

Effects of Systematic Phonics Therapy on Spelling Ability and Word Recognition of Students with Psychogenic Hearing Impairment

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Abstract

This study used the pretest-posttest true experimental research design to investigate effects of systematic phonics therapy on spelling ability and word recognition of students with psychogenic hearing impairment. The specific objectives were to find the level to which SPT can improve the spelling ability of Student's with psychogenic hearing impairment, and to examine the extent to which SPT can enhance the word recognition of students with psychogenic hearing impairment. The population was forty (40) students with psychogenic hearing impairment. The sample size was twelve (12). The Teacher Made Spelling Ability and Word Recognition Test (TMSAWRT) was the instrument used to obtain data in this research. The intervention (Systematic Phonics Therapy) was given and data were collected and analyzed using both descriptive and inferential statistics comprising of simple percentages, frequencies and tables to answer the two research questions. The two hypotheses were tested using t-test statistics. The results revealed that Systematic Phonics Therapy improved the acquisition of spelling ability and word recognition of students with psychogenic hearing impairment. This study recommended that Systematic Phonics Therapy should be conducted on all learners with hearing impairment at all levels of education, especially on those with psychogenic hearing impairment.

Keywords: systematic, phonics, psychogenic, hearing, impairment

Introduction

Spelling ability is simply presaging letters of words through an already acquired knowledge of the sounds of letters; to spell is to show knowledge of the letters of a word in the correct order. Oyetunde (2009) and Andzayi and Umolu (2004) alleged that spelling ability could be gained using phonemes; phonemes help students with psychogenic hearing impairment to remember the spelling of words. Knowledge of spelling patterns also helps to improve pronunciation and fluency. Students with psychogenic hearing impairment can rely on both the sound system (phonology) of a language as well as spelling patterns (orthography) to spell words. The sound-to-letter (phoneme-to-grapheme) correspondence rules are an effective and powerful means to spelling words.

Spelling, to students with psychogenic hearing impairment, is a tool of learning language. The first elements of written language presented to the sight are letters that mark the sound of the spoken form or being listened to. Freeman (2007) and Bakshi and Bakshi (2011) said that spelling is the writing of one or more words with letters and diacritics. Learning

spellings at an early stage builds the foundation of learning a language. Spellings are important because they build connections between letters and sounds, and then between words and sentences. Thus, spelling training helps in developing knowledge of letters, voice skill and ability to speak; consequently, building the proficiency of language or language articulation.

Word recognition is purely taking a look at a written word and knowing, identifying or distinguishing the word from other words at a glance. Oyetunde (2009) held that word recognition skills enable students with psychogenic hearing impairment to be aware of prints and learn ways to consciously or unconsciously figure out and call out these words; that is, unlock unknown words, perhaps by decoding the printed words and letters and by matching letters and words with or without sounds. Bakshi and Bakshi (2011) declared that word recognition skills could be taught such that it enables the reader to recognize words by sight without paying attention to the individual letters that make up the words. Andzayi and Umolu (2004) stated that reading is built from three components: word recognition, spelling ability and literal comprehension. As students with psychogenic hearing impairment with reading problems grow, it is expected that their word recognition also develops and increases in number.

Systematic Phonics Therapy (SPT) is a teacher made instruction and training characterized with “step by step” phonics activities; the instructor introduces and follows the content matter from simple to complex which is expected to facilitate or help teach spelling and word recognition effectively. SPT in this study consists of an organized teacher-made teaching, instruction and logical phonics exercises with physical activities and drilling approach. SPT motivates and focuses on the methodology for inculcating spelling and word recognition skills into students with psychogenic hearing impairment; thus applied therapies inculcate spelling and word recognition skills right into learners or students (American Academy of Pediatrics, 2015).

The regular approaches, methods or therapies teachers have been using in teaching spelling and word recognition in the study area were the regular methods or approaches which are normally “touch and say/write,” “mastery method,” rote learning of spelling, word recognition and the like, but without much success. Bakshi and Bakshi (2011) opined that spelling ability and word recognition skills can be targeted and achieved through repeated viable therapies; guided spelling and word recognition therapies. Freeman (2007) opined that phonics skills can be taught through oral spelling exercises and word recognition training. It is related to oral language proficiency and eloquence. Tickoo (2004) indicated that oral reading is a method of increasing spelling ability, word recognition and confidence in students with psychogenic hearing impairment.

SPT is a teacher-made treatment that is designed and developed by the researchers to help take care of students with psychogenic hearing impairment, caused by lack of basic spelling ability and word recognition. Oyetunde (2009) emphasized that systematic phonics training is an educational model that can be summarized as follows: the model is traditionally based upon phonic sounds, concepts of pathogenesis of spelling/word recognition and rehabilitation. It centred on phonics: the relationship between letters and their sounds. The focus is on Edward Travis Educational Model, which is traditionally related to learning,

habit formation and conditioning. The researchers adapted the Edward Travis' integration model which gave rise to the Model being emphasized in this study:

- i. Insight Stage: this is where screening is done to understand the problem at hand.
- ii. Assessment Stage: this phase finds the cause of spelling and word recognition problem.
- iii. Treatment Stage: therapist engages the client in SPT; and
- iv. Concluding Stage: ending the therapy Process.

SPT sought after enhancing low word recognition and spelling ability level to a high level. The treatment was expected to enhanced spelling ability and word recognition through the relationship between letters and their sounds and awareness of blending letters (phonics).

Psychogenic Hearing Impairment, also known as psychogenic deafness is a psychological state of the mind that interferes with listening. Abiodun (2011) alerted that one of the most common mistakes parents, teachers or instructors make is in confusing hearing and listening. Hearing is merely noting that a teacher or instructor is speaking, while listening is being attentive to the teacher or instructor. Hearing is passive; listening is active. Listening intensely involves using the ear(s) to hear what is being communicated and at the same time using the mind to deliberate over what is being said or heard.

Jikukka (2018) averred that Psychogenic Hearing Impairment is a condition of being absent minded as the victim carries his/her physiological activities; listening is negatively affected. Psychogenic Hearing Impairment is also commonly referred to as Psychogenic Hearing Loss. Sufferers often hear or carryout their physiological activities without hearing aids, but do behave as those with hard-of-hearing. Most often than not, psychological issues or traumas could easily be linked to the student's stance. Psychogenic Hearing Impairment is a non-organic hearing loss.

Ali (2006) averred that Psychogenic Hearing Impairment is a non-organic hearing loss which causes "hard-of-hearing," and in some circumstances also seen as fake reduction in hearing or else absent mindedness. The organs of hearing are never involved; this is a psychological issue, commonly referred to as psychogenic hearing impairment or Psychogenic Hearing Loss.

Abiodun (2011) alleged that students with Psychogenic Hearing Impairment, often hear without hearing aids and they regularly carryout their physiological activities comfortably, but do behave as those with hard-of-hearing. Once appropriate measures are taken through counselling and viable therapies, they are often healed or rehabilitated. Ali (2006) emphasized thus: "by the way, they are not hearing impaired," but psychogenic hearing impaired. Kentucky's Office for the Americans with Disability Act (2015) supposed that hearing impairment is a hearing loss that prevents a person from totally receiving sounds through the ear. But psychogenic hearing impairment is a "mind" related hearing loss. Psychogenic hearing impairment does grossly affect a student's attention and concentration to a great extent. It is also referred to as Attention deficit hearing impairment, which is a mind deficit issue which in turn makes hearing very difficult; it affects hearing grossly, even though, it has no direct link with the organs of hearing.

Students with Psychogenic Hearing Impairment are learners with psychogenic (mind related) hearing impairment which has ugly implications on the education and school wellbeing of students living with the hearing impairment. According to Kentucky's Office for the Americans with Disability Act (2015), hearing impairment is impairment in hearing, whether permanent or fluctuating, that adversely affects a student's educational performance. Since hearing impairment prevents the affected student from receiving sounds, it then adversely affects the educational performance of the child with hearing impairment; this then implies that there is need to encourage students with hearing loss to wear hearing aids so that they can hear and would not be affected educationally and otherwise.

Oyetunde (2009) and Litchfield and Lambert (2011) opined that some students had dropped out of school due to spelling and word recognition issues; more so, many of these students with psychogenic hearing impairment and with spelling and word recognition issues also have reading and writing problems; as a result, they live with low or negative self-satisfaction or self-confidence. This has often resulted in a drop in the overall performance of students with psychogenic hearing impairment and without spelling and word recognition skills or abilities.

Other problems are, can Systematic Phonics Therapy (SPT) be used to: change the emotions of students with psychogenic hearing impairment to emotions of peace, joy and tranquility? Enhance the feelings of fear of humiliation and trauma experienced by students without reading skills?

This study is fastened on the theory of Language Development; specifically, word recognition and spelling proficiency which was propounded in 1957 by Naom Chomsky (Litchfield & Lambert, 2011). The theory states that language is innate and physiologically determined. In other words, word recognition and spelling proficiency are innate and physiologically determined. The theory stressed that humans are born with the ability to develop spelling and word recognition. This theory is also known as Nativist Theory of Language Development. The theory focuses on receptive language and expressive language, especially, word recognition and spelling proficiency. The theory centres on reading (word recognition and spelling) dexterity. Naom Chomsky's method has it that those initial activities should focus on listening, speaking, writing and reading; reading specifically is made up of word recognition, spelling skill and literal comprehension (Litchfield & Lambert, 2011). Therefore, Nativist Theory is related to this study based on the fact that it involves giving training, counsel, suggestions, directives and activities to students with psychogenic hearing impairment to enable them acquire word recognition and spelling skills.

Purpose of the study

The aim of this investigation is to investigate effects of SPT on the spelling ability and word recognition of students with psychogenic hearing impairment. The specific objectives of this study are to:

- i. Find the level to which SPT can improve the spelling ability of students with psychogenic hearing impairment.
- ii. Examine the extent to which SPT can enhance the word recognition of students with psychogenic hearing impairment.

Research questions

1. What is the level to which SPT can improve the spelling ability of students with psychogenic hearing impairment?
2. What is the extent to which SPT can enhance the word recognition of students with psychogenic hearing impairment?

Hypotheses

Ho1: There is no significant difference between spelling ability mean scores of the experimental and control groups, before and after exposure to systematic phonics therapy.

Ho2: There is no significant difference between word recognition mean scores of the experimental and control groups before and after exposure to systematic phonics therapy.

Methodology

The study is experimental research. The researchers adopted the true experimental research design. The choice of this design is due to the fact that the nature of the study requires determining the effect of treatment on spelling and word recognition of students with psychogenic hearing impairment. This design also provides opportunity for the researchers to determine how the independent variable interact to influence the dependent variable as well as permits the sorting of only students with psychogenic hearing impairment and at the same time without spelling ability and word recognition skills (screened out).

Awotunde and Ugodulunwa (2004) averred that true experimental design is utilize where it is possible to carry out a random assignment of subjects into experiment and control groups. The design can be illustrated as shown below:

Groups	Pre-test	Treatment	Post-test
Experimental	O ₁	X	O ₂
Randomization	-----	-----	-----
Control	O ₃	—	O ₄

O₁ = Pre-test for Experimental Group

X = Treatment

O₃ = Pre-test for Control Group

O₂ = Post-test for Experimental Group

— = Absence of Treatment

O₄ = Post-test for Control Group

Awotunde and Ugodulunwa (2004) affirmed that true experimental design has two groups which are composed on the basis of randomization and on the basis of splitting the sample into two groups. Randomization in this design removes selection bias in the study. The independent variable in this study is Systematic Phonics Therapy and the dependent variables are spelling ability and word recognition of students with psychogenic hearing impairment.

There are four inclusive secondary schools in the study area from which the sample were drawn from. One of the schools with a very high number of students was purposely selected. The target population of this study comprised of 40 students in SSS 1 under study. To ascertain students who became samples; first, a screening test (on spelling and word recognition) was administered which determined those students who scored below 40% and then secondly, an opinion poll was then administered only on those who had scored

below 40%: those who agreed or strongly agreed that they are suffering from psychogenic hearing impairment became the sample for this study.

Both the experimental and control groups, each consisted of six (6) samples. This also gives the overall total of twelve (12) students with psychogenic hearing impairment as the targeted total sample. The choice of twelve (12) students as sample size, was informed by the fact that this is the highest available sample from the school under investigation.

The sampling technique in this research is the Non-Probability Technique (NPT), and the type of NPT is the purposive sampling technique. The purposive sampling was used in this research in the sense that the students under investigation are students with psychogenic hearing impairment and so was picked based on purpose (students with psychogenic hearing impairment). Only one school with high population sample was selected and investigated, this is because the school had a better and more accurate representation of the students with psychogenic hearing impairment in the study area; it had the target population for the study which made it more ideal for this study.

Awotunde and Ugodulunwa further claimed that purposive sampling is also known as judgmental sampling which is a non-probability sampling technique in which the researchers attempt to select a sample that appears to them as being representative of the population defined by their research problem.

The instrument that was used in this research for data collection; at both pre-test and post-test, was Teacher Made Spelling Ability and Word Recognition Test (TMSAWRT). This TMSAWRT was adapted by the researchers from the Teacher Made Literacy Skills Test (TMLST) constructed/developed by Deshi (2018). Deshi's instrument tests literacy skills of pupils. The researchers adapted it to give rise to this current instrument: Teacher Made Spelling Ability and Word Recognition Test (TMSAWRT), which tested Students with Psychogenic Hearing Impairment on spelling ability and word recognition.

Teacher Made Spelling Ability and Word Recognition Test was used in this research for data collection at pre-test and post-test. This test was in two parts; Part A elicited information from the respondents about their personal data such as sex, age and class. Part B measured the subjects' spelling ability and word recognition level. The researchers' final decisions by the use of TMSAWRT was based on certain percentages and levels, before and after exposure to treatment as presented below:

- 0 – 39 percent = Low level,
- 40 – 69 percent = Moderate Level, and
- 70 – 100 percent = High Level

The instrument was validated by three professionals. These experts were drawn from the University of Jos, Jos, Nigeria. Those experts validated the suitability and appropriateness of the instrument and their contents before the study. This validation was made to ensure that the instrument measured what it intended to measure. The test-retest reliability method was used in this study to ascertain the reliability of the research instrument. The reliability index was 0.853, established using Pearson Product Moment Correlation coefficient method.

t the preliminary stage, screening for sample formed part of the sampling procedure. Then pre-test in the first week. SPT is a six-week treatment designed/developed foremost for spelling ability and word recognition. It also consists of Phonics Tips, Audio Play-lets and plenary sessions. SPT for treatment during the experiment, after pre-test and before post-test, was an equipment for enhancing spelling and word recognition skills.

In the sixth week of this study, a post-test (TMSAWRT) was administered to both the experimental and control groups. The post-test lasted for 40 minutes. The bio-data collected from Section A, was presented using simple percentage, while the Section B consisting the questions that were analyzed using simple mean, frequencies and tables to answer the research questions 1 and 2. In order to test hypotheses 1 and 2, t-test statistics was used. Data were analysed using the Statistical Package for Social Sciences version 17.00.

Presentation of results

Research question one: What is the level to which SPT can improve the spelling ability of Students with psychogenic hearing impairment?

Table 1: Spelling ability level of students with psychogenic hearing impairment before and after exposure to treatment

Spelling Ability Level	Experimental Group		Control Group	
	Pretest	Posttest	Pretest	Posttest
Low	6(100%)	1(16.7%)	6(100%)	4(66.7%)
Moderate	0	2(33.3%)	0	2(33.3%)
High	0	3(50.0%)	0	0
Total	6(100%)	6(100%)	6(100%)	6(100%)

Table 1 reveals the spelling ability level of students with psychogenic hearing impairment before and after intervention in both experimental and control groups. Before intervention both were 100% low. After intervention, for experimental group, 1(16.7%) had low level, 2(33.3%) had Moderate level and 3(50%) had High level. While for those in the control group, 4(66.7%) still maintained low level, and 2(33.3%) improved to moderate level. This implies that SPT enhances spelling ability level of students with psychogenic hearing impairment to a high level.

Ho1: There is no significant difference between spelling ability mean scores of the experimental group, before and after exposure to treatment.

Table 2: t-test analysis of spelling ability mean scores of the experimental group before and after exposure to treatment

Spelling Ability	n	\bar{x}	SD	df	t-value	p-value
Pretest	6	3.50	1.04	10	-6.565	0.00
Posttest	6	11.83	2.92			

Table 2 shows t-test analysis of spelling ability mean scores of the experimental group before and after exposure to SPT. The table shows pretest mean and standard deviation of 3.50 ± 1.04 and Posttest of 11.83 ± 2.92 with a calculated t-value of -6.565 and a p-value of

0.00. Since the p-value is less than 0.05, it implies that there was a significant difference in spelling ability mean scores of the experimental group before and after exposure to SPT. Therefore, the null hypothesis was rejected and the alternative hypothesis accepted.

Research question two: What is the extent to which SPT can enhance the word recognition of students with psychogenic hearing impairment?

Table 3: Word recognition of students with psychogenic hearing impairment before and after exposure to treatment

Word Level	Recognition	Experimental Group		Control Group	
		Pretest	Posttest	Pretest	Posttest
Low		6(100%)	0	6(100%)	3(50.0%)
Moderate		0	2(33.3%)	0	3(50.0%)
High		0	4(66.7%)	0	0
		6(100%)	6(100%)	6(100%)	6(100%)

Table 3 reveals the word recognition level of students with psychogenic hearing impairment before and after exposure to SPT. The word recognition levels of students with psychogenic hearing impairment before intervention in both experimental and control groups were 100% low. After intervention in experimental group, 4(66.7%) had High level; while the control group had 3(50%) improved to moderate level. This implies that SPT enhances word recognition level of students with psychogenic hearing impairment to a high extent.

Ho2: There is no significant difference between word recognition mean scores of the control and experimental groups after exposure to SPT.

Table 4: t-test analysis of posttest word recognition mean score of the control and experimental groups after exposure to SPT

Groups	n	\bar{x}	SD	df	t-value	p-value
Experimental	6	12.83	2.56	10	3.830	0.003
Control	6	7.17	2.56			

Table 4 shows t-test analysis of post-test word recognition mean scores of the experimental group which had a mean and standard deviation of 12.83 ± 2.56 and the control group with 7.17 ± 2.56 . The table also shows a calculated t-value of 3.830 and a p-value of 0.003. Since the p-value is less than 0.05, it implies that there was a significant difference between word recognition mean scores of the control and experimental groups after exposure to SPT. Therefore, the null hypothesis was rejected and the alternative hypothesis accepted.

Discussion of the findings

The findings of research question one revealed that before intervention both experimental and control groups had low spelling ability. After intervention, the experimental group improved to a high level. This implies that SPT enhances spelling ability level to a high extent. Similarly, hypothesis one shows a significant difference in spelling ability mean scores of the experimental group before and after exposure to SPT. Therefore, the null

hypothesis was rejected and the alternative hypothesis accepted. This finding strengthens the position of Bakshi and Bakshi (2011) which accentuated that spelling ability can be changed through viable therapies.

Findings from research question two reveals that the word recognition level before intervention in both experimental and control groups were low. But after intervention, the experimental group had high level. This implies that SPT enhances word recognition level of students with psychogenic hearing impairment to a high extent. Hypothesis two shows t-test analysis of posttest word recognition mean scores of the two groups after exposure of experimental group to SPT. Experimental group had a calculated p-value less than 0.05. Therefore, the null hypothesis was rejected and the alternative hypothesis accepted. This reinforces the position of American Academy of Pediatrics (2015), which says practical therapies inculcate word recognition into learners or students.

Conclusion

The findings of this study revealed that using SPT helps to improve the level of spelling and word recognition of students with psychogenic hearing impairment to a high level. It is therefore concluded that SPT inculcates spelling and word recognition skills into students with psychogenic hearing impairment.

Recommendations

Based on the findings of this study, the following recommendations are put forward:

1. SPT should be conducted on all learners with hearing impairment at all levels of education, especially on learners with psychogenic hearing impairment.
2. Efforts by curriculum experts to incorporate SPT into primary and secondary schools' curriculum should be made.

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