications that will provide valuable learning opportunities. Hence, this may also help them be aware on how to be literate in the use of it to boost performance among students. Further, research on this may help provide results where teachers could apply, and students may benefit of.

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### 5. Methods

#### 5.1. Participants and/or other sources of data and information

This study aims to determine the effects on the phonemic awareness of non- graded learners with special education need (LSEs) in Guronasyon Foundation Incorporated National High School. Parameters were based on pretest and posttest. Subjects were 10 LSEs who were selected through purposive sampling. They are clinically gauged as students with special educational needs and are considered as learners with difficulty in basic learning and applying knowledge. They have been identified as learners who are having specific learning difficulties and are not coping with the level of academics in regular classrooms. Since they need extensive assistance to improve, respondents were exposed to Teach-Nology to improve their phonetic awareness.

After the exposure Teach- Nology, respondents took the posttest. This gauged the effect of Teach-Nology on their level of performance in phonemic awareness.

## 5.2. Data gathering methods

The proponents used experimental descriptive research method focusing on non- graded learners with special education need (LSEs) in Guronasyon Foundation Incorporated National High School during the school year 2020-2021 who were selected by means of purposive sampling. They were exposed to Teach-Nology to enhance their performance in phonemic awareness during study which was from February 2021 to July 2021.

To gather necessary data, one- shot group testing was used wherein researchers utilized pretest and posttest among subjects.

## 5.3. Data Analysis Plan

Pretest was conducted before the exposure to the program while posttest was given after. The tests included activities in relation to phonemic track. It aimed to measure the phonemic awareness of the students before and after the exposure to Teach-Nology.

The result of the posttest was used to determine the significant difference on the level of performance in phonemic awareness of non- graded learners with special education need (LSEs).

With that, the researchers gathered data from pretest, and posttest results in terms of phonemic awareness using the following range:

**Table 2** Range of Scores and Verbal Interpretation

Level of performance	
No. of words identified	Verbal interpretation
9.00 – 10.00	Outstanding
7.00 – 8.00	Very satisfactory
5.00 – 6.00	Satisfactory
3.00 - 4.00	Fairly satisfactory
0.00 -2.99	Needs improvement

To solve the problems posed in the study, the researcher made use of mean, standard deviation and t- test as statistical tools. The gathered data was tallied and processed using the MS Excel 365. Data was gathered analyzed, tabulated, and interpreted for the next plan of action in this endeavor.

## 6. Discussion of results

This part discusses the analysis, interpretation, and implications of the statistical results on the stated problems of the study.

**Table 3** Level of performance in phonemic awareness of non- graded learners with special education need (LSEs) in Guronasyon Foundation Incorporated National High School as Revealed by the Pretest and Posttest Results

Test	Phonemic Awareness		
	Mean	Standard Deviation	VI
Pretest	4.20	0.88	FS
Posttest	7.00	0.99	VS

The table depicted that the overall mean results for pretest and posttest for the alphabet recognition are 4.20 and 7.00 with Fairly Satisfactory and Very Satisfactory verbal interpretations. This implied that there is an increase in the phonetic awareness of respondents before and after the exposure to Teach- Nology.

Aligned to this was a statement from Marcino (2018) who stated that providing various materials for learning process is important for making knowledge more permanent for an effective learning. Thus, those who have special educational needs should have different developmental characteristics; various equipment and materials should be provided to meet the varying needs of these children. Using different materials and means, which are prepared for addressing these various needs of the different students, enrich learning environments.

**Table 4** Significant Difference on the Level of performance in phonemic awareness of Non- graded learners with special education need (LSEs) in Guronasyon Foundation Incorporated National High School as Revealed by the Pretest and Posttest Results

Test	Alphabet Recognition		df	p- value	HO	VI
	Mean	SD				
Pretest	4.20	0.79	9	0.00	R	S
Posttest	7.00	1.15				

As reflected on the table, the dependent t-test results revealed that the level of performance in alphabet recognition of respondents after the exposure to Teach- Nology differ significantly since the p-value is less than 0.05. With such results, the null hypothesis is rejected with verbal interpretation of significant.

Relative to this, Kim et al. (2017) stated that key instructional features included practice opportunities, self-correction, immediate corrective feedback, teacher/ parent-directed instruction, and contingencies to enhance student motivation and engagement.

Further, Joshi (2012) claimed that technology provides the students chances for interacting with diverse texts and multimedia that may give them a solid background in the task and positive point to improve the quality of teaching and to give more various techniques in teaching a foreign language.

## 7. Reflection

Based on the findings of this study, the following conclusions are formulated.

- There is a greater mean score on the posttest than the pretest.
- Significant difference exists between the pretest and the posttest.
- Improvement was shown before and after the exposure to technology- aided language learning as based on the data gathered.
- Teach- Nology is effective considering the higher mean score of posttest than the pretest.
- Continuous effort and emphasis on enhancing phonetic awareness performance should be given to improve their skill.

Thus, to give further emphasis on this study the following plan will be observed:

**Table 5** Action Plan

Dissemination activities	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Presentation of results						
Ensure use and share lessons learned variety of dissemination methods						
Benchmarking of other schools						
School- wide awareness on project goals and advantages						
Engage stakeholders						

This study ran from February 2021 to July 2021 covering the pre- planning, implementation, and post implementation/ evaluation. It made use of Teach- Nology as a tool for improving the phonemic awareness of selected Non- graded Learners with Special Education Needs (LSEs) for school year 2020 – 2021.

After tedious efforts during the research process, this study was shared among fellow teachers, admins, parents, and other stakeholders to raise awareness that may help in improving the learning experience of LSENS.

Further, the researchers believe that through these dissemination activities, findings of this endeavor could be beneficial to maximize the impact of the research itself which can help not only in improving learning outcomes but it can also open an avenue for new and innovative strategies that may engage and build LSENS' competencies in fun and effective way.

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## 8. Conclusion

The findings showed that Teach-Nology helped in improving the level of performance in phonemic awareness of students specifically the non-graded learners with special educational needs of Guronasyon Foundation Inc. National High School. With great hope, this project may gather undying support of internal and external stakeholders. Likewise, to provide strategies and practices which can bridge the gap among learners under inclusive education. Through this endeavor, quality services can be delivered among learners, especially those who are experiencing the worst during this rough time.

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## Compliance with ethical standards

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We, the authors, disclose any conflict of interest, along with a description of any personal interest, affiliation, or activity with any entity, whether or not active in the educational field, which may give rise to a conflict of interest. We also understand that it is our obligation to maintain the dignity of this endeavor and to keep the best interests of our respondents.

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