

**DIGITAL STORYTELLING FOR LEARNING
THIRUKKURAL AMONG STUDENTS WITH HEARING
IMPAIRMENT**

Submitted by
Ramya V
(Reg. No. 20PSE011)

Under the Guidance of
Dr. A. Divyapriya

A Thesis submitted to
**Avinashilingam Institute for Home Science and Higher Education
for Women, Coimbatore-641043**

In Partial Fulfillment of the Requirement for the Degree of
**Master of Education in
Special Education (Hearing Impairment)**

MAY - 2022

**DIGITAL STORYTELLING FOR LEARNING
THIRUKKURAL AMONG STUDENTS WITH HEARING
IMPAIRMENT**

Submitted by
Ramya V
(Reg. No. 20PSE011)

Under the Guidance of
Dr. A. Divyapriya

A Thesis submitted to
**Avinashilingam Institute for Home Science and Higher Education
for Women, Coimbatore-641043**

In Partial Fulfillment of the Requirement for the Degree of
**Master of Education in
Special Education (Hearing Impairment)**

MAY - 2022

Certified as a Bonafide Research work

Signature of Head of
the Department

Signature of the
Dean

Signature of the
Guide

ACKNOWLEDGEMENT

I would like to take this opportunity to sincerely thank a number of people who assisted me to complete this Thesis.

First I like to express my thanks to the God Almighty who gives wisdom and knowledge to complete this work.

I express my deep sense of gratitude to **Prof. S.P. Thyagarajan, Chancellor**, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for granting permission to undergo this course.

I express my heartfelt thanks to **Dr.(Tmt.) V.Bharathi Harishankar Ph.D., FRSA., Vice Chancellor**, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for permitting me to pursue this research.

I am very much grateful to **Dr. (Mrs.) S.Kowsalya, Registrar**, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for her support rendered throughout the period of study.

I am extremely indebted to **Dr. (Mrs.) G.Victoria Naomi, M.A., M.Ed., Ph.D., Dean, School of Education and Professor, Department of Special Education**, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for the encouragement and timely decision to undertake this project.

I express my immense gratitude to **Dr. (Mrs.) K.Sambath Rani, M.R.Sc., M.Phil., M.Ed.(MR+VI), Ph.D., Head of the Department and Professor, Department of Special Education**, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for her valuable advice and help throughout the course.

I express my dignified indebtedness and deep sense of gratitude to my research supervisor **Dr. A. Divyapriya, M.Sc., M.Ed.(VI + HI), Ph.D., Assistant Professor, Department of Special Education**, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for her guidance, valuable

suggestions and assistance rendered. Her encouragement and guidance throughout the study was a source of motivation to complete this study.

I express my sincere thanks to my research supporter **Mrs. K. Kalaivani, M.A., B.Ed., M.Ed (HI), Assistant Professor, Department of Special Education, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore**, for her guidance, valuable suggestions and assistance rendered.

I acknowledge and express my gratitude to all the Faculty members of the **Department of Special Education, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore**, for their kind encouragement and support.

I express my deepest and sincere heartfelt thanks to the different schools included in the sample of the study, as without their willing cooperation it would have been impossible to collect the data and pursue the work.

I also propose my thanks to all non teaching staffs in Department of Special Education for their support during the study.

Finally with high regards and great pleasure I extend my sincere thanks to my parents and all my family members, Sign language interpreter and friends for their constant support and encouragement throughout my academic pursuit.

- **RAMYA V**

CONTENTS

Chapter	Title	Page No.
I	Introduction	1
II	Review of Related Literature	12
III	Methodology	31
IV	Analysis and Interpretation	43
V	Summary and Conclusion	66
	Bibliography	71
	Appendices	77

LIST OF TABLES

Table No.	Title	Page No.
3.1	Standard wise distribution of the sample	32
3.2	Selection of the Variables	33
3.3	Types of questions in Pre-test tool	36
3.4	Types of questions in Post-test tool	37
4.1	Background information of the Sample	44
4.2	Comparison of Pre-test and Post-test scores	46
4.3	Comparison of Pre-test and Post-test scores with respect to Level of understanding of new words in Thirukkural	48
4.4	Comparison of Pre-test and Post-test scores with respect to Conceptualization of Thirukkural	50
4.5	Comparison of Pre-test and Post-test scores with respect to Memorization of Thirukkural	52
4.6	Comparison of Pre-test and Post-test scores with respect to Interpretation based on acquired knowledge in Thirukkural	54
4.7	Comparison of Pre-test and Post-test scores with respect to Comprehension	56
4.8	Comparison of Pre- test and Post-test scores with respect to Gender	58
4.9	Comparison of Pre- test and Post-test scores with respect to Grade	59
4.10	Comparison of scores of Pre-test and Post-test scores with respect to the Type of family	60
4.11	Comparison of scores of Pre-test and Post-test scores with respect to the Educational status of parents	61
4.12	Comparison of scores of Pre-test and Post-test scores with respect to the Hearing aid	62
4.13	Comparison of scores of Pre-test and Post-test scores with respect to the Residential status	63
4.14	Comparison of scores of Pre-test and Post-test scores with respect to the Mode of communication	64

LIST OF FIGURES

Figure No.	Title	Page No.
1.1	Tools and Media used in Digital Storytelling	5
3.1	Flowchart illustration of the steps involved in the study	34
4.1	Background Information of the Students with Hearing Impairment	45
4.2	Comparison of Pre-test and Post-test Scores	47
4.3	Comparison of Pre-test and Post-test scores respect to Level of understanding of new words in Thirukkural	49
4.4	Comparison of Pre-test and Post-test scores with respect to Conceptualization of Thirukkural	51
4.5	Comparison of Pre-test and Post-test scores with respect to Memorization of Thirukkural	53
4.6	Comparison of Pre-test and Post-test scores with respect to Interpretation based on acquired knowledge in Thirukkural	55
4.7	Comparison of Pre-test and Post-test scores with respect to Comprehension	57

CHAPTER I

INTRODUCTION

1.0.0	Introduction	1
1.1.0	Concept of Hearing Impairment	2
1.2.0	Characteristics of Hearing Impairment	2
1.3.0	Digital Storytelling	3
1.4.0	Benefits of using digital storytelling in Education	5
1.5.0	Rationale of the study	6
1.6.0	Statement of the problem	7
1.7.0	Terms used in the study	8
1.8.0	Scope of the study	8
1.9.0	Objectives of the study	9
1.10.0	Hypothesis of the study	9
1.11.0	Delimitations of the Study	11
1.12.0	Organization of the Study	11

CHAPTER II
REVIEW OF RELATED LITERATURE

2.0.0	Introduction	12
2.1.0	Studies related to Teaching Strategies and Challenges Faced by Hearing Impaired Students in Learning	13
2.2.0	Studies Related to Uses of Pictures, Captions and Sign Language for Students with Hearing Impairment in Learning	16
2.3.0	Studies related to Storytelling for Hearing Impaired Students	18
2.4.0	Studies related to Teaching and Learning Thirukkural	20
2.5.0	Studies related to Storytelling	23
2.6.0	Studies related to Digital Storytelling and its Uses	25
2.7.0	Conclusion	29

CHAPTER III

METHODOLOGY

3.0.0	Introduction	31
3.1.0	Area of the Study	31
3.2.0	Selection of the Sample	32
3.3.0	Selection of the Variables	33
3.4.0	Design of the Study	34
3.5.0	Selection of the Content	35
3.6.0	Construction of the tool	35
3.7.0	Scoring Procedure	37
3.8.0	Pilot Study	37
3.9.0	Standardization of the tool	38
3.10.0	Implementation of the Study	38
3.11.0	Data Collection Procedure	41
3.12.0	Data Analysis	42
3.13.0	Conclusion	42

CHAPTER IV
ANALYSIS AND INTERPRETATION

4.0.0	Introduction	43
4.1.0	Background information of the Sample	43
4.2.0	Comparison of Pre- test and Post-test scores with respect to the different dependent variables	46
4.3.0	Comparison of Pre- test and Post-test scores in relation to different independent variables	58
4.4.0	Conclusion	65

CHAPTER V
SUMMARY AND CONCLUSION

5.0.0	Introduction	66
5.1.0	Findings	67
5.2.0	Discussion	68
5.3.0	Suggestions for further research	69
5.4.0	Recommendations of the Study	69
5.5.0	Implications	70
5.6.0	Conclusion	70

CHAPTER I

INTRODUCTION

1.0.0 Introduction:

Education plays a vital role in each individual's life. It enhances our knowledge; nourishes our soul and gives satisfaction in life. It improves the quality of being and leads to broad social benefits to the people and society. Now-a-days our education sector is fully dependent on technology. No country will be developed without education. The eventual goal of education is to help a person to become responsible, independent and a contributing member of the community to the humanity. For Children with Special Needs (CWSN), education helps them to rehabilitate their potential and facilitate them to become well-adjusted and well-mannered individuals. Education is common for all. There are no restrictions for children with disabilities to get education. Children with special needs, especially those with Hearing Impairment, acquisition of knowledge and Comprehension can be facilitated through activity-based learning which is viable through the means of technology. Advances in technology have provided a surplus of opportunities, tools and resources that can address the needs of individuals with the various forms of disabilities, so that they can be educated.

Storytelling is an important teaching resource with a strong presence in all societies since the evolution of human language and has a highly effective role in the education of young children (Phillips, 2000). Young children enjoy reading, writing and listening to stories, and from the stories, they are able to understand more about society and life in general. It is an effective tool especially for children with Special needs.

Emergent digital methods are changing the nature of storytelling and opening new possibilities for collaborative approaches. These methods encourage repositioning learners as co producers of knowledge who partner in the definition of problems, formulation of theories, and the application of solutions in the learning environment. The simplification, interactivity, and affordability of technology have led to a rapid and diverse expansion of participatory storytelling strategies. Digital Storytelling has been shown to be a valuable tool to help teachers encourage their

students to engage in discussion, participate in instruction, and support the comprehension of content (Kosara and Mackinlay, 2013). This study tests the Effectiveness of Digital Storytelling for learning Thirukkural among Students with Hearing Impairment.

1.1.0 Concept of Hearing Impairment:

Hearing Impairment cannot be seen and hence its effects are not visible to others, so deaf suffers in silence. A deaf person is so isolated from family and friends and greeted by unsympathetic attitude s/he is often depressed and needs psychological counseling. The consequences of the child born with hearing loss are quite severe (Varshney S., 2016). Hearing impairment is related to health and substantially affects child's ability to normally acquire the speech. It has an influence on life of a child, earlier the problem is identified, and health issues can be reduced accordingly. It is a fact that hearing loss is critical to language development and affects academic performance.

1.2.0 Characteristics of Hearing Impairment:

Hearing impairment is a disabling condition that affects the normal functioning of the child. The condition impedes their educational achievement no matter the degree of impairment. Ernbrey (1971) who studies the effect of a mild hearing loss on educational achievement found out that the mild hearing impaired subject did not achieve at the same level as their normal hearing children.

One of the major characteristics of the deaf as well as hard of hearing children are that they often have delayed language and speech development which eventually affects their verbal communication skills. Children with hearing impairment repeatedly use gestures and sign while communicating with others. Children with Hearing Impairment display abnormal rhythm in speech with nasal sound, mispronunciation and monotonous voice. Their speech is unintelligible. In written language, hearing impaired children frequently find problems associated with sentence construction, gender, tense, appropriate uses of verbs, adjectives, nouns, idioms, etc. All these influence academic growth of hearing impaired students. Both reading and arithmetic performances are deficient in these children. (Arya. A., 2016)

In cognitive functioning, Children with hearing impairment face difficulty in understanding abstract concepts. Because of limited vocabulary their comprehension ability is reduced. On all the aspects of development, i.e., mental-intellectual, personality and educational achievement, the hearing impaired students are lesser and are at low level. Many of the characteristics presented by hearing impaired children create unique problems for teachers. (U.S. Department of Education, 2008)

Okeke (2001) argued that if the children's hearing impairment is not ameliorated, poor or lack of complex and abstract reasoning will Pose a serious threat to the child's academic aspirations. In other words language disabilities resulting from deafness directly interfere with intellectual performance and indirectly affect thinking by obstructing normal patterns of cognitive stimulation and interpersonal communication and interaction.

1.3.0 Digital Storytelling:

Digital storytelling is a short clip which is the practice of combining narrative with digital content by using computer-based tools. It is the art of telling stories with a variety of digital multimedia, such as images, captions, audio, video clips, graphics and web publishing. Digital storytelling is an especially good technology tool because it has features that cannot be found in other technological tools. For instance, this tool combines researching, creating, analyzing, and combining visual images with written text, which is considered a positive style in teaching.

Robin (2005) indicated that one of the most powerful tools in multimedia is digital storytelling. It integrates visual images with written text both enhances and accelerates student comprehension. As Robin (2008) suggested, “Teacher created digital stories may also be used to enhance current lessons within a larger unit, as a way to facilitate discussion about the topics presented in a story and as a way to make abstract or conceptual content more understandable”. Moreover, digital storytelling provides teachers a unique way to present new material without taking a long time to help students understand the difficult information. Many researchers found that use of digital storytelling in teaching helps students retain new information as well as aids in the comprehension of difficult material. Moreover, teachers and instructors can also

use digital stories to their advantage. Teachers can create digital storytelling to generate interest and engagement for students of the “YouTube generation” (Dreon et al., 2015). Digital stories can appeal to diverse learning styles, allowing instructors to present abstract or conceptual information in a more understandable way. While creating digital stories, the storyteller requires considering the audience’s perspective and thinking about the topic carefully; Stories being the foundation of every culture, people often tell stories to instill beliefs and values to others. Traditional storytelling is used as a way to transfer knowledge, source, and basis for education; Teachers who create Digital Storytelling should have acquired basic computer knowledge and technical skills respectively; after which the storyteller chooses a topic that can be properly conveyed to particular audience by choosing the images, sound and words; with electronic elements, especially with in a span time.

According to Barret (2006), “digital storytelling facilitates the convergence of four student-centered learning strategies: student engagement, reflection for deep learning, project-based learning and the effective integration of technology into instruction”. Digital storytelling is a creative process that mixes conventional storytelling with digital technology, including a computer, video camera, and sound recorder (Ohler, 2013). It is a modern pedagogical initiative that has arisen from the proliferation of digital technology (Wang & Zhan, 2010). Digital storytelling is used at all levels of education from early childhood to higher education. Several studies have also generated qualitative evidence that technology has beneficial effects on encoding, visual perception, creative thinking, and fine motor skills (Zomer & Kay, 2014). Educators use digital storytelling as a motivational tool to draw students' attention and increase their interest in seeking new ideas (O’Byrne et al., 2018).

Figure 1.1 Tools and Media used in Digital Storytelling



Source: <https://s2.research.com/wp-content/uploads/2021/02/29101210/Digital-Storytelling-768x602.jpg>

1.4.0 Benefits of using digital storytelling in Education:

According to Van Gils, F. 2005, advantages of using digital storytelling in education are; provisions for more variation than traditional methods in current practice; It personalizes learning experience; It makes explanation or the practicing of certain topics more compelling; It creates real life situations in an easy and cheaper way; and It improves the involvement of students in the process of learning.

Out of 26 different countries 14 countries are actively engaged in digital storytelling for educational purposes. Digital storytelling supports student understanding of subject area knowledge, overall academic performance, as well as writing, technical, presentation, and research skills, Students' higher order thinking, social, language, reflection and artistic skills are positively affected when their teachers use digital storytelling in their classroom. It allows students to construct their own understanding or experience in a content area, facilitates collaborative activities in which students work together in a small group, and promotes in-class discussion, Students learn problem-solving, critical thinking skills and understand complex ideas. (Yuksel, P., Robin, B. & McNeil, S. 2011).

Digital storytelling is one of the innovative pedagogical approaches that can engage students in deep and meaningful learning. Digital storytelling is a powerful tool to integrate instructional messages with learning activities to create more engaging and exciting learning environments. It is a meaningful approach for creating a constructivist learning environment based on novel principles of teaching and learning. Thus, this approach has the potential to enhance student engagement and provide better educational outcomes for learners. (Smeda, N., Dakich, E. & Sharda, N. 2014).

1.5.0 Rationale of the Study:

Teachers at schools lack understanding of deaf children's educational needs. (Phiri, M. 2021). The curriculum is unfit for deaf students, it needs to be updated and teachers need capacity building. There is a necessity to use appropriate methods of teaching and educational aids. (Ghanam,N.M.,2014). For students with hearing impairment, reading a small artistic text, understanding it, remembering the general meaning and details in a limited time interval, and then answering questions is an impossible task. Popular method of presenting educational material in the form of texts on a slide for students with hearing impairments will be extremely ineffective. The information should be as simple as possible and presented using images, symbols, tables, charts, etc (Krasavina, Y., et al.,2019)

A single and simple approach for teaching Students with Hearing Impairment is not enough. (Singh, S. 2018). Use of official sign language, closed captioned videos and visual references will help in enhancing learning among Students with Hearing Impairment. (Shields, M., & Lennox, M. 2017). Subtitles would enhance students with hearing loss performance both on a comprehension task and on a vocabulary task. Students with a minimal-to-moderate hearing loss can benefit from the provision of captions as a visual cue. (Vulchanova, M., & Kjølstad Lervåg, I. 2021).Text with pictures motivates students with hearing impairment to read and it have to be encouraged. (Razalli, A. R.,et al.,2018).

According to Panara,R.F. (1979) , Poetry is one of the best means of developing concepts or ideas, enlarging a vocabulary and improving overall communication skills among Students with Hearing Impairment. It helps to stimulate

creativity and self expression, and it encourages the development of a students' intellectual faculties-imagination, thinking and interpretation.

Students with Hearing Impairment had little understanding of poetry and considered it boring. Students did not consistently analyze the meaning of poems independently. But Students benefitted from having sign language poetry a part of the unit, as well as the teacher signing of poems (Arenson, R., & Kretschmer, R. E. 2010).

Most of the hearing impaired students are visual learners and so presenting the content using multimedia will highly enhance their effective learning. The hearing impaired cannot hear but they can see so they can use the multimedia storytelling book for learning. (Miller, Kevin J., 1998). Digital stories make use of multimedia resources such as graphics, audio, visuals, sound and animation to support the visualization of learning concepts that students find difficult to comprehend and understand otherwise.

This brings in insight into the inclusion of Digital Storytelling in equipping the Hearing Impaired students to learn Thirukkural. There is no specific research in this area. Hence the researcher felt the need to undertake the study on developing a Digital storytelling for Students with Hearing Impairment to promote and enrich their learning skills.

1.6.0 Statement of the Problem:

Teaching and learning for Students with Hearing Impairment is a unique process as well as a challenge for the teachers and the approach used need to be varied individually. Digital Storytelling is an effective tool for the teachers to teach and the learners to learn. This aid in providing a positive teaching and learning environment for children with special needs which will pave them the way for independent learning. Students with Hearing Impairment have a great difficulty in understanding the abstract concepts. But the use of Digital Storytelling may enhance better comprehension of abstract concept and activities.

Even though there is some research studies conducted on Digital Storytelling, the researcher could not identify any specific research for the Hearing Impaired

students to learn Tamil. Some studies have suggested that using technology will help the students to learn Thirukkural easily but not specifically for Hearing Impaired students. The review of available literature and experts in the field clearly establishes that there are no serious scientific efforts towards Digital Storytelling for learning Thirukkural in Students with Hearing Impairment. The teacher trainees and special educators also have reported the need of an effective Digital Storytelling for learning the abstract concepts in Tamil. In Tamil, most of the abstract concepts presents in poem. Thirukkural is one of the poem part which presents in all grades.

Hence the researcher proposes to make a scientific study on the Effectiveness of Digital Storytelling for Learning Thirukkural among Students with Hearing Impairment. The problem will be worded as; “**Digital Storytelling for Learning Thirukkural among Students with Hearing Impairment**”.

1.7.0 Terms Used in the Study:

- ***Digital Storytelling***

Combining audio, video, sign language, images and captions in order to help the Students with Hearing Impairment to improve their learning in Thirukkural.

- ***Thirukkural***

The Thirukkural or shortly the Kural, is a classic Tamil sangam literature consisting of 1330 kurals, dealing with the everyday virtues of an individual. In this study it means the Thirukkural were particularly taken from Samacheerkalvi book of Grade 6 in third trimester to examine the effectiveness of Digital Storytelling.

- ***Students with Hearing Impairment***

The Students with Hearing Impairment studying in the grade 6 to 9 are selected as the samples for the present study from two Special schools.

1.8.0 Scope of the Study:

Digital Storytelling assists in providing joyful learning among the students which helps out in better understanding and self-learning of the concept for Students with Hearing Impairment

- The study may help adopting this strategy to teach Thirukkural to different categories of Children with Special Needs and also have the possibility to provide good quality education in all subjects meeting the needs of diverse learners
- The educators activate to get involved in developing Digital Storytelling for various concepts for teaching and learning
- Digital Storytelling used in the present study can be developed for other subjects also
- The study may help the Students with Hearing Impairment to enhance their Knowledge in Thirukkural
- The teachers become better motivated to provide equal opportunities to Students with Hearing Impairment

1.9.0 Objectives of the Study:

The objectives of the study are the following,

- Identify Students with Hearing Impairment in special schools
- Explore the current knowledge on Thirukkural in Students with Hearing Impairment
- Develop Digital Storytelling to enhance the learning of Thirukkural among Students with Hearing Impairment
- Teach Thirukkural to Students with Hearing Impairment using Digital Storytelling
- Assess the effectiveness of Digital Storytelling for learning Thirukkural in Students with Hearing Impairment

1.10.0 Hypothesis of the Study:

The following hypotheses were framed for the study:-

1. There is no significant difference in the mean scores of Pre-test and Post-test on learning Thirukkural
2. There is no significant difference in the Pre-test and Post-test scores with respect to level of understanding of new words
3. There is no significant difference in the Pre-test and Post-test scores with respect to Conceptualization of Thirukkural

4. There is no significant difference in the Pre-test and Post-test scores with respect to Memorization of Thirukkural
5. There is no significant difference in the Pre-test and Post-test scores with respect to Interpretation based on acquired knowledge
6. There is no significant difference in the Pre-test and Post-test scores with respect to Comprehension
7. There is no significant difference in the Pre-test scores between Boys and Girls in learning Thirukkural
8. There is no significant difference in the Post-test scores between Boys and Girls in learning Thirukkural
9. There is no significant difference in the Pre-test scores with respect to Grade in learning Thirukkural
10. There is no significant difference in the Post-test scores with respect to Grade in learning Thirukkural
11. There is no significant difference in the Pre-test scores with respect to the type of family in learning Thirukkural
12. There is no significant difference in the Post-test scores with respect to the type of family in learning Thirukkural
13. There is no significant difference in the Pre-test scores with respect to Educational status of parents in learning Thirukkural
14. There is no significant difference in the Post-test scores with respect to Educational status of parents in learning Thirukkural
15. There is no significant difference in the Pre-test scores with respect to Hearing aid users in learning Thirukkural
16. There is no significant difference in the Post-test scores with respect to Hearing aid users in learning Thirukkural
17. There is no significant difference in the Pre-test scores with respect to Residential status in learning Thirukkural
18. There is no significant difference in the Post-test scores with respect to Residential status in learning Thirukkural
19. There is no significant difference in the Pre-test scores with respect to Mode of communication in learning Thirukkural

20. There is no significant difference in the Post-test scores with respect to Mode of communication in learning Thirukkural

1.11.0 Delimitations of the Study:

- The Sample size of the study was limited only to 30 Students with Hearing Impairment
- The study was limited only to Students with Hearing Impairment in the Grade 6-9
- The study was confined to only two special schools in Virudhunagar and Trichy
- The Intervention package was confined to only ten Thirukkural in Grade 6, which focused only one term

1.12.0 Organization of the Study:

The study is organized as per the following pattern: -

- CHAPTER I** : It highlights the rationale of the study and defines the statement of the problem. This chapter also presents the need of the study, its objectives, hypothesis, and the scope of the study.
- CHAPTER II** : It comprises of the review of literature related to the topic
- CHAPTER III** : It discusses the methodology employed in the study. It covers the sample selection procedures, instrumentation, data collection processing, and data analysis procedures adopted in collecting the data for the study.
- CHAPTER IV** : It presents the quantitative as well as the qualitative data. In the light of the findings, appropriate interpretations have also been made.
- CHAPTER V** : This chapter contains a summary of the findings of the study with discussion, recommendations, and suggestions for further research, implications and conclusion.

The Bibliography and Appendices follows Chapter V.

CHAPTER II

REVIEW OF RELATED LITERATURE

2.0.0 Introduction:

Literature review accomplishes several purposes. It shares with the reader the results of other studies that are closely related to the one being undertaken. It relates a study to the larger ongoing dialogue in literature, filling in gaps and extending prior studies (Rossman and Marshall, 1991). Works which are irrelevant should be discarded and those which are peripheral should be looked at critically. According to Fraenkel and Wallen (1990) literature reviews shares with the reader the results of other studies that are closely related to the study being reported.

Related literature is that which is obviously relevant to the problem, such as previous research investigating the same variables, a similar question, and references to the theory and the study of similar practices. It enables a reader to gain further insights from the purpose of a study. Literature reviews if conducted carefully and presented well add much of understanding of the selected problem and helps to place the results of a study in a historical perspective. Moreover, the researcher draws maximum benefit from the previous findings, takes many hints from the designs and procedures of previous researches, matches their findings with conclusions drawn earlier and tries to add from their side a line of two to the existing body of knowledge.

The literature pertaining to the study on **“Digital Storytelling for Learning Thirukkural among Students with Hearing Impairment”** is reviewed under the following headings.

- 2.1.0 Studies related to Teaching Strategies and Challenges faced by Hearing Impaired Students in Learning
- 2.2.0 Studies Related to Uses of Pictures, Captions and Sign Language for Students with Hearing Impairment in Learning
- 2.3.0 Studies related to Storytelling for Hearing Impaired Students
- 2.4.0 Studies related to Teaching and Learning Thirukkural
- 2.5.0 Studies related to Storytelling
- 2.6.0 Studies related to Digital Storytelling and its Uses

2.1.0 Studies Related to Teaching Strategies and Challenges Faced by Hearing Impaired Students in Learning

Phiri, M. (2021), studied about the “Challenges Faced by Deaf Children in Accessing Education”. The aim of this study is to find what needs to be done to enable deaf children to access quality education. Qualitative data was collected in three schools for deaf children and two mainstream schools where deaf children are enrolled. It was found that deaf children feel isolated and lonely in mainstream schools, which leads to some children withdrawing from these schools and joining schools for the deaf. Similarly, some deaf children are denied access to education because they have to choose between paying to enroll in schools for the deaf where they can enjoy the company of deaf peers, and enrolling in mainstream schools where their access to education is very limited. Teachers at mainstream schools lack understanding of deaf children’s educational needs. It is recommended that a collective effort should be made by the state and society to surmount the many challenges that hinder deaf children from accessing quality education.

Khomera, S.W., Fayiah, M., & Gwayi, S. (2020), attempted a study entitled “Challenges Faced by Learners with Hearing Impairments in a Special School Environment”. The study was conducted in a selected primary for the deaf in Mzimba District. The qualitative research method was used in this study. Forty five respondents participated in the research (40, students and 5 teachers). The study revealed that students with Students with Hearing Impairment needs education are facing multiple challenges such as; shortage of hearing aids, communication barrier with the community surrounding the school, negative attitudes by the community, inadequate funding, abandonment by parents and relatives, shortage of teachers and the lack of transportation facility. These challenges posed both long and short term impact on the academic performance of students attached to the center. Students with hearing impairment are struggling to attain basic education.

Singh, S. (2018), attempted a study entitled “Teaching strategies for children with hearing impairment”. The present article is divided into three parts. First part describes the diverse nature of children with hearing impairment. Second part addresses the special needs of CWHI. Finally the last part discusses the teaching strategies for children with hearing impairment. Based on the understanding

developed related to range of variations among CWHI and their special needs, strategies for teaching CWHI are suggested. The section is divided into five parts including the general strategies, seating arrangement, teaching strategies, classroom environment modification and strategies for group discussions. General strategies includes teacher to maintain facial expressions, gestures and body language that could make the classroom transactions interesting. Seating arrangements includes Seat the child where s/he can easily watch your face, away from noise etc., Classroom environment modifications includes the modifications in the classroom environment to reduce reverberation and noise. Teaching strategies highlights that the teachers use visual aids such as picture, movies with captions, charts, models etc when possible and Effective discussion could only be possible if every child would get chance to participate in it.

Shields, M., & Lennox, M. (2017), conducted a study on “Strategies to address educational needs of students who are deaf or hard of hearing”. This paper addresses some of the educational needs of students with hearing impairments and suggested some strategies to assist deaf and hard of hearing which are Teach and use an official sign language, Use closed captioned videos, visuals references, personal listening devices(PLDs) and amplifiers in the classroom, Close doors and windows, and also turn off any unused electrical equipment, all to avoid interfering with PLDs, Make sure the classroom is well lit, Proximity is essential for lip reading, Gain a Deaf student’s attention before speaking, When speaking, speak loudly and clearly using simple sentences, Avoid any simultaneous commentary, Always check for comprehension by the student, Retain focus by having frequent brain breaks, Develop an Individualised Education Program (IEP) that targets and develops the students challenging areas.

Ghanam,N.M., (2014), did a study on “Educational Challenges Facing Deaf and Hearing Loss Students in Secondary School”. The study addresses the educational challenges in terms of deaf and hearing loss students' perceptions of educational and psychosocial challenges, availability of educational environment support, and cooperation of educational administration. The study is applied to 128 deaf and hearing loss students, all of them attending 11th grade in ALRafi’e Higher School in Gaza City. A descriptive analytical approach has been used in the study, using the

Statistical Package for the Social Sciences (SPSS). Challenges revealed that the students are in need for support services -interpreters for comprehensive accurate communication, services, academic advisors - psychologists -social workers, assistive technology, written precise instructions of materials, and suitable formulation of written exams. The curriculum is unfit for deaf students, it needs to be updated and teachers need capacity building. There is a necessity to use appropriate methods of teaching and educational aids. Students are unable to read, write, and master the mathematical skills, in addition to the difficulty in self-expression, relations building, interaction with colleagues and self verification.

Mpofu, J., & Chimhenga, S. (2013), studied the “Challenges faced by Hearing Impaired pupils in learning”. The research highlights the challenges faced by pupils with hearing loss and to suggest how best teachers can handle this challenge. Focus group discussions and Interviews of students with HI, and teachers were used to collect data. The study adopted a qualitative case study design. Eighteen secondary school teachers from King George IX Memorial School that teach disabled and hearing impaired pupils were purposively selected from Bulawayo Metropolitan area where the school is based. It is clear from the study that certain improvements have to be put in place in order to solve the challenges faced by hearing impaired students. There is need for schools to appoint a sign language interpreter in all schools where hearing impaired pupils are enrolled and also need to increase the number of teachers with sign language skills so that they can complement the other teachers who are not skilled in using sign language. Teachers who are not skilled in sign language, but teach hearing impaired students should be encouraged to get staff development courses on sign language. Teachers need to develop empathy towards students with hearing impairment so that they design activities, and strategies that ensure that these students learn the subject under study. There is need for teachers to provide course outlines, lecture notes and handouts to interpreters who help the hearing impaired students so that they can go through the information in advance and where possible the learner can get help from parents and other helpers. Sign language interpreters can be allowed to view the course outlines, content, teachers’ notes beforehand so as to interpret the information effectively to the students. (Mpofu, J., & Chimhenga, S. 2013).

Blom and Unworth, 2010, attempted a study on “Experimental methods in language acquisition”. The study highlights that the distinction between pre lingual and post lingual deaf is of crucial importance to understand the language needs of Children with Hearing Impairment. Post lingual children develop spoken language differently from pre lingual deaf children. They have had the auditory experiences that could enable them to acquire various aspects of spoken language in natural way. They can learn to speech read because of their ability to link visual information accompanying speech to the intended language form

Davis, J. M., Elfenbein, J., Schum, R., & Bentler, R. A. (1986), presented a study on “Effects of mild and moderate hearing impairments on language, educational, and psychosocial behavior of children”. An extensive psycho educational evaluation was administered to 40 hearing-impaired children to investigate the effects of degree of hearing impairment, age, and other factors on intellectual, social, academic, and language behavior. Although children varied greatly in performance, hearing loss of any degree appeared to affect psycho educational development adversely, leading to the conclusion that even minimal hearing loss places children at risk for language and learning problems.

2.2.0 Studies Related to Uses of Pictures, Captions and Sign Language for Students with Hearing Impairment in Learning

Vulchanova, M., & Kjølstad Lervåg, I. (2021), did a study on “Role of Subtitles in L2 Acquisition and Comprehension: A Pilot Study of Hearing-Impaired Students”. The purpose of this study was to investigate whether subtitles can facilitate language processing in English as a second language (L2) among Hearing Impaired students. Totally, 14 advanced learners of L2 English were recruited and tested on English comprehension and target vocabulary items based on Subtitles were found to enhance students with hearing loss performance both on a comprehension task and on a vocabulary task, and that the participants would appreciate the addition of subtitles. Subtitles clearly aid vocabulary and comprehension for learners with mild-to-moderate hearing loss. Students with a minimal-to-moderate hearing loss can benefit from the provision of captions as a visual cue when watching films. Assistive technologies, such as captioned films or documentaries can be easily used in the classroom to assist students with mild-to-moderate hearing loss to lessen the load of

extra concentration. In addition, to get the most out of the viewing, it can be beneficial to pre-teach relevant words and phrases that the learners will be exposed to during the viewing, thus enhancing vocabulary learning.

Lervåg, I. K. (2020), did a study on “Role of subtitles in L2 acquisition and comprehension: evidence from hearing-impaired learners”. The aim of this study is to review the benefits that subtitles provide in the ESL classroom for learners with a mild-to-moderate hearing loss. Specifically, the study investigates if the use of subtitles in second language learning is beneficial for learners of English with a minimal-to-moderate hearing impairment, to what extent subtitles are beneficial, and also in what language the subtitles should be presented in. The study is based on a quantitative experimental research method. The participants varied from the age of 18-25 and were categorised as having a hearing loss from 25-70 dB. The experiment was carried out as an online survey and contained two different 5-6 minute clips from the documentary Expedition Happiness. The first clip they watched had subtitles, the second had no subtitles. From comprehension and vocabulary tasks following the viewing sessions the study was concluded that Students with moderate hearing loss benefitted from subtitles slightly more than the minimal hearing loss group. However, subtitles proved to aid general comprehension, and the Students with moderate hearing loss also revealed that being provided with subtitles lessened their concentration load and made the viewing experience more comfortable.

Bowman-Smart, H., et al., (2019), did a study on “The moral case for sign language education”. The study highlights the importance of learning sign language as, there are significant benefits that accrue to individuals from learning sign language. Sign language education is a matter of justice; the normalisation of sign language education and use would particularly benefit marginalised groups, such as those living with a communication disability. The integration of sign languages into the curricula would enable the flourishing of Deaf culture and go some way to resolving the tensions that have arisen from the promotion of oralist education facilitated by technologies such as cochlear implants. There are important reasons to further pursue policy proposals regarding the prioritisation of sign language in school curricula.

Razalli, A. R., et al., (2018), conducted a study on “Using text with pictures in primary school to improve reading comprehension for hearing impaired students”. The objectives of the study are to determine whether using text with pictures is effective to improve reading comprehension for students with hearing impairment. A qualitative research design was used in this study. Two sets of instruments observational checklist and interview questionnaires have been used. Six hearing impaired students and five teachers were selected as the respondents through purposive sampling technique. The findings show that text with pictures can help to improve reading comprehension for students with hearing impairment. The implications of this study show that text with pictures motivates students with hearing impairment to read and it have to be encouraged in primary school.

Jameel, H. T., & Bibi, S. (2016) conducted a study on “Benefits of sign language for the deaf students in classroom learning”. This study was conducted to investigate the benefits of sign language for deaf students. The study was descriptive in nature and teachers of deaf were the sample of the study selected by using simple random sampling technique. A total number of 40 teachers of deaf from four schools were the participants of the study. For the purpose of collecting specific information, a structured questionnaire was developed on the basis of 5-Point Likert Scale. Collected data was tabulated and analyzed by using descriptive and inferential statistics. The results of the study showed that sign language is an important and beneficial tool to improve classroom learning of deaf students. The present results of study are in favor of use of sign language for deaf students in classroom learning. For full access to educational opportunities, are only possible when instructional methods, matching the need of deaf students.

2.3.0 Studies related to Storytelling for Hearing Impaired Students

Techaraungrong, P. (2019), attempted a study entitled “The Development of Storytelling multimedia Book for Promotion of the Moral and Ethics for Hearing Impaired Students”. The intention of the study was to develop a storytelling multimedia book for promotion of the moral and ethics skills for hearing impaired students. The concept of the research was based on the 5 steps of ADDIE MODEL: 1) analysis, 2) design, 3) development, 4) implement, and 5) evaluation. For data collection the use of storytelling multimedia book with 15 hearing impaired students

was chosen as method. After test, the researcher interviewed 15 hearing impaired students, individually, and analyzed the results of word frequencies. The students described the using of storytelling electronic book for promotion of the moral and ethics adjectives such as "interesting," "amazing" and "fun." While the others described feeling happy about the storytelling electronic book: "I am happy to learn from stories", "I had fun when I learned these stories." In terms of content of story, hearing impaired students responded that they understood the content and excited that it was "easy" to understand and the program could interact with user and computer too.

Chao-Fernandez, R., Román-García, S., & Chao-Fernandez, A. (2017) conducted a study on “Online Interactive Storytelling as a strategy for learning music and for integrating pupils with hearing disorders into Early Childhood Education (ECE)”. The aim of the present study is to find a solution to a situation that the exclusion of pupils with hearing disorders from musical education. To this end the researchers decided to make use of online storytelling as a way of approaching the issue of social and peer integration, as storytelling and new technology are both elements that hold a great appeal for such pupils. The study concluded that the use of online digital storytelling led to an enhanced level of musical appreciation among pupils with hearing disorders, who became better integrated in the class and whose self-esteem increased notably. They improved in terms of integration in the class, self-esteem, acquisition of musical skills and also ability to relate to traditional tales.

Flórez Aristizábal, L., Cano, S., & Collazos, C. (2017), attempted a study entitled “Using storytelling to support the education of deaf children: A systematic literature review”. A systematic literature review was conducted by the researchers to identify how storytelling technique has been used in the education of deaf children and how could interactive storytelling engage children with learning processes in different areas of knowledge. A total of 623 studies were found in different databases but just 24 of them were selected for this review. After data extraction and analysis, the study determined that skills related to language and communication is the most common among researches that involve the use of storytelling as an educational resource for deaf children. Storytelling has been used for a long time with this community but according to the last five years there is not much research around the

use of this strategy to educate deaf people. Nowadays, deaf children are also considered digital natives and this could make interactive storytelling an even more effective strategy for them, but unfortunately, we noticed that there is not an established methodology to make use of interactive storytelling through the use of ICT.

Techarueangrong, P., Kaewprapan, W., & Suksakulchai, S. (2014), did a study on “The design and use of multimedia storytelling book for hearing impaired students”. The purpose of this research is to explore the application of a multimedia storytelling approach in teaching the hearing impaired. This paper examined in three steps the usability design of the multimedia storytelling book based on a literature review; multimedia design, hearing impaired learning design, and interface design. The study highlights that, Multimedia application of a multimedia storytelling book is useful and has many advantages for hearing impaired students when these three designs can be combined to furnish a multimedia storytelling book prototype for hearing impaired students

Griffith, P. L., & Ripich, D. N. (1988), did a study on “Story structure recall in hearing-impaired, learning-disabled and nondisabled children”. This study examined the ability of hearing-impaired students to make use of story grammars in organizing self-generated and retold stories. Eleven primary and intermediate level students enrolled in total communication public day classes were participated. Children were presented with four stories, with and without pictures, and were asked to make up a story or to listen to and retell a story to friends. Story transcripts were analyzed for correct descriptions of events and for correct story structures. Results indicated that hearing-impaired students do make use of story grammars in organizing retellings and in constructing stories. Pictures enhanced recall. Students with deaf parents performed as well as did nondisabled children in previous studies. Retelling abilities were linked to both chronological age and linguistic abilities.

2.4.0 Studies related to Teaching and Learning Thirukkural

Ponniah, K., et al., 2021 presented a study on “The Use of ICT in Thirukkural Teaching and Facilitation”. This study aims to analyze the use of ICT in the teaching and facilitating of Thirukkural. This study was conducted qualitatively. The use of

ICT in the teaching and learning of Thirukkural can enhance the understanding and applicable in a student's daily life. ICT platforms produce students with high-level thinking skills. The researcher used questionnaires and conducted interviews with the Tamil language teachers from selected schools to obtain good research findings. Findings of this study showed that from 12 teachers, 30% of them actively used ICT in teaching and facilitation of Thirukkural. Another 30% used the ICT facilities in teaching and learning of Thirukkural on a moderate level. The study also revealed that 50% of the respondents were not very competent and did not effectively use ICT in the teaching and facilitating of Thirukkural. Descriptive analysis showed that the need for sufficient and well-equipped ICT infrastructure and facilities must also be addressed by the relevant parties, mainly on technical support, administrative roles, and encouragement from the MOE.

Shalma, R. U., & Khan, S. F.(2021), did a study on “Influence of Thirukkural for Morality among High School Students”. This Study deals about the Influence of Thirukkural for Morality among High School Students. The results shows that, morality increased, when one follow the language and literature in their Mother tongue in everyday life, and Thirukkural which was written by Thiruvalluvar in the Tamil language which serves for the whole life as a medium for well-versed life. Influence of Thirukkural can focus on all sorts of people and is manipulated for the expression of people's culture. viz., infants, adults, adolescents’ etc. Every day, the parents and teachers should ask the children to recite the literature of our ancestors to become a good human and to develop humanity through morality. Thiruvalluvar, observed both the goodness and the weaknesses of governance at different levels and encouraged men and women, through the different couplets, to lead a moral life, based on strong values.

Ponniah, K. (2020), conducted a study on “Implementation of the 21st century learning in learning and facilitation of Thirukkural in Tamil Primary Schools”. The purpose of this study was to find out the implementation level of the 21st Century Learning Model among teachers and to analyze the impact of it in activities and facilitation of 21st Century Modeling in Thirukkural teaching in Perak state’s Tamil Primary Schools. Qualitative research methods were used in this study. This study involved two Tamil Primary Schools as respondents. Observation in the process of

learning and facilitating Thirukkural for Year 5 students was implemented using Malaysian Standards Quality Education Waves 2 (known as SKPMg2) instruments that had been set by the Ministry of Education. The results stated that Thirukkural learning and facilitating can be done well based on the 21st Model of Learning, but certain aspects in this model such as the teacher's role to as motivator and student's role as active learner need to be further improved. The results of this study are expected to help educators and related parties in implementing the learning and facilitation of Thirukkural more effectively, in accordance with the 21st Model of Learning.

Ponniah, K., Kumar, M., Moneyam, S., & Sivanadhan, I. (2019) attempted a study entitled “The teaching of Thirukkural based on HOTS among the students of Tamil primary schools in the state of Perak”. The purpose of this study is to measure the mastery of Higher Order Thinking Skills (HOTS) among the teacher of Tamil Primary Schools in the state of Perak and the mastery of questioning technique based on Bloom's Taxonomy using HOTS in the teaching of Thirukkural. The approach of quantitative was employed among 80 teachers from four different schools in Perak. The results of the research revealed that the mastery of HOTS among teachers in this category is average and weak from the eight criteria which were studied, but in the mastery of questioning technique based on Bloom's Taxonomy using HOTS in the teaching of Thirukkural, 51.3% are able to list out HOTS questions. It can be said that the teaching and learning of Thirukkural in the classroom can foster the higher order thinking among the students of Tamil Primary Schools excellently. However, it is very much dependant on the questioning techniques of teachers which encourage them towards it.

Muniapan, B., & Rajantheran, M. (2011), attempted a study entitled “Ethics from the Thirukkural and its relevance for contemporary business leadership in the Indian context”. This paper explores the dimension of business ethics from ancient Indian literature Thirukkural. The Thirukkural is a well-known treatise on ethics which was authored by Thiruvalluvar in the second century BC. It is considered to be the first work which covers ethics in Tamil literature. In presenting the business ethics from the Thirukkural, the authors employed hermeneutics, a qualitative methodology which is the interpretation of ancient or classical literatures. The findings reveal

that Thirukkural advocates a consciousness and a spirit-centered approach to the subject of business ethics based on eternal values and moral principles that should govern the conduct of business leaders.

2.5.0 Studies Related to Storytelling

Nair, S. M., Yusof, N. M., & Hong, S. C. (2014), presented a study on “Comparing the effects of the story telling method and the conventional method on the interest, motivation and achievement of Chinese primary school pupils”. The objective of the study was to investigate whether the use of the storytelling method helped to enhance the interest, motivation and achievement of pupils in Moral Education. This article is based on a quasi experimental research. The sample of the study consisted of 110, five pupils from two schools. The sample was divided into two groups, the Experimental Group and the Control Group. The Experimental group was taught using the story telling method and the Control group was taught using the conventional method. The study was conducted over a period of eight weeks. A set of questionnaires was used to gauge the pupils’ interest and motivation before and after the experiment. The ANCOVA test was used to analyse the data obtained from the post test and the questionnaire. The findings of this research indicate that the utilization of the storytelling method significantly enhanced the interest, motivation and achievement of the pupils in the Experimental Group in Moral Education compared with the pupils in the Control Group who were taught using the conventional method.

Isbell, R., Sobol, J., Lindauer, L. et al., (2004) presented a study on “The Effects of Storytelling and Story Reading on the Oral Language Complexity and Story Comprehension of Young Children”. The purpose of this study was to determine how storytelling and story reading influence the language development and story comprehension of young children from 3 to 5 years of age. During the study, two groups of children heard the same 24 stories. Group A heard the stories told and Group B heard the stories read from a book. The language pre- and post-samples were elicited from the participants by retelling a story they had heard and creating a story using a wordless picture book. The language samples were transcribed and analyzed using measures of language complexity and story comprehension. Both storytelling and story reading were found to produce positive gains in oral language. Differences between the two groups indicated that young children who heard the stories told

demonstrated improved story comprehension in their retelling, while children in the story reading group improved their language complexity. Storytelling in the classroom often provides a powerful opportunity to embed elements of narrative, identity, and writing into classroom pedagogy. Stories provide a realistic and authentic opportunity to capture students' attention and help them listen and learn more actively than other forms of instruction by providing a vehicle to bring facts to life, make the abstract concrete and, through meaning making, make disciplinary literacies more accessible.

Palmer, B.C., Harshbarger, S.J. & Koch, C.A., (2001), attempted a study on "Storytelling as a Constructivist Model for Developing Language and Literacy". The study highlights that, adhering to the philosophy of constructivism; storytelling is explored as a vehicle for expanding children's existing oral language and developing their literacy abilities during community-sponsored summertime programs. Ongoing observations of the program participants prompted the authors to make the following conclusions: (1) Storytelling is a rich interactive process that facilitates imagination, creative thinking, language abilities, and cooperative learning; (2) Learners actively construct their own understanding, building upon their current knowledge base; (3) Working with others on meaningful tasks enhances learning; and (4) Storytelling offers a limitless opportunity for developing a more authentic awareness of and respect for children with diverse language and cultural backgrounds.

Papert, 2000, attempted a study on "What's the big idea? Toward a pedagogy of idea power". The study highlights that the Educators are experts in their field and may be usual to using discourse that can intimidate and overload new learners. Storytelling breaks down the communication barriers between experts and new learners and forms an accessible bridge for both to meet intellectually as they collaboratively connect one object to the next

Phillips, L. (2000), conducted a study on "Storytelling: The Seeds of Children's Creativity". The study highlights that, storytelling is an effective educational tool that features strongly across all cultures since human language evolved. Storytelling has the ability to build a greater sense of community, enhance knowledge and memory recall, support early literacy development, and expand

creative potential in young children. Storytelling has a highly effective role to play in the education of young children. (Phillips, L., 2000)

2.6.0 Studies Related to Digital Storytelling and its uses

O'Byrne, W. I., et al., (2019), did a study on "Digital storytelling in early childhood". This study highlights that, Digital storytelling, as mediated by child-computer interactions is a powerful and beneficial pedagogical opportunity to teach and empower students. More specifically, in an early childhood educational setting, these elements have the potential to help develop academic skills and motivation in students. Digital stories are portable as they are documented and shared via digital texts and tools. Educators can use digital storytelling to support students' learning by encouraging them to organize and express their ideas and knowledge in an individual and meaningful way. This work also helps to enhance communication skills by learning to organize their ideas, ask questions, express opinions, and construct narratives as they interact with others and computers in the creation of digital stories.

Cherry Jr, W. R. (2017), studied "The importance of story and storytelling in the classroom". The study highlights that Digital storytelling is an especially good technology tool for use in instructional settings as it combines researching, creating, analyzing, and combining visual images with written text. Storytelling is a part of who people are as humans. Stories form a part of the very fabric of who people are and give insight into the past as much, if not more so, than the histories. Teachers can leverage their students' own narratives, along with the Four Cs of 21st-century learning, to create educational opportunities within their classrooms. The Four Cs are critical thinking, communication, collaboration, and creativity go hand in hand with storytelling projects in the classroom.

Nam, C. W. (2017), attempted a study entitled "The effects of digital storytelling on student achievement, social presence, and attitude in online collaborative learning environments". Students in one middle school were randomly assigned to one of the two treatment groups. The "digital storytelling-based online collaborative learning (DST-OCL)" and the "general online collaborative learning (G-OCL)" groups received subsequent associated skills training. The overall results indicated that after each group took part in the treatment during online collaborative

learning activities, the “DST-OCL” groups had significantly higher social presence than the “G-OCL” groups. Specifically, using “DST-OCL” strategies was significantly more effective than using “G-OCL” strategies for improving the “online communication,” “interactivity,” and “privacy” components of students’ social presence in online collaborative learning environments. There was no significant difference between the two groups regarding student achievement and attitude. The findings of this study offer an insight into methods for using digital storytelling as an instructional strategy for improving online collaborative learning effectiveness.

Alismail, H. A. (2015), presented a study on “Integrate Digital Storytelling in Education”. The study highlights that the educators believe using technology can be an effective factor in education for the new generation, making educational goals easier to achieve in the 21st century and also it gives positive effects on student learning. Many teachers are integrating multimedia tools in teaching students different skills including synthesizing, analyzing, evaluating, and presenting information. The trend for integrating technology into education has become more widespread in most schools today. Digital storytelling is one of the multimedia tools that can support teaching and learning as well as students’ motivation. It is the most effective tool for both teachers and students in order to support teaching and learning skills.

Smeda, N., Dakich, E. & Sharda, N. (2014), studied “The effectiveness of digital storytelling in the classrooms”. Researchers have found that student engagement, achievement and motivation are enhanced through integration of technologies. Digital storytelling is one of the innovative pedagogical approaches that can engage students in deep and meaningful learning. To investigate the pedagogical aspects of digital storytelling and the impact of digital storytelling on student learning a multi-site case study was conducted in one Australian school at primary and secondary levels. In selected classrooms, students and teachers had the opportunity to engage in innovative learning experiences based on digital storytelling. Data was collected with qualitative and quantitative methods. The findings from this study suggest that digital storytelling is a powerful tool to integrate instructional messages with learning activities to create more engaging and exciting learning environments. It is a meaningful approach for creating a constructivist learning environment based on

novel principles of teaching and learning. Thus, this approach has the potential to enhance student engagement and provide better educational outcomes for learners.

Yuksel, P., Robin, B. & McNeil, S. (2011), presented a study on “Educational Uses of Digital Storytelling all around the World”. This study provides a general framework about educational uses of digital storytelling in different countries and describes the different perceptions of people in different cultures about this technology. An online survey was used to collect responses from a group of educators, students and others in educational settings to determine how they are using digital storytelling for educational purposes. SPSS software was used to analyze data and present results of the study. The result of this study says that, Out of 26 different countries 14 countries are actively engaged in digital storytelling for educational purposes, Digital storytelling supports student understanding of subject area knowledge, overall academic performance, as well as writing, technical, presentation, and research skills, Students’ higher order thinking, social, language, reflection and artistic skills are positively affected when their teachers use digital storytelling in their classroom, it allows students to construct their own understanding or experience in a content area, facilitates collaborative activities in which students work together in a small group, and promotes in-class discussion, Students learn problem-solving, critical thinking skills and understand complex ideas.

Dogan, B., & Robin, B. (2008), presented a study on “Implementation of Digital Storytelling in the Classroom by Teachers Trained in a Digital Storytelling Workshop”. This paper presents results of a research study conducted at the University of Houston, in which a group of in-service elementary, middle, and high school teachers learned to use digital storytelling through a series of summer workshops conducted by university faculty and graduate students. The study investigated the teachers' use of digital storytelling in their classrooms, what effects this use had on students, and what problems arose that prevented implementation of digital storytelling in the classroom. The study results suggested that, even though almost all of the teachers' perceptions about using digital stories in the classroom were positive immediately after the workshops, in practice, more than half of the teachers did not continue to use digital storytelling during the implementation period. Teachers who did use digital storytelling reported positive effects on student performance, an

increase in 21st century skills, and increased motivation and engagement levels in their students.

Sadik, A (2008), attempted a study on “Digital storytelling: a meaningful technology-integrated approach for engaged student learning”. The findings of the study are Digital storytelling has been shown to be a powerful collaboration tool that teachers have used to support student collaboration and communication. The tools and practices included in digital storytelling have been useful as teachers encourage students to prepare their own stories for their peers and connect with others in and out of school. Teachers can create digital stories as inspired from content, or have students express mastery of the content in digital stories. The most powerful example of the use of digital storytelling may be instances where students are asked to create their own narratives either individually, or as members of a small group

Barrett, H. (2006), did a study on “Researching and evaluating digital storytelling as a deep learning tool”. The researcher highlighted that digital storytelling facilitates the convergence of four student-centered learning strategies: student engagement, reflection for deep learning, project-based learning, and the effective integration of technology into instruction.

Tsou, W., Wang, W., & Tzeng, Y. (2006) attempted a study on “Applying a multimedia storytelling website in foreign language learning”. The study highlighted that integrating digital storytelling into the language curriculum is a creative language learning technique that can improve student’s level of learning in reading, writing, speaking and listening.

Robin, B. (2006), entitled a study on “Educational uses of digital storytelling”. The article describes that Digital Storytelling has become a powerful instructional tool for both students and educators. Digital Storytelling appeals to students with diverse learning styles and can also foster collaboration when students are able to work in groups, and provides value in enhancing the student experience through personal ownership and accomplishment.

Van Gils, F. (2005), studied “Potential applications of digital storytelling in Education”. The researcher suggested many advantages of using digital storytelling in

education: (1) to provide more variation than traditional methods in current practice; (2) to personalize learning experience; (3) to make explanation or the practicing of certain topics more compelling; (4) to create real life situations in an easy and cheaper way; and (5) to improve the involvement of students in the process of learning.

Michalski, P., Hodges, D., & Banister, S. (2005), conducted a study on “Digital Storytelling in the Middle Childhood Special Education Classroom: A Teacher's story of adaptations”. This article chronicles one special educator’s process of implementing adaptive instructional strategies in her middle school language arts classroom. Ms. Michalski crafted adaptations for her students with disabilities in the curricular area of digital storytelling. Digital storytelling involves telling stories using multimedia technologies, providing a format for students to put their thoughts together, visually, aurally, and kinesthetically. Ms. Michalski has found that incorporating the process of digital storytelling into her special education language arts classroom produced numerous benefits. Students appeared to be excited about their projects and committed increased effort in writing and verbal communication. They proved they were able to generate projects, using multimedia software and computer technology.

The Digital Storytelling Association (2002), describes Digital storytelling as a modern expression of the ancient art of storytelling. Throughout history, storytelling has been used to share knowledge, wisdom, and values. Stories have taken many different forms. Stories have been adapted to each successive medium that has emerged, from the circle of the campfire to the silver screen, and now the computer screen.

2.9.0 Conclusion:

The digital revolution has brought unprecedented changes in every aspect of human life, even in the facet of education without exception. But the need for classroom learning remains inevitable. The 21st century learner who is a digital native is collaborative, adaptive, technology savvy, communicative, creative and requires immediate gratification. The attitudes, behaviour, learning skills, thinking process and technical skills of the learners have drastically changed due to the digital revolution. In the developed world, there are equal changes in the structure of classrooms,

teaching learning process and curriculum content. However, the developing countries are slow moving owing to political and socio-economic factors which necessitate immediate attention of educators and policymakers.

The research reviewed various literatures and found that numerous attempts have been made in the area of Digital Storytelling. The literatures presented in this chapter gives a clear structure of the research done earlier and the important findings related to the study. A thorough review provided picture to the investigator to carry out the study, especially in the designing of the study and in the interpretation of the results.

CHAPTER III

METHODOLOGY

3.0.0 Introduction:

A research methodology is an outline of how a given piece of research is carried out. It defines the techniques or procedures that are used to identify and analyze information regarding a specific research topic. It aims to give the work plan of research. This methodology section allows the reader to critically evaluate the overall validity and reliability of the study. There are many different methodologies used in various types of research and the term is usually considered to include research design, data gathering and data analysis. We can say, a research methodology is the blue print of the study.

The methodology for the present study entitled “**Digital Storytelling for Learning Thirukkural among Students with Hearing Impairment**” is discussed under the following headings:

- 3.1.0 Area of the Study
- 3.2.0 Selection of the Sample
- 3.3.0 Selection of the Variables
- 3.4.0 Design of the Study
- 3.5.0 Selection of the Content
- 3.6.0 Construction of the tool
- 3.7.0 Scoring Procedure
- 3.8.0 Pilot Study
- 3.9.0 Standardization of the tool
- 3.10.0 Implementation of the Study
- 3.12.0 Data Analysis
- 3.13.0 Conclusion

3.1.0 Area of the Study:

The present study was carried out in the following places for catering the needs of the Students with Hearing Impairment.

- Government High School for Hearing Impaired, Sulakarai, Virudhunagar.
- Holy Cross Service Society, Adhavathur, Trichy.

3.2.0 Selection of the Sample:

Sample selection is a significant aspect of research study. Sample is the number of people selected by the researcher from the entire population for the purpose of research. Violation of a proper sampling method may lead to biased information of a research and hence sample selection should be done with maximum care. Selection and application of proper sampling procedure make a research study more objective. The right approach depends upon the design used in study, the nature of statistical treatment and availability of the sample.

The researcher used purposive sampling technique to select the sample. The sample consisted of thirty students with Hearing Impairment from the grade 6 to 9 including boys and girls in Special school.

TABLE 3.1
STANDARD WISE DISTRIBUTION OF THE SAMPLE

S.No	Name of the School	Grade			
		VI	VII	VIII	IX
1	Government High School for Hearing Impaired	4	4	4	7
2	Holy Cross Service Society	4	2	3	2

3.3.0 Selection of the Variables:

The variables selected for the study are given below:

TABLE 3.2
SELECTION OF THE VARIABLES

Variables	Levels
Independent Variables	
Gender	Boys
	Girls
Grade	VI
	VII
	VIII
	IX
Type of Family	Joint
	Nuclear
Educational Status of parents	Literate
	Illiterate
Hearing aid	Users
	Non-users
Residential Status	Day scholar
	Hostelite
Mode of Communication	Sign language
	Sign language & Oral
Dependent Variables	
Effectiveness of Digital Storytelling for learning Thirukkural	Level of understanding of new words
	Conceptualization of Thirukkural
	Memorization of Thirukkural
	Interpretation based on acquired knowledge
	Comprehension

3.4.0 Design of the Study:

The study is to find out the effectiveness of “**Digital Storytelling for Learning Thirukkural among Students with Hearing Impairment**”. Quasi experimental method was adopted for the study.

In this study, the researcher selected thirty samples from two special schools. They were given the Pre-test, before the intervention was given. The Post-test was given after the intervention. The study was conducted in the absence of a control group due to the unavailability of students belonging to the same grade.

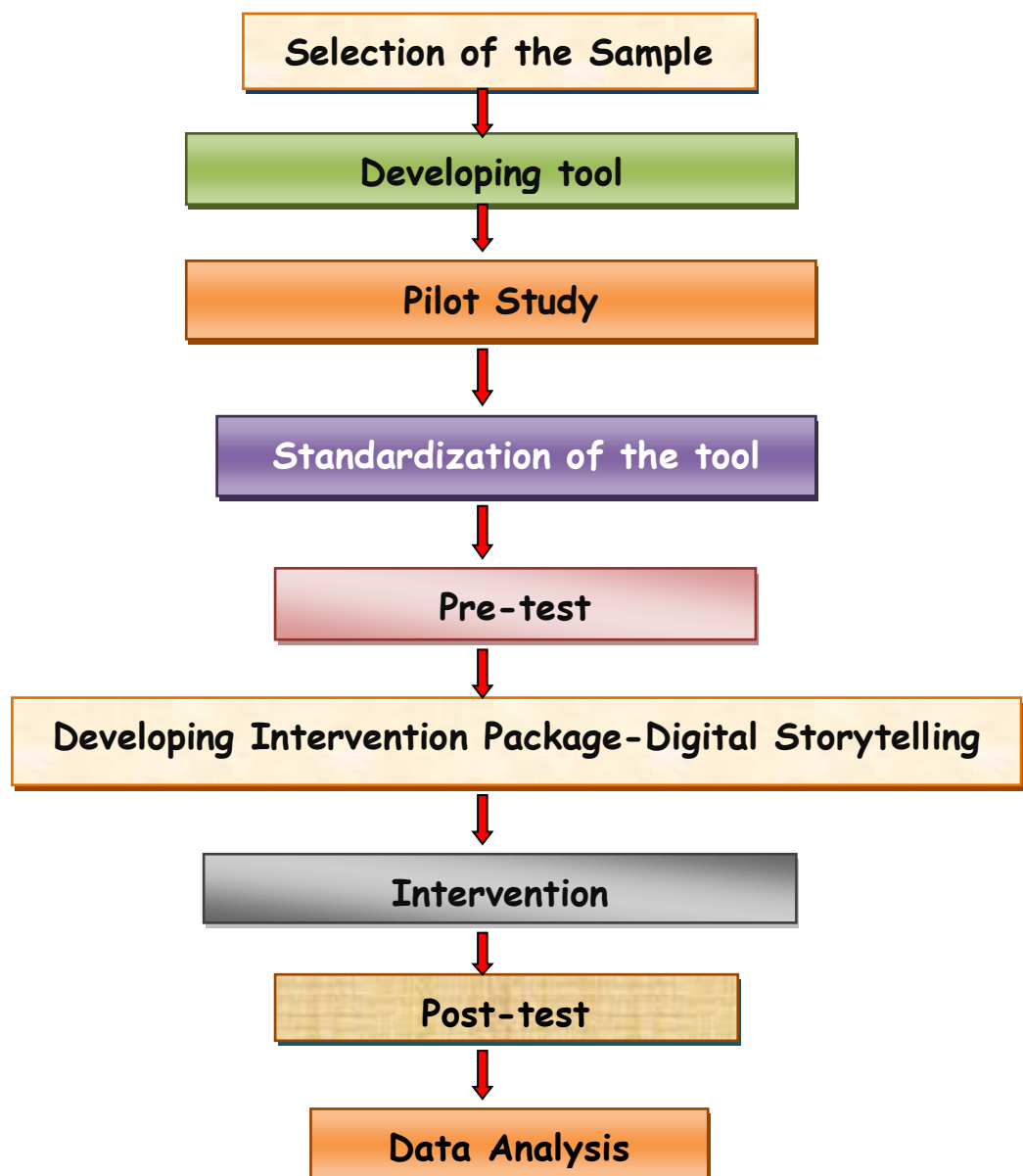


Figure 3.1: Flowchart illustration of the steps involved in the study

3.5.0 Selection of the Content:

The researcher analyzed the middle school level Samacheerkalvi Tamil books and identified the areas difficult for the Students with Hearing Impairment to learn. The Researcher noticed that, most of the Tamil poems contain more abstract words. After thorough discussion with various specialists in the field of Special Education, Thirukkural area was particularly selected which is common area for all. In Samacheerkalvi Grade 1-5 books, the thirukkural is presented in the form of a story. From sixth grade onwards the Thirukkural is given in two line explanation. As the intervention time was at the third trimester of students, the researcher chose sixth grade third term Thirukkural in Samacheerkalvi book. The method used to teach Thirukkural was Digital Storytelling. While creating Digital Storytelling, care was taken to make it interesting and for easy learning. The researcher selected five major components under Thirukkural which are Level of understanding of new words, Conceptualization of Thirukkural, Memorization of Thirukkural, Interpretation based on acquired knowledge and Comprehension.

The preparation of Digital Storytelling for the above five components were done with related relevant aspects such as audio, video, sign language, images and captions. This method was adopted in view of capturing and maintaining the attention and concentration of the students.

3.6.0 Construction of the Tool:

1. Personal Data Schedule

To collect general information regarding the participants Gender, Grade, Type of family, Educational Status of parents, Hearing aid, Residential status and Mode of communication a Personal Data Schedule was developed and administered. (*Appendix I*).

2. Pre-test tool

The study aimed to measure the effectiveness of Digital Storytelling. As the intervention time was at the third trimester of students, the researcher prepared Pre-test tool focused on sixth grade first term Thirukkural in Tamilnadu Samacheerkalvi book. The tool comprises of 31 questions in which the questions were asked in

different types like choose the correct answer, meanings, fill in the blanks, match, true or false, question answer and comprehension. In each type except comprehension five questions were asked. In Comprehension one question was asked where the students have to read out the story and find out the suitable Thirukkural (*Appendix II*).

TABLE 3.3
TYPES OF QUESTIONS IN PRE-TEST TOOL

(Sixth grade first term)

Thirukkural	1	2	3	4	5	6	7	8	9	10	No. of questions in each type
Type of Questions											
Choose the correct answer		1			1	1	1		1		5
Meanings	1	1	1					1	1		5
Fill in the blanks	1		1	1				1	1		5
Match		1		1	1			1		1	5
True or False	1	1	1		1				1		5
Q & A		1			1	1	1			1	5
Comprehension							1				1
Number of questions in each kural	3	5	3	2	4	2	3	3	4	2	31

3. Post-test Tool

The study aimed to measure the effectiveness of Digital Storytelling. As the intervention time was at the third trimester of students, the researcher gave intervention for sixth grade third term Thirukkural in Tamilnadu Samacheerkalvi book. The tool comprises of 31 questions in which the questions were asked in different types like choose the correct answer, meanings, fill in the blanks, match, true or false, question answer and comprehension. In each type except comprehension five questions were asked. In Comprehension one question was asked where the students have to read out the story and find out the suitable Thirukkural. (*Appendix III*)

TABLE 3.4
TYPES OF QUESTIONS IN POST-TEST TOOL

(Sixth grade third term)

Thirukkural												
Type of Questions	1	2	3	4	5	6	7	8	9	10	No. of questions in each type	
Choose the correct answer	1	1	1			1		1			5	
Meanings	1	1	1		1				1		5	
Fill in the blanks	1				1	1	1		1		5	
Match		2		1		1				1	5	
True or False			1		1			1	1	1	5	
Q & A				1	1	1	1			1	5	
Comprehension								1			1	
Number of questions in each kural	3	4	3	2	4	4	2	3	3	3	31	

In both Pre-test and Post-test tool, meanings and match comes under the component Level of understanding of new words, choose the correct answer and true or false falls under Conceptualization of Thirukkural, fill in the blanks comes under Memorization of Thirukkural, question answer falls under the component Interpretation based on acquired knowledge and finally the Comprehension.

3.7.0 Scoring Procedure:

For Choose the correct answer, meanings, matching and true or false, each correct answer is given a score of one. For fillups and question answer score two is given for each correct answer. Score ten is given for Comprehension. In each section, wrong answer is given Zero Score. Each dependent variable carries questions of ten marks.

3.8.0 Pilot Study:

Pilot study was administered to ten samples. They were asked to fill out the answers in the questionnaire which is designed by the researcher to measure the students' knowledge in Thirukkural which they have studied in the earlier classes. Based on the scores secured by the children the investigator has incorporated certain modifications.

3.9.0 Standardization of the Tool:

The modified tool was further scrutinized by expert's committee of Special Educators, General Teachers, Language Teachers (Tamil), Professors of the Department of Special Education. The tool was finalized based on their suggestions and hence the tool was considered to be valid for a large sample of students. Also, the tool was found to be reliable to be administered to the whole group of samples. The reliability of the Cronbach Alpha is 0.736.

3.10.0 Implementation of the Study:

Digital Storytelling:

Digital Storytelling is a short clip which is the practice of combining narrative with digital content by using computer based tools which includes audio, video, sign language, pictures and captions as an input in order to help the Students with Hearing Impairment to improve their learning in Thirukkural.

STEP 1: Pronunciation of Thirukkural:

- The students were asked to read out the Thirukkural in the third trimester Tamil text book, Grade VI
- Students read it aloud monotonously as it is in the book
- Next, an exemplary Digital Storytelling video created by the researcher was presented to the students who were facilitated with the illustrative audio, images, sign language inputs and captions as well to teach the correct pronunciation of the Thirukkural
- Then, the right method of reading the Thirukkural in a meaningful manner was again taught to the student as the researcher recited the Thirukkural with proper intonations and pronunciations
- Later, the students were instructed on the difference in writing a Thirukkural and Reading the same; as they completely differ in combining words while writing and pronouncing the words while reading
- Researcher employed Recitation activity to develop the pronunciation skills of the students accordingly



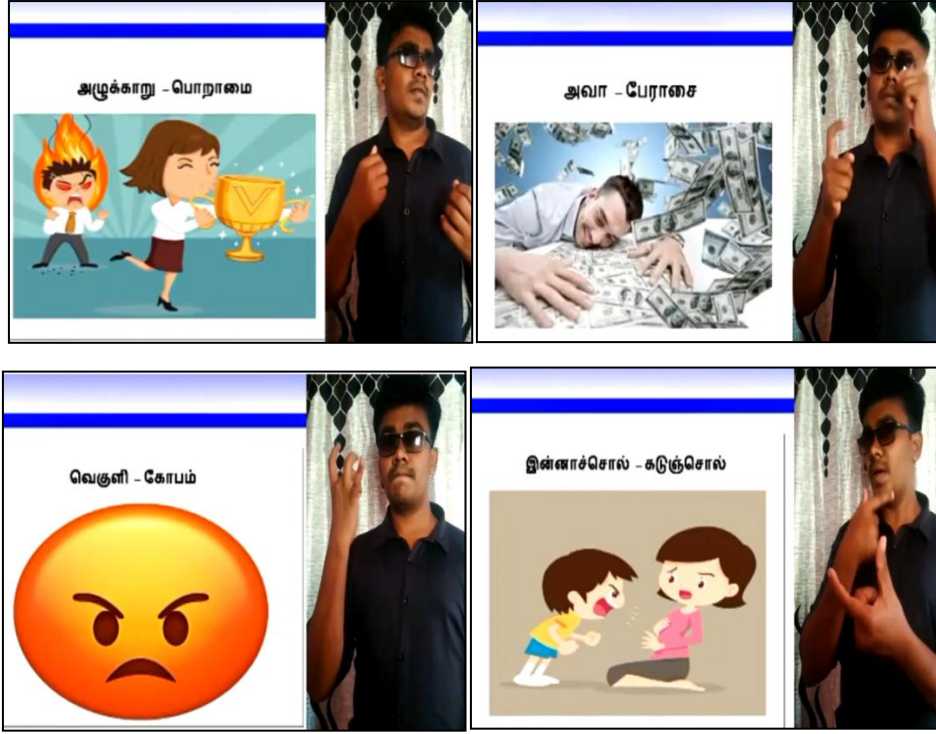
STEP 2: Explaining the meaning of Thirukkural:

- Now that the students have learnt how to read the Thirukkural properly, the meaning of those specific Thirukkural were interpreted for the best understanding of its significance respectively which was indeed supported by displaying the relevant images
- Along with these above inputs, the digital storytelling video provides a sign language interpretation for the meaning of that Thirukkural simultaneously
- The researcher incorporated some effective activities like Fill in the blanks; Choose the correct answers; Match the following and Word meanings in order to enhance the new learning



STEP 3: Teaching new words:

- At this stage, the students were asked to identify and underline the difficult words in the book and their meanings were clarified with the help of the video that features captions; images and sign language interpretations simultaneously
- Further, these vocabularies were strengthened with due drills and practices including activities like Fill in the blanks; Choose the correct answers; Match the following and Word meanings.



STEP: 4 Teaching Thirukkural through story:

- To supplement the digital storytelling methodology for effective learning of the hearing impaired students, the researcher created a sample story with motion pictures along with sign language interpretation to intensify the comprehension of the particular Thirukkural
- Researcher also used activities like State whether True or False and Questions - Answers to reinforce the teaching learning of Thirukkural





3.11.0 Data Collection Procedure:

The study was carried out in the following phases.

PHASE I

The base line information of each student was collected using Personal data schedule.

PHASE II

Pretest was administered to the selected samples. The tool was developed and used by the researcher on the five components of Thirukkural comprising a total of 31 questions. The test was administered for 60 minutes to the Students with Hearing Impairment.

PHASE III

Intervention was carried out with the use of Digital Storytelling intervention package. This included audio, video, captions, images and sign language on the components of Thirukkural. Varieties of learning activities, such as matching, choosing, fill in the blanks, meanings, true or false, question answer and comprehension. Time taken to train the students was one month meaning two hours for each day. After the teaching was done, everyday one hour was allotted to master each Thirukkural. Individualized attention was given to all the participants, besides motivation and encouragement to complete the learning programme.

PHASE IV

Post-test was conducted to the students with Hearing Impairment after the intervention of one month by administering the respective tool. The test was administered for 60 minutes.

3.12.0 Data Analysis:

Statistical technique used in the present study for analyzing the data are given below

- In order to find out the significant difference between Pre-test and Post-test mean scores on components of Thirukkural paired 't' test was used
- For studying the significant difference between Pre-test and Post-test mean scores of children with Hearing Impairment with respect to gender, type of family, educational status of parents, Hearing aid, residential status and mode of communication Independent 't' test was used
- For studying the significant difference between Pre-test and Post-test mean scores of children with Hearing Impairment with respect to Grade ANOVA was used
- To compare the effectiveness of Digital Storytelling, Graph was used

3.13.0 Conclusion

After having described the methodology of the study in this chapter, a thorough analysis with interpretation of the data for the study is presented in Chapter IV.

CHAPTER IV

ANALYSIS AND INTERPRETATION

4.0.0 Introduction

The subsequent step in the progression of research, after the collection of data, is the association, investigation and elucidation of data and formulation of conclusions and an overview to get a significant representation of the raw data collected, the investigation and analysis of the researcher and her objective reactions and desires to be derived from the facts.

The analysis of the study on “**Digital Storytelling for Learning Thirukkural among Students with Hearing Impairment**” is discussed under the following headings:

- 4.1.0 Background information of the Sample
- 4.2.0 Comparison of Pre-test and Post-test scores with respect to the different dependent variables
- 4.3.0 Comparison of Pre-test and Post-test scores in relation to different independent variables

4.1.0 Background Information of the Sample

The background details of the selected sample are discussed under the following headings in terms of their Gender, Grade, Type of family, Educational status of parents, Hearing aid, Residential status, Mode of Communication are presented in the table 4.1.

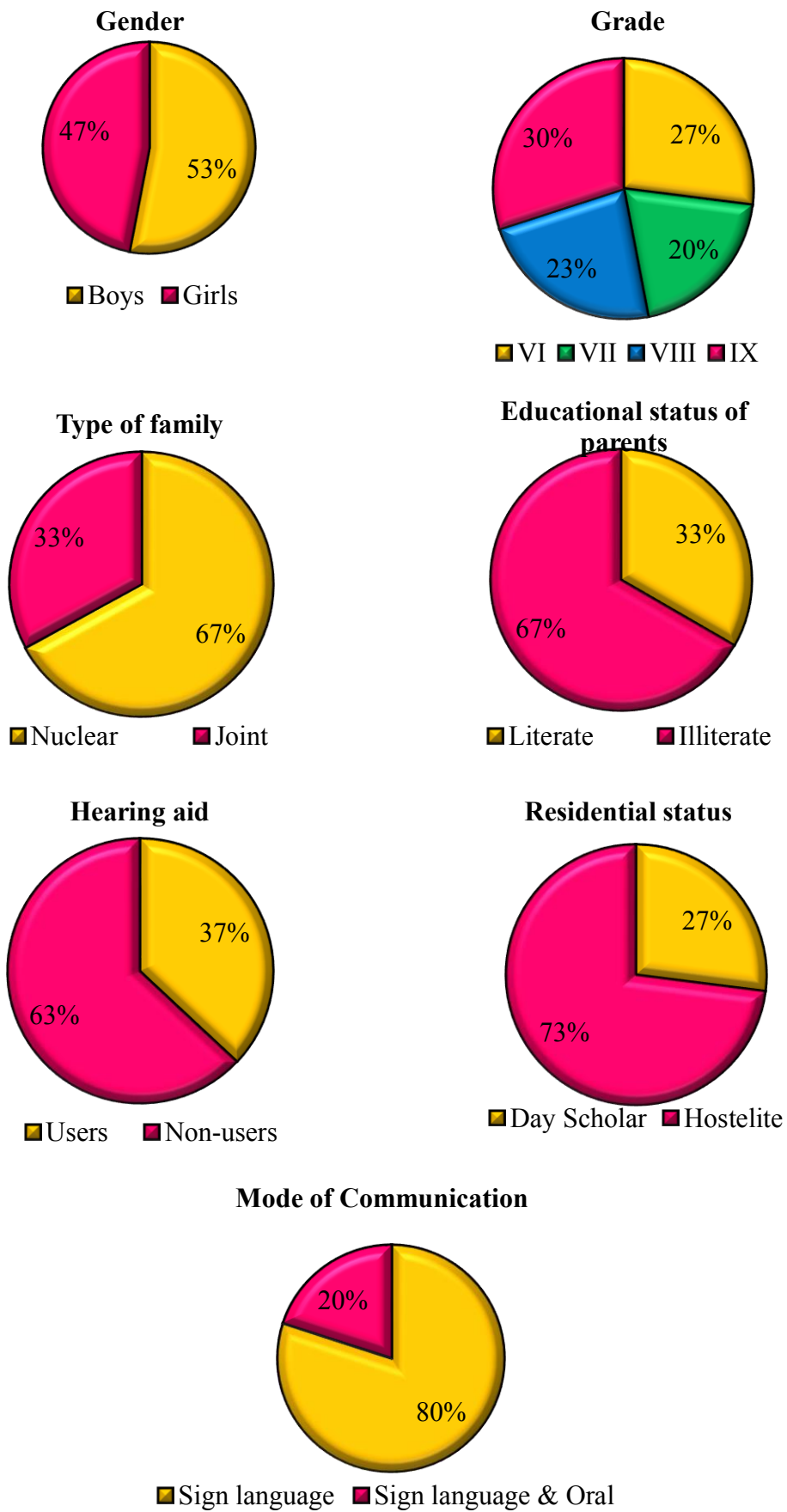
TABLE 4.1**BACKGROUND INFORMATION OF THE SAMPLE**

Aspects	Area	Age of Group of Sample	
		No	%
Gender	Boys	16	53
	Girls	14	47
Grade	VI	8	27
	VII	6	20
	VIII	7	23
	IX	9	30
Type of family	Nuclear	20	67
	Joint	10	33
Educational Status of Parents	Literate	10	33
	Illiterate	20	67
Hearing aid	Users	11	37
	Non-users	19	63
Residential status	Day scholar	8	27
	Hostelite	22	73
Mode of communication	Sign language	24	80
	Sign language & Oral	6	20

The sample for the study is 30 (16 boys and 14 girls) taken from two different special schools. The 30 samples are divided into four grades in which 27 percent of students are from grade 6, 20 percent of students are from grade 7, 23 percent of students are from grade 8 and 30 percent of students are from grade 9. While considering the Structure of family 67 percent of them belong to Nuclear Family and only 33 percent of the students' lives in Joint Family section. When talking about the Educational Status of parents 33 percent of the students' parents are Literate and rest of the students' parents are illiterate.

Among them 37 percent are using Hearing aid and 63 percent are not using Hearing aid. With regard to the Residential Status, 73 percent of students are Hostelites and 27 percent are Day Scholars. The Mode of communication of the students is Sign language and Oral. Eighty percent of the students are using only Sign language and 20 percent of the students are using both Sign language and Oral.

Figure 4.1 Background Information of the Students with Hearing Impairment



4.2.0 Comparison of Pre-Test and Post-Test Scores With Respect to the Different Dependent Variables

In the present study, Pre-test and Post-test was conducted on Thirukkural under five components namely Level of understanding of new words, Conceptualization of Thirukkural, Memorization of Thirukkural, Interpretation based on acquired knowledge and Comprehension that helped the researcher to find out the Effectiveness of Digital Storytelling for learning Thirukkural among Students with Hearing Impairment.

4.2.1 Comparison of Pre-test and Post-test Scores:

Performance Scores in Pre- test and Post-test was analyzed and the results are given in the following Table 4.2.

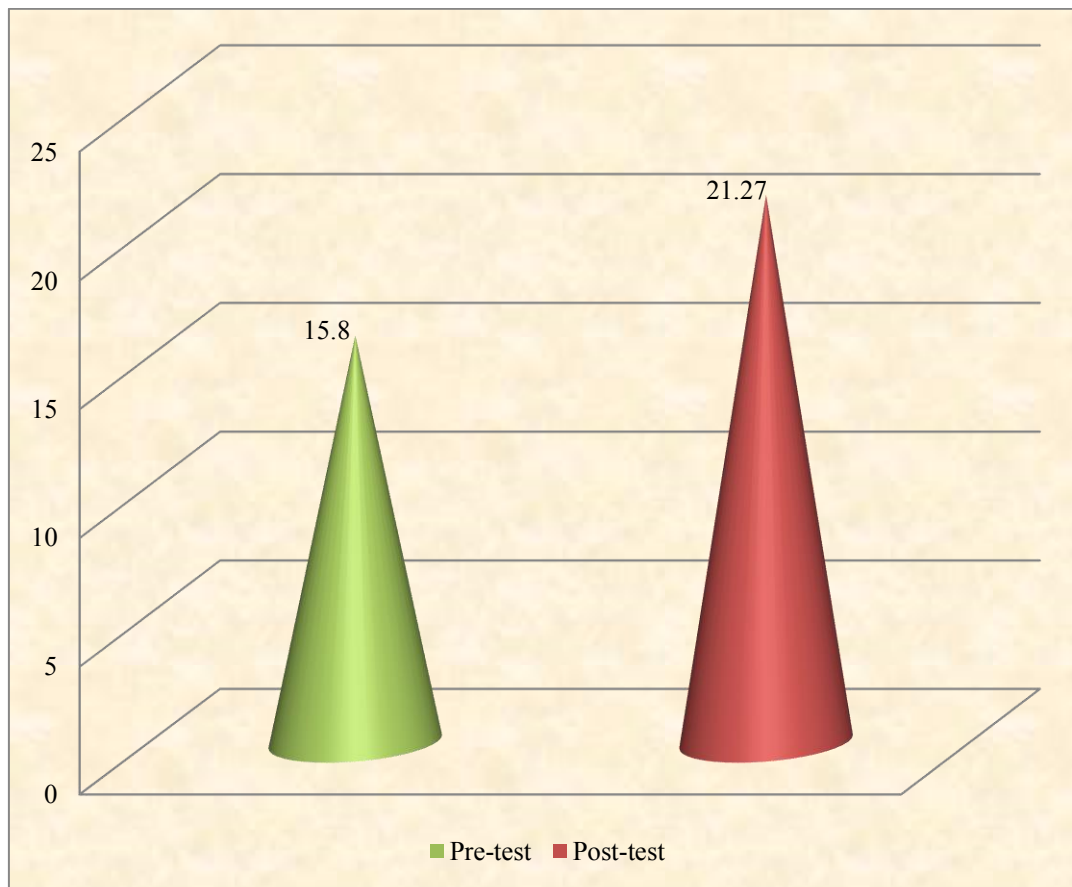
TABLE 4.2
COMPARISON OF PRE-TEST AND POST-TEST SCORES

Variable	df	N	Testing	Mean	SD	t-value
Digital Storytelling for Learning Thirukkural among Students with Hearing Impairment	29	30	Pre-test	15.80	7.102	-6.150**
			Post-test	21.27	9.217	

**significance at 0.01

From the table 4.2 it is evident that the *t*-value in comparing the average Pre-test and Post-test scores for the components of Thirukkural is -6.150 with *df* = 29 which is highly significant at 0.01 level. It indicates that the mean scores on the components of Thirukkural before and after intervention differed significantly. It means that the Students with Hearing Impairment secured higher scores in the Post-test than the Pre-test. In the light of this, the null hypothesis stated that ***“There is no significant difference in the mean scores of Pre-test and Post-test on learning Thirukkural” is rejected.*** Hence, it is inferred that Digital Storytelling were found to be effective in learning Thirukkural.

FIGURE 4.2
COMPARISON OF PRE-TEST AND POST-TEST SCORES



4.2.2 Comparison of Pre-test and Post-test scores with respect to Level of understanding of new words in Thirukkural:

Performance Scores in Pre- test and Post-test was analyzed and the results are given in the following Table 4.3.

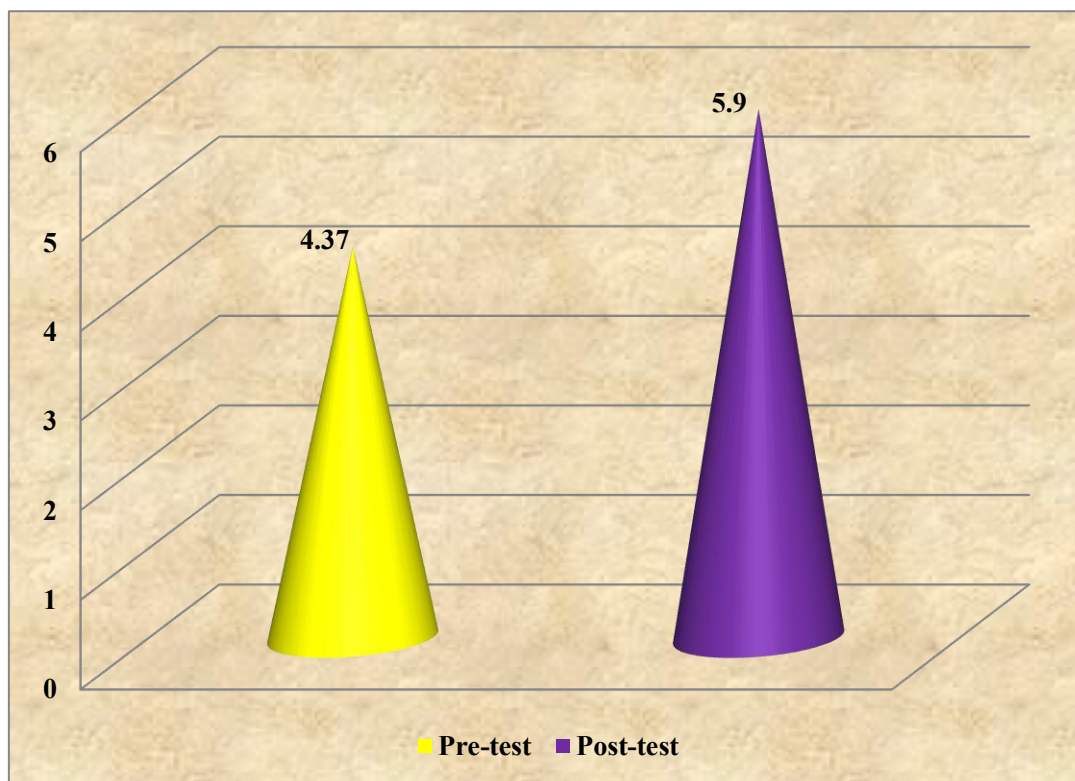
TABLE 4.3
COMPARISON OF PRE-TEST AND POST-TEST SCORES WITH RESPECT TO LEVEL OF UNDERSTANDING OF NEW WORDS IN THIRUKKURAL

Variable	df	N	Testing	Mean	SD	t-value
Level of understanding of new words	29	30	Pre-test	4.37	1.542	-3.202**
			Post-test	5.90	2.496	

****Significance at 0.01**

From the table 4.3 it is evident that the *t*-value in comparing the Pre- test and Post-test Scores for level of understanding of new words is -3.202 with *df* = 29 which is significant at 0.01 level. It indicates that the mean scores on Level of understanding of new words before and after intervention differed significantly. It means that the Students with Hearing Impairment secured higher scores in the Post-test than the Pre-test. In the light of this, the null hypothesis stated that ***“there is no significant difference in the Pre-test and Post-test scores with respect to level of understanding of new words”*** is rejected. Hence, it is inferred that Digital Storytelling were found to be effective in understanding new words in Thirukkural.

FIGURE 4.3
COMPARISON OF PRE-TEST AND POST-TEST SCORES WITH RESPECT
TO LEVEL OF UNDERSTANDING OF NEW WORDS IN THIRUKKURAL



4.2.3 Comparison of Pre-test and Post-test scores with respect to Conceptualization of Thirukkural:

Performance Scores in Pre- test and Post-test was analyzed and the results are given in the following Table 4.4.

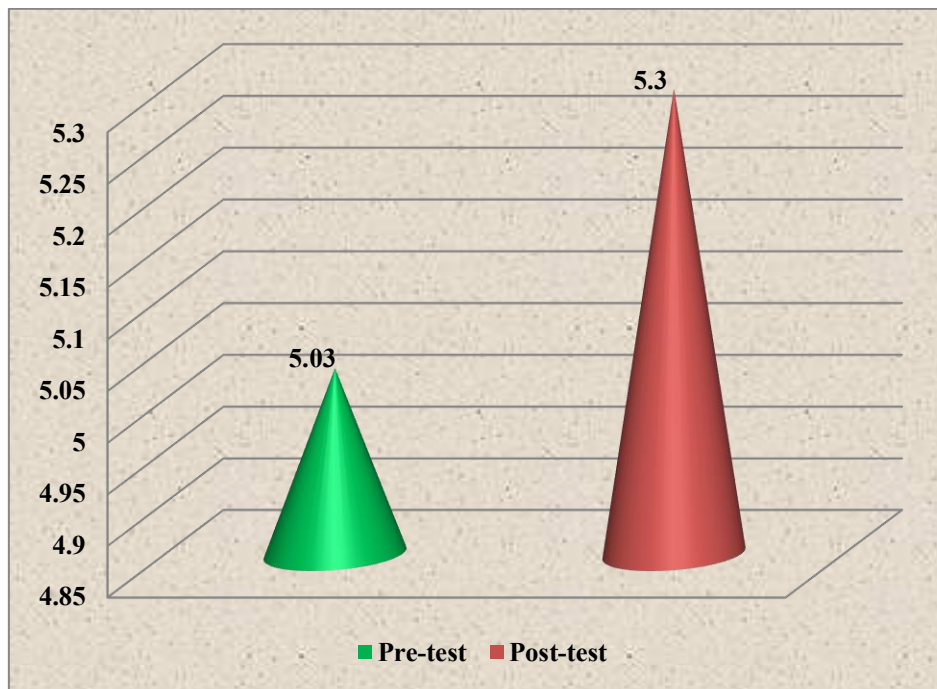
TABLE 4.4
COMPARISON OF PRE-TEST AND POST-TEST SCORES WITH RESPECT TO CONCEPTUALIZATION OF THIRUKKURAL

Variable	df	N	Testing	Mean	SD	t-value
Conceptualization of Thirukkural	29	30	Pre-test	5.03	2.566	-0.630**
			Post-test	5.30	2.322	

****significance at 0.01**

From the table 4.4 it is evident that the *t*-value in comparing the Pre- test and Post-test Scores for Conceptualization of Thirukkural is -0.630 with *df* = 29 which is significant at 0.01 level. It indicates that the mean scores on Conceptualization of Thirukkural before and after intervention differed significantly. It means that the Students with Hearing Impairment secured higher scores in the Post-test than the Pre-test. In the light of this, the null hypothesis stated that ***“there is no significant difference in the Pre-test and Post-test scores with respect to Conceptualization of Thirukkural”*** is rejected. Hence, it is inferred that Digital Storytelling were found to be effective in Conceptualization of Thirukkural.

FIGURE 4.4
COMPARISON OF PRE-TEST AND POST-TEST SCORES WITH RESPECT
TO CONCEPTUALIZATION OF THIRUKKURAL



4.2.4 Comparison of Pre-test and Post-test scores with respect to Memorization of Thirukkural:

Performance Scores in Pre- test and Post-test was analyzed and the results are given in the following Table 4.5

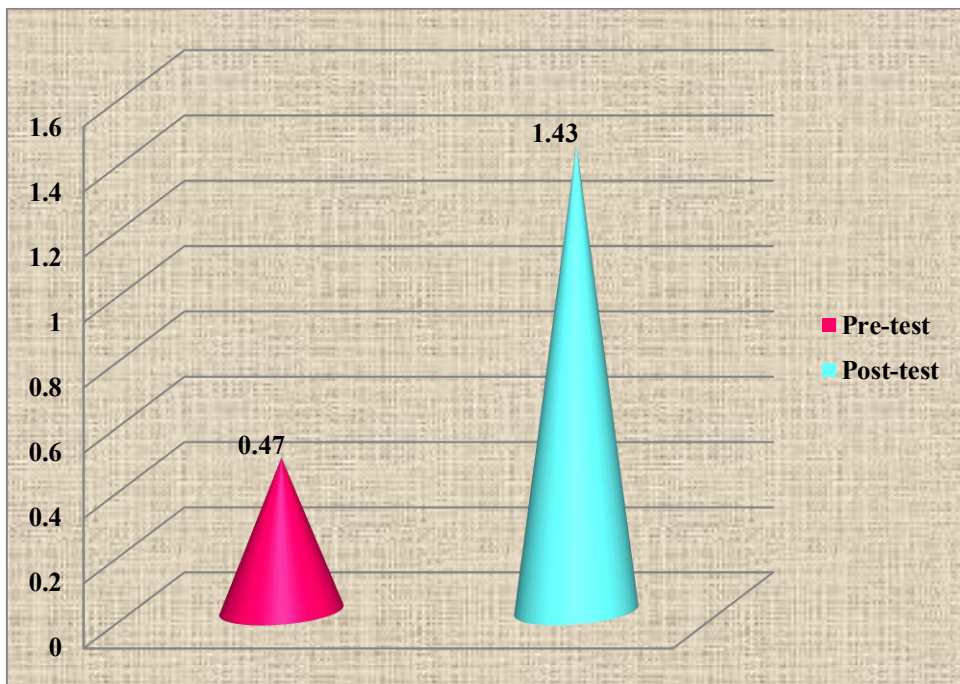
TABLE 4.5
COMPARISON OF PRE-TEST AND POST-TEST SCORES WITH RESPECT TO MEMORIZATION OF THIRUKKURAL

Variable	df	N	Testing	Mean	SD	t-value
Memorization of Thirukkural	29	30	Pre-test	0.47	0.776	-2.57**
			Post-test	1.43	2.012	

**significance at 0.01

From the table 4.5 it is evident that the t -value in comparing the Pre- test and Post-test Scores for Memorization of Thirukkural is -2.57 with $df = 29$ which is significant at 0.01 level. It indicates that the mean scores on Memorization of Thirukkural before and after intervention differed significantly. It means that the Students with Hearing Impairment secured higher scores in the Post-test than the Pre-test. In the light of this, the null hypothesis stated that ***“there is no significant difference in the Pre-test and Post-test scores with respect to Memorization of Thirukkural”*** is rejected. Hence, it is inferred that Digital Storytelling were found to be effective in Memorization of Thirukkural.

FIGURE 4.5
COMPARISON OF PRE-TEST AND POST-TEST SCORES WITH RESPECT
TO MEMORIZATION OF THIRUKKURAL



4.2.5 Comparison of Pre-test and Post-test scores with respect to Interpretation based on acquired knowledge in Thirukkural:

Performance Scores in Pre- test and Post-test was analyzed and the results are given in the following Table 4.6.

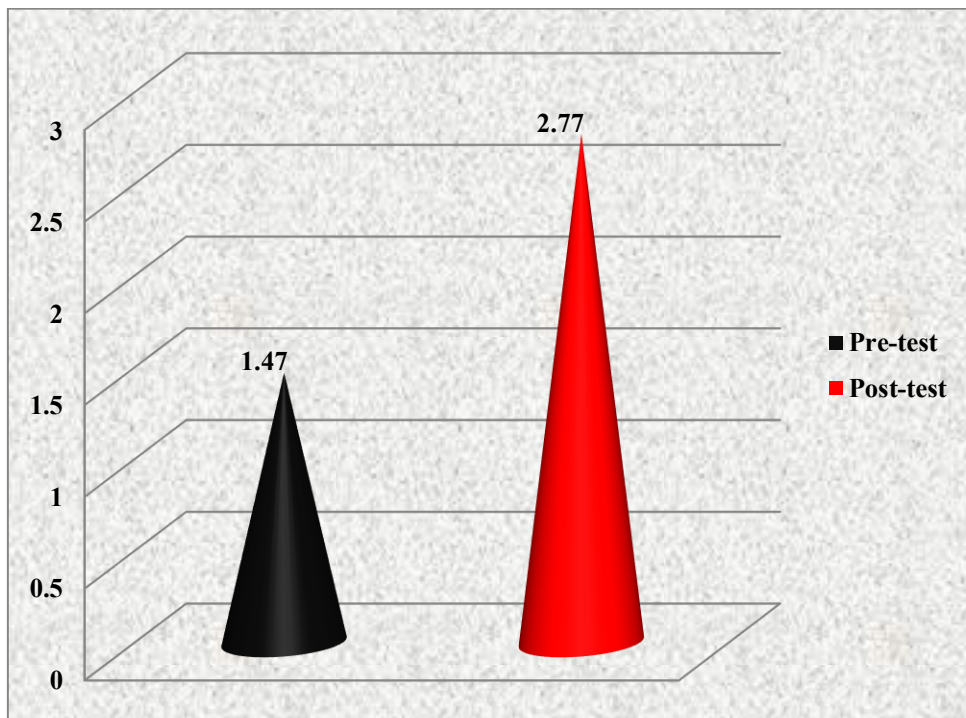
TABLE 4.6
COMPARISON OF PRE-TEST AND POST-TEST SCORES WITH RESPECT TO INTERPRETATION BASED ON ACQUIRED KNOWLEDGE IN THIRUKKURAL

Variable	df	N	Testing	Mean	SD	t-value
Interpretation based on acquired knowledge	29	30	Pre-test	1.47	1.676	-3.385**
			Post-test	2.77	1.357	

****significance at 0.01**

From the table 4.6 it is evident that the *t*-value in comparing the Pre- test and Post-test Scores for Interpretation based on acquired knowledge is -3.385 with *df* = 29 which is significant at 0.01 level. It indicates that the mean scores on Interpretation based on acquired knowledge before and after intervention differed significantly. It means that the Students with Hearing Impairment secured higher scores in the Post-test than the Pre-test. In the light of this, the null hypothesis stated that ***“there is no significant difference in the Pre-test and Post-test scores with respect to Interpretation based on acquired knowledge”*** is rejected. Hence, it is inferred that Digital Storytelling were found to be effective in Interpretation based on acquired knowledge.

FIGURE 4.6
COMPARISON OF PRE-TEST AND POST-TEST SCORES WITH RESPECT
TO INTERPRETATION BASED ON ACQUIRED KNOWLEDGE IN
THIRUKKURAL



4.2.6 Comparison of Pre-test and Post-test scores with respect to Comprehension:

Performance Scores in Pre- test and Post-test was analyzed and the results are given in the following Table 4.7

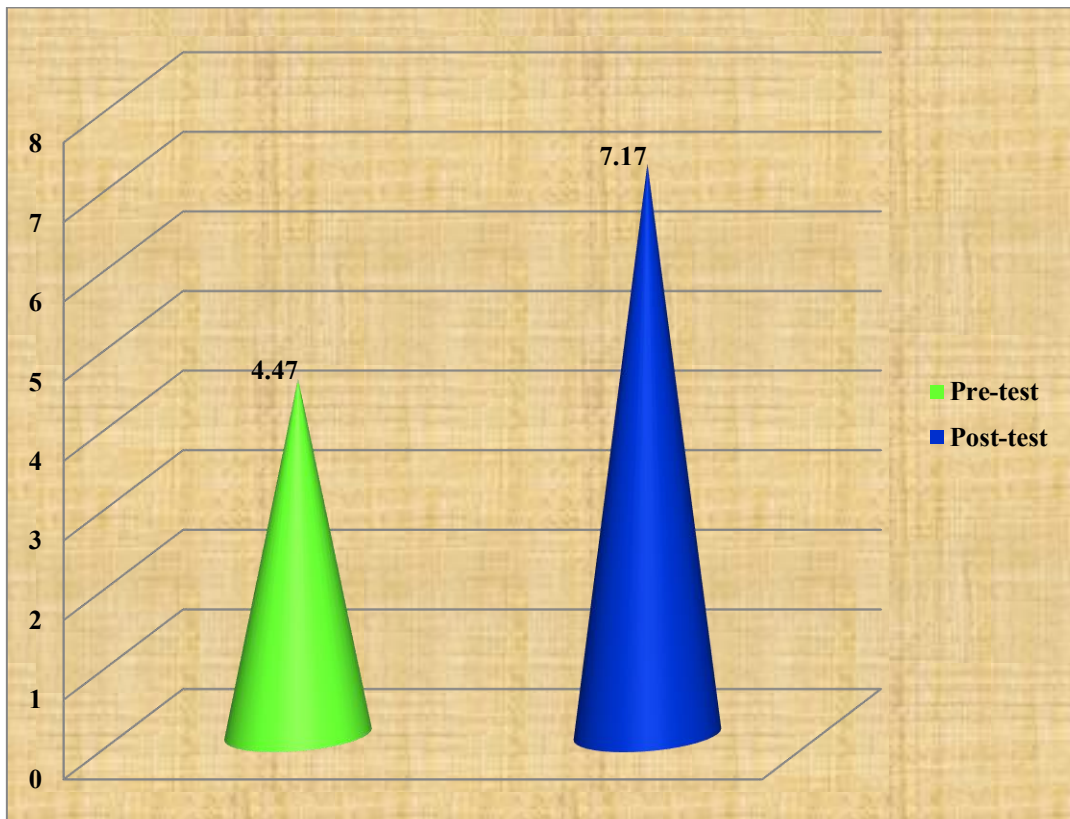
TABLE 4.7
COMPARISON OF PRE-TEST AND POST-TEST SCORES WITH RESPECT TO COMPREHENSION

Variable	df	N	Testing	Mean	SD	t-value
Comprehension	29	30	Pre-test	4.47	4.890	-3.009**
			Post-test	7.17	4.418	

**significance at 0.01

From the table 4.7 it is evident that the t -value in comparing the Pre- test and Post-test Scores for Comprehension is -3.009 with $df = 29$ which is significant at 0.01 level. It indicates that the mean scores on Comprehension before and after intervention differed significantly. It means that the Students with Hearing Impairment secured higher scores in the Post-test than the Pre-test. In the light of this, the null hypothesis stated that ***“there is no significant difference in the Pre-test and Post-test scores with respect to Comprehension”*** is rejected. Hence, it is inferred that Digital Storytelling were found to be effective in Comprehension.

FIGURE 4.7
COMPARISON OF PRE-TEST AND POST-TEST SCORES WITH RESPECT
TO COMPREHENSION



4.3.0 Comparison of Pre-Test and Post-Test Scores in Relation to Different Independent Variables

In the present study, Pre- test and Post-test was conducted to find out the Effectiveness of Digital Storytelling for learning Thirukkural among Students with Hearing Impairment. The researcher analyzed the effectiveness with respect to different independent variables namely Gender, Grade, Type of family, Educational status of parents, Hearing aid, Residential status and Mode of communication.

4.3.1 Comparison of Pre- test and Post-test scores with respect to Gender:

Comparison of scores of Pre-test and Post-test with respect to Gender before and after Intervention was analyzed and the results are given in the following Table 4.8.

TABLE 4.8
COMPARISON OF PRE- TEST AND POST-TEST SCORES WITH RESPECT TO GENDER

Variable	Testing	Levels	N	Mean	SD	t-value
Gender	Pre-test	Boys	16	16.88	5.500	0.883 ^{NS}
		Girls	14	14.57	8.636	
	Post-test	Boys	16	23.75	7.576	1.621 ^{NS}
		Girls	14	18.43	10.346	

NS-Not Significant

From the table 4.8, it is evident that, Based on Gender, the *t*-value for the Pre-test Scores in Thirukkural obtained before Intervention is 0.883 which is not significant. It indicates that the Pre-test Scores of Boys and Girls do not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Pre-test scores between Boys and Girls in learning Thirukkural”* is not rejected. Therefore, it is concluded that both Boys and Girls have secured the scores to the same extent in the Pre-test.

From the table 4.8, it is evident that, Based on Gender, the *t*-value for the Post-test Scores in Thirukkural obtained after Intervention is 1.621 which is not significant. It indicates that the Post-test Scores of Boys and Girls do not differ significantly. In

the light of this, the null hypothesis stated that *“there is no significant difference in the Post-test scores between Boys and Girls in learning Thirukkural”* is not rejected. Therefore, it is concluded that both Boys and Girls have secured the scores to the same extent in the Post-test.

4.3.2 Comparison of Pre- test and Post-test scores with respect to Grade:

Comparison of scores of Pre-test and Post-test with respect to Grade before and after Intervention was analyzed and the results are given in the following Table 4.9.

TABLE 4.9
COMPARISON OF PRE- TEST AND POST-TEST SCORES WITH RESPECT TO GRADE

Variable	Testing	Levels	N	Mean	SD	F-value
Grade	Pre-test	VI	8	15.63	4.406	3.170 ^{NS}
		VII	6	18.17	8.134	
		VIII	7	9.71	5.908	
		IX	9	19.11	7.026	
	Post- test	VI	8	21.00	7.010	2.048 ^{NS}
		VII	6	22.00	8.270	
		VIII	7	15.00	9.416	
		IX	9	25.89	9.842	

NS-Not Significant

From the table 4.9, it is evident that, Based on the Grade, the *F*-value for the Pre-test scores in Thirukkural obtained before Intervention is 3.170 which is not significant at 0.01 level. It indicates that the Pre-test Scores of Students with Hearing Impairment with respect to Grade dos not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Pre-test scores with respect to Grade in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with Hearing Impairment do not differ in scores in the Pre-test with respect to the Grade.

From the table 4.9, it is evident that, Based on the Grade, the *F*-value for the Post-test scores in Thirukkural obtained after Intervention is 2.048 which is not

significant. It indicates that the Pre-test Scores of Students with Hearing Impairment with respect to Grade does not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Post-test scores with respect to Grade in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with Hearing Impairment do not differ in scores in the Post-test with respect to the Grade.

4.3.3 Comparison of Pre- test and Post-test scores with respect to the Type of family:

Comparison of scores of Pre-test and Post-test with respect to the type of family before and after Intervention was analyzed and the results are given in the following Table 4.10.

TABLE 4.10
COMPARISON OF SCORES OF PRE-TEST AND POST-TEST SCORES
WITH RESPECT TO THE TYPE OF FAMILY

Variable	Testing	Levels	N	Mean	SD	t-value
Type of family	Pre-test	Nuclear	20	15.35	5.687	-0.484 ^{NS}
		Joint	10	16.70	9.639	
	Post-test	Nuclear	20	20.85	8.512	-0.345 ^{NS}
		Joint	10	22.10	10.939	

NS - Not significant

From the table 4.10, it is evident that, Based on the Type of family, the *t*-value for the Pre-test scores in Thirukkural obtained before Intervention is -0.484 which is not significant at 0.01 level. It indicates that the Pre-test Scores of Students with Hearing Impairment with respect to the type of family does not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Pre-test scores with respect to the type of family in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with Hearing Impairment do not differ in scores in the Pre-test with respect to the type of family.

From the table 4.10, it is evident that, Based on the Type of family, the *t*-value for the Post-test scores in Thirukkural obtained after Intervention is -0.345 which is

not significant. It indicates that the Post-test scores of Students with Hearing Impairment with respect to the type of family do not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Post-test scores with respect to the type of family in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with Hearing Impairment have secured the scores to the same extent in the Post- test with respect to the type of family.

4.3.4 Comparison of Pre- test and Post-test scores with respect to the Educational status of parents:

Comparison of scores of Pre-test and Post-test with respect to the Educational status of parents before and after Intervention was analyzed and the results are given in the following Table 4.11.

TABLE 4.11
COMPARISON OF SCORES OF PRE-TEST AND POST-TEST SCORES
WITH RESPECT TO THE
EDUCATIONAL STATUS OF PARENTS

Variable	Testing	Levels	N	Mean	SD	t-value
Educational status of parents	Pre-test	Literate	20	15.20	7.584	-0.322 ^{NS}
		Illiterate	10	16.10	7.033	
	Post-test	Literate	20	18.90	8.439	-0.994 ^{NS}
		Illiterate	10	22.45	9.567	

NS-Not Significant

From the table 4.11, it is evident that, Based on the Educational status of parents, the *t*-value for the Pre-test Scores in Thirukkural obtained before Intervention is -0.322 which is not significant. It indicates that the Pre-test Scores of Students with Hearing Impairment with respect to Educational status of parents does not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Pre-test scores with respect to Educational status of parents in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with Hearing Impairment have secured the scores to the same extent in the Pre-test with respect to Educational status of parents.

From the table 4.11, it is evident that, Based on the Educational status of parents, the *t*-value for the Post-test Scores in Thirukkural obtained after Intervention is -0.994 which is not significant. It indicates that the Post-test Scores of Students with Hearing Impairment with respect to Educational status of parents does not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Post-test scores with respect to Educational status of parents in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with Hearing Impairment have secured the scores to the same extent in the Post-test with respect to Educational status of parents.

4.3.5 Comparison of Pre- test and Post-test scores with respect to the Hearing aid:

Comparison of scores of Pre-test and Post-test with respect to the Hearing aid before and after Intervention was analyzed and the results are given in the following Table 4.12.

TABLE 4.12
COMPARISON OF SCORES OF PRE-TEST AND POST-TEST SCORES
WITH RESPECT TO THE HEARING AID

Variable	Testing	Levels	N	Mean	SD	t-value
Hearing aid	Pre-test	Users	11	16.91	8.312	0.240 ^{NS}
		Non-users	19	15.16	6.457	
	Post-test	Users	11	23.82	9.631	0.699 ^{NS}
		Non-users	19	19.79	8.892	

NS-Not Significant

From the table 4.12, it is evident that, With respect to Hearing aid, the *t*-value for the Pre-test Scores in Thirukkural obtained before Intervention is 0.240 which is not significant. It indicates that the Pre-test Scores of Students with Hearing Impairment with respect to Hearing aid does not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Pre-test scores with respect to Hearing aid in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with Hearing Impairment have secured the scores to the same extent in the Pre-test with respect to Hearing aid.

From the table 4.12, it is evident that, With respect to Hearing aid, the *t*-value for the Pre-test Scores in Thirukkural obtained after Intervention is 0.699 which is not significant. It indicates that the Post-test Scores of Students with Hearing Impairment with respect to Hearing aid does not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Post-test scores with respect to Hearing aid in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with Hearing Impairment have secured the scores to the same extent in the Post-test with respect to Hearing aid.

4.3.6 Comparison of Pre- test and Post-test scores with respect to the Residential status:

Comparison of scores of Pre-test and Post-test with respect to the Residential status before and after Intervention was analyzed and the results are given in the following Table 4.13.

TABLE 4.13
COMPARISON OF SCORES OF PRE-TEST AND POST-TEST SCORES
WITH RESPECT TO THE RESIDENTIAL STATUS

Variable	Testing	Levels	N	Mean	SD	t-value
Residential status	Pre-test	Hostelite	22	16.32	5.867	0.656 ^{NS}
		Day scholar	8	14.36	10.127	
	Post-test	Hostelite	22	22.73	8.259	1.468 ^{NS}
		Day scholar	8	17.25	11.055	

NS-Not Significant

From the table 4.13, it is evident that, With respect to the Residential status, the *t*-value for the Pre-test Scores in Thirukkural obtained before Intervention is 0.656 which is not significant at 0.01 level. It indicates that the Pre-test Scores of Students with Hearing Impairment with respect to residential status does not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Pre-test scores with respect to Residential status in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with Hearing Impairment do not differ in scores in the Pre-test with respect to Residential status.

From the table 4.13, it is evident that, With respect to the Residential status, the *t*-value for the Post-test Scores in Thirukkural obtained after Intervention is 1.468 which is not significant. It indicates that the Post-test Scores of Students with Hearing Impairment with respect to residential status does not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Post-test scores with respect to Residential status in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with Hearing Impairment have secured the scores to the same extent in the Post-test with respect to Residential status.

4.3.7 Comparison of Pre- test and Post-test scores with respect to the Mode of Communication:

Comparison of scores of Pre-test and Post-test with respect to the Mode of communication before and after Intervention was analyzed and the results are given in the following Table 4.14.

TABLE 4.14
COMPARISON OF SCORES OF PRE-TEST AND POST-TEST SCORES
WITH RESPECT TO THE MODE OF COMMUNICATION

Variable	Testing	Levels	N	Mean	SD	t-value
Mode of communication	Pre-test	Sign language	24	16.92	6.965	1.786 ^{NS}
		Sign language & Oral	6	11.33	6.282	
	Post-test	Sign language	24	23.04	8.7052	2.253 ^{NS}
		Sign language & Oral	6	14.17	8.2805	

NS-Not Significant

From the table 4.14, it is evident that, With respect to Mode of communication, the *t*-value for the Pre-test Scores in Thirukkural obtained before Intervention is 1.786 which is not significant. It indicates that the Pre-test Scores of Students with Hearing Impairment with respect to Mode of communication does not differ significantly. In the light of this, the null hypothesis stated that *“there is no significant difference in the Pre-test scores with respect to Mode of communication in learning Thirukkural”* is not rejected. Therefore, it is concluded that the Students with

Hearing Impairment have secured the scores to the same extent in the Pre-test with respect to Mode of communication.

From the table 4.14, it is evident that, With respect to Mode of communication, the *t*-value for the Pre-test Scores in components of Thirukkural obtained after Intervention is 2.253 which is not significant. It indicates that the Post-test Scores of Students with Hearing Impairment with respect to Mode of communication does not differ significantly. In the light of this, the null hypothesis stated that ***“there is no significant difference in the Post-test scores with respect to Mode of communication in learning Thirukkural”*** is not rejected. Therefore, it is concluded that the Students with Hearing Impairment have secured the scores to the same extent in the Post-test with respect to Mode of communication.

4.4.0 Conclusion

The findings of the study are summarized and presented in the next chapter.

CHAPTER V

SUMMARY AND CONCLUSION

5.0.0 Introduction:

Digital Storytelling is a powerful instrument in teaching learning process. Utilizing this in teaching learning will develop positive effects on both the teacher and the learner, related to academic performance and meaningful learning especially for Students with Hearing Impairment. Digital Storytelling improves their reading, writing, speaking, listening, reflection, critical and independent thinking. Hence, it has to be integrated into the everyday curriculum in making the Students with Hearing Impairment learn abstract concepts in Tamil.

Digital storytelling at its most basic core is the practice of using computer-based tools to tell stories. There are also other terms used to describe this practice, which are digital documentaries, digital essays, computer-based narratives, interactive storytelling, electronic memoirs, etc.; but in general, they all revolve around the idea of combining the art of telling stories with a variety of multimedia, including graphics, audio, video, and Web publishing. Today the use of digital storytelling is being practiced in neighborhood community centers, schools, libraries and businesses. In the field of education, teachers and their students, from early childhood classrooms through graduate school, are using digital storytelling in many different content areas.

The present study entitled “**Digital Storytelling for Learning Thirukkural among Students with Hearing Impairment**” is to the find out the effectiveness of Digital Storytelling for learning Thirukkural. This study was quasi experimental in nature where Digital Storytelling intervention package was used among Students with Hearing Impairment from Grade 6 to 9 to learn and enhance their knowledge in Thirukkural.

Chapter V is discussed under the following headings:

- 5.1.0 Findings
- 5.2.0 Discussion
- 5.3.0 Suggestions for further research
- 5.4.0 Recommendations of the study
- 5.5.0 Implications

5.1.0 Findings:

The findings from the study are:

1. The study revealed that Digital Storytelling enhanced the learning of Thirukkural in Students with Hearing Impairment
2. Scores of Students with Hearing Impairment before and after intervention differed significantly. The scores of Post-test (M=21.27) is higher than Pre-test (M=15.80)
3. The ability to understand new words in the Thirukkural among Students with Hearing Impairment improved after the Intervention. (Pre-test score Mean = 4.37 and Post-test score Mean = 5.90).
4. The score in the Conceptualization of Thirukkural was increased after the introduction of Digital Storytelling. (Pre- test Mean=5.03 and Post-test Mean=5.30).
5. Performance of Students with Hearing Impairment in Memorization of Thirukkural enhanced after intervention. (Pre- test Mean=0.47 and Post-test Mean=1.43).
6. Acquiring knowledge in Thirukkural of Students with Hearing Impairment before and after intervention differed significantly. (Pre-test Mean=1.47 and Post-test Mean=2.77).
7. The digital storytelling was found to be more effective in Comprehension for Students with Hearing Impairment. (Pre- test Mean=4.47 and Post-test Mean=7.17).
8. The result revealed that there is no significant influence on Pre-test and Post-test scores with respect to independent variables Viz., Gender, Grade, Type of family, Educational status of parents, Hearing aid and Mode of communication by using Digital Storytelling.

5.2.0 Discussion:

In any research study, it is desirable to discuss the results in the light of previous research findings before one makes recommendations. In the current study, the researcher studied the Effectiveness of Digital Storytelling for learning Thirukkural in Students with Hearing Impairment. The researcher began with the premise that conventional method of teaching Thirukkural can no longer help the Students with Hearing Impairment to learn the abstract words and understand the Thirukkural as they are being replaced by Digital Storytelling. This provides a learning environment that is self-paced, learner-controlled and individualized. It is now spread throughout the educational system as a tool for effective teaching and learning. With the help of Digital Storytelling, the communication of information can be done in a more valuable manner and it can be an effective instructional medium.

- The results of this experimental study show that Digital Storytelling has positive impact on learning. The present study is in line with the study conducted by Smeda, N., Dakich, E. & Sharda, N. (2014), highlighted that Digital storytelling is one of the innovative pedagogical approaches that can engage students in deep and meaningful learning. Thus, this approach has the potential to enhance student engagement and provide better educational outcomes for learners.
- The present study coincides with the study attempted by Dogan, B., & Robin, B. (2008), highlights that, teachers who used digital storytelling, reported positive effects on student performance, an increase in 21st century skills, and increased motivation and engagement levels in their students.
- The present study revealed that, level of Understanding of new words and Comprehension were improved among Students with Hearing Impairment after the introduction of Digital Storytelling. This is par with the study conducted by Vulchanova, M., & Kjølstad Lervåg, I. (2021), argued Subtitles would enhance students with hearing loss performance both on a comprehension task and on a vocabulary task. Students with a minimal-to-moderate hearing loss can benefit from the provision of captions as a visual cue.
- The result coincides with the study attempted by Razalli, A. R., et al., (2018), highlighted that Pictures can help to improve reading comprehension for students

with hearing impairment. Text with pictures motivates students with hearing impairment to read and it have to be encouraged.

- Sign language is an important and beneficial tool to improve classroom learning of deaf students. For full access to educational opportunities, are only possible when instructional methods, matching the need of deaf students. (Jameel, H. T., & Bibi, S. 2016).
- Performance of Students with Hearing Impairment in Memorization of Thirukkural enhanced after intervention. This study coincides with the study of Phillips, L., (2000) who highlights that Storytelling has the ability to build a greater sense of community, enhance knowledge and memory recall.

Most of the studies indicate that Digital Storytelling have found beneficial effects on student's learning outcomes which coincides with the present study on Students with Hearing Impairment.

5.3.0 Suggestions for Further Research:

- The present study suggests conducting a further research on learning Thirukkural through Digital Storytelling method to Students with Hearing Impairment in primary and Higher Secondary schools
- Research study may be carried out on the influence of Digital Storytelling in teaching learning on different types of disabilities and for normal children
- Comparative studies on the effect of Digital Storytelling through various prompting techniques for the differently abled may be conducted
- The effectiveness of Digital Storytelling on various subjects can be studied
- The study can be conducted with large number of samples

5.4.0 Recommendations of the Study:

The current study revealed the effectiveness of Digital Storytelling on learning Thirukkural. Based on the results, certain recommendations have been made:

- Developing Digital Storytelling required minimum number of resources and minimum direct teaching and hence it can be easily implemented in elementary schools to higher education programme

- The training institutes can incorporate Digital Storytelling component in the curriculum so that teacher trainees may introduce the programme during their practice teaching and hence widely popularize the technique for learning
- Digital Storytelling can be used to teach Thirukkural in special schools providing equal opportunities in learning irrespective of nature and level of disabilities

5.5.0 Implications:

- It is an innovative integrated intervention approach for Students with Hearing Impairment as it gives more visual cues
- The findings of the research will facilitate the teachers who can teach the Thirukkural easily and effectively, and it aids the Students with Hearing Impairment to learn independently
- Digital Storytelling method arise the interest of the students to learn the concept effectively
- This study is an eye opener for general public and special educators regarding the usage of Digital storytelling for teaching Students with Hearing Impairment

5.6.0 Conclusion:

Digital storytelling is a powerful technology tool for Students with Hearing Impairment. More specifically, these elements have the potential to help develop academic skills and motivation in students.

The findings of the study will be an eye-opener to the professionals as well as the public and would urge them to take these children to the digital world. In turn it will pave the way for social inclusion, which is the ultimate aim of Inclusive education.

Summing up, the use of Digital Storytelling in the classroom for Students with Hearing Impairment will promote and enrich their learning skills.

BIBLIOGRAPHY

- Alismail, H. A.(2015), Integrate Digital Storytelling in Education, *Journal of Education and Practice*, 6(9), ISSN 2222-1735, Pp 126-29.
- Arenson, R., & Kretschmer, R. E. (2010). Teaching poetry: a descriptive case study of a poetry unit in a classroom of urban deaf adolescents. *American Annals of the Deaf*, 155(2), 110-117.
- Arya, P., & Gupta, S. (2016). Impact of Speechifi Device on Communication Skills of Children with Hearing Impairment. *Language in India*, 16(8).
- Barrett, H. (2006). Researching and evaluating digital storytelling as a deep learning tool. In C. Crawford, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference*, Pp: 647-654.
- Blom, W. B., and Unsworth, S. (2010). *Experimental methods in language acquisition research*. Amsterdam: Benjamins
- Bowman-Smart, H., Gyngell, C., Morgan, A., & Savulescu, J. (2019). The moral case for sign language education. *Monash Bioethics Review*, 37(3), Pp:94-110.
- Chao-Fernandez, R., Román-García, S., & Chao-Fernandez, A. (2017). Online Interactive Storytelling as a strategy for learning music and for integrating pupils with hearing disorders into Early Childhood Education (ECE), *Procedia-Social and Behavioral Sciences*, 237, Pp: 17-22.
- Cherry Jr, W. R. (2017), The importance of story and storytelling in the classroom, Our place in the universe, *Knowledge Quest* 46(2), ISSN-1094-9046, Pp:50-55.
- Davis, J. M., Elfenbein, J., Schum, R., & Bentler, R. A. (1986). Effects of mild and moderate hearing impairments on language, educational, and psychosocial behavior of children. *Journal of speech and hearing disorders*, 51(1), Pp: 53-62.
- Dogan, B., & Robin, B. (2008), Implementation of digital storytelling in the classroom by teachers trained in a digital storytelling workshop. In *Society for Information Technology & Teacher Education International Conference*, Pp: 902-907. Doi: <https://doi.org/10.1023/A:1017541527998>
- Dreon, R. (2015). Shared aesthetic starting points?. *Evolutionary aesthetics from a cultural naturalistic perspective*.

- Flórez Aristizábal, L., Cano, S., & Collazos, C. (2017, July). Using storytelling to support the education of deaf children: A systematic literature review. In International Conference of Design, User Experience, and Usability, Pp:371-382.
- Fraenkel, J.R and Wallen, N.E., (1990), How to design and evaluate research in education. New York: McGraw-Hill.
- Ghanam, N.M., (2014), Educational Challenges Facing Deaf and Hearing Loss Students in Secondary School, IUG Journal of Educational and Psychological Sciences, ISSN: 1726-6807.22(1), Pp:1-66. Doi: 10.12816/0013560
- Griffith, P. L., & Ripich, D. N. (1988). Story structure recall in hearing-impaired, learning-disabled and non-disabled children. *American Annals of the Deaf*, Pp: 43-50.
- Isbell, R., Sobol, J., Lindauer, L. et al., (2004), The Effects of Storytelling and Story Reading on the Oral Language Complexity and Story Comprehension of Young Children. *Early Childhood Education Journal* 32, Pp:157-163. Doi: <https://doi.org/10.1023/B:ECEJ.0000048967.94189.a3>
- Jameel, H. T., & Bibi, S. (2016). Benefits of sign language for the deaf students in classroom learning. *International Journal of Advanced and Applied Sciences*, 3, Pp:24-26.
- Khomera, S. W., Fayiah, M. ., & Gwayi, S., (2020). Challenges Faced by Learners with Hearing Impairments in a Special School Environment: A Case Study of Embangweni Primary School for the Deaf, Mzimba District, Malawi. *World Journal of Vocational Education and Training*, 2(1), 21-36. Doi: <https://doi.org/10.18488/journal.119.2020.21.21.36>
- Kosara, R., and Mackinlay, J. (2013). Storytelling: the next step for visualization. *Computer* 46, 44-50. doi: 10.1109/MC.2013.36
- Krasavina, Y., Serebryakova, Y., Ponomarenko, E., & Zhuykova, O. (2019). Research Based Teaching of Hearing-Impaired Students. *ARPHA Proceedings*, 1, 1789.
- Lervåg, I. K. (2020). Role of subtitles in L2 acquisition and comprehension: evidence from hearing-impaired learners (Master's thesis, NTNU).
- Michalski, P., Hodges, D., & Banister, S. (2005). Digital Storytelling in the Middle Childhood Special Education Classroom: A Teacher's Story of

- Adaptations. *Teaching Exceptional Children Plus*, ISSN: 1553-9318, 1(4), Pp:1-13.
- Miller Kevin J. (1998). *More than just a story : The arts of teaching and narrative. Perspectives in education and deaf*. Retrieved 4 October 2013 ,Website <http://clerccenter.gallaudet.edu/products/perspectives/mar-apr98/story.html>
- Mpofu, J., & Chimhenga, S. (2013). Challenges faced by Hearing Impaired pupils in learning: A case study of King George VI Memorial School. *Journal of Research & Method in Education*, 2(1), Pp:69-74.
- Muniapan, B., & Rajantheran, M. (2011). Ethics (business ethics) from the Thirukkural and its relevance for contemporary business leadership in the Indian context, *International Journal of Indian Culture and Business Management*, 4(4), Pp: 453-471.
- Nair, S. M., Yusof, N. M., & Hong, S. C. (2014). Comparing the effects of the story telling method and the conventional method on the interest, motivation and achievement of Chinese primary school pupils. *Procedia-Social and Behavioral Sciences*, 116, Pp:3989-3995.
- Nam, C. W. (2017). The effects of digital storytelling on student achievement, social presence, and attitude in online collaborative learning environments. *Interactive Learning Environments*, 25(3), 412-427.
- O'Byrne, W. I., Houser, K., Stone, R., & White, M. (2019). "Digital storytelling in early childhood: Student illustrations shaping social interactions": Corrigendum. *Frontiers in Psychology*, 9, Article 2749. Doi: <https://doi.org/10.3389/fpsyg.2018.02749>
- Ohler, J. B. (2013). *Digital Storytelling in the Classroom: New Media Pathways to Literacy, Learning, and Creativity* (2nd ed.). London: Sage.
- Okeke, B. A. (2001). *Essentials of Special Education*. Afro-Orbis Publishing Limited, Nsukka Nigeria.
- Palmer, B.C., Harshbarger, S.J. & Koch, C.A., (2001), *Storytelling as a Constructivist Model for Developing Language and Literacy*. *Journal of Poetry Therapy* 14, Pp: 199-212 .
- Panara, R. F. (1979). On Teaching Poetry to the Deaf (Or: Let the Student be the Poem!). *American Annals of the Deaf*, 124(7), 825-828. <http://www.jstor.org/stable/44389612>

- Papert, S. (2000). What's the big idea? Toward a pedagogy of idea power. *IBM Syst. J.* 39, Pp:720-729. doi: 10.1147/sj.393.0720
- Phillips, L. (2000). Storytelling: The Seeds of Children's Creativity. *Australasian Journal of Early Childhood*, 25(3), Pp: 1-5. <https://doi.org/10.1177/183693910002500302>
- Phiri, M. (2021). Challenges Faced by Deaf Children in Accessing Education in Malawi. *Deafness & Education International*, 23(3), Pp: 234-249.
- Ponniah, K. (2020). Implementation of the 21st century learning in learning and facilitation of Thirukkural in Tamil Primary Schools, *Fakulti Bahasa dan Komunikasi*
- Ponniah, K., Kumar, M., Moneyam, S., & Sivanadhan, I. (2019). The teaching of Thirukkural based on HOTS among the students of Tamil primary schools in the state of Perak, *International Journal of Advanced and Applied Sciences*, 6(2), Pp:94-101.
- Ponniah, K., Sivanadhan, I., Kumar, M., Nadarajan, P., & Akhmetova, A. (2021). The Use of ICT in Thirukkural Teaching and Facilitation, *Journal of Hunan University Natural Sciences*, 48(6).
- Razalli, A. R., Thomas, R. O., Mamat, N., & Yusuf, N. (2018). Using text with pictures in primary school to improve reading comprehension for hearing impaired students. *Journal of ICSAR*, 2(1), Pp: 19-27.
- Robin, B. (2005), *Educational uses of digital storytelling*, Society for Information Technology & Teacher Education, USA ISBN 978-1-880094-58-7, pg: 709-16.
- Robin, B. (2006). The Educational Uses of Digital Storytelling. In C. Crawford, R. Carlsen, K. McFerrin, J. Price, R. Weber & D. Willis (Eds.), *Proceedings of SITE 2006-Society for Information Technology & Teacher Education International Conference* (pp. 709-716). Orlando, Florida, USA: Association for the Advancement of Computing in Education (AACE). Retrieved March 1, 2022 from <https://www.learntechlib.org/primary/p/22129/>.
- Ross, S. M. (1991). The effects of different feedback strategies using computer-administered multiple-choice questions as instruction. *Educational Technology Research and Development*. Pp 5-17.

- Sadik, A. (2008), Digital storytelling: a meaningful technology-integrated approach for engaged student learning, *Education Tech Research Dev*,56, Pp 487-506. doi: <https://doi.org/10.1007/s11423-008-9091-8>
- Shalma, R. U., & Khan, S. F,(2021),Influence of Thirukkural for Morality among High School Students during the Robotized Millennium. *REST Journal on Emerging trends in Modelling and Manufacturing* 3(1), Pp:29-30.
- Shields, M., & Lennox, M. (2017). Strategies to address educational needs of students who are deaf or hard of hearing. *TEACH Journal of Christian Education*, 11(2), Pp:4-8.
- Singh, S. (2018). Teaching strategies for children with hearing impairment. *International Journal of Reviews and Research in Social Sciences*, 6(1), Pp:8-11.
- Smeda, N., Dakich, E. & Sharda, N. (2014),The effectiveness of digital storytelling in the classrooms: a comprehensive study, *Smart Learn. Environ*,1(6). doi: <https://doi.org/10.1186/s40561-014-0006-3>
- Techaraungrong, P. (2019, May). The Development of Storytelling multimedia Book for Promotion of the Moral and Ethics for Hearing Impaired Students. In *Proceedings of the 2019 5th International Conference on Education and Training Technologies*,Pp:73-77.
- Techarueangrong, P., Kaewprapan, W., & Suksakulchai, S. (2014). The design and use of multimedia storytelling book for hearing impaired students. In *Proceedings of the Asian Conference on Education 2014* Pp:1-10.
- The Digital Storytelling Association. (2002). The center for digital storytelling. Doi:<http://www.dsaweb.org>. Retrieved 18 February 2007.
- Tsou, W., Wang, W., & Tzeng, Y. (2006). Applying a multimedia storytelling website in foreign language learning. *Computers & Education*, 47, 17-28.
- Van Gils, F. (2005), Potential applications of digital storytelling in education. In *3rd Twente Student Conference on IT, University of Twente, Faculty of Electrical Engineering, Mathematics and Computer Science, Enschede*,7(7), Pp:17-18.
- Varshney.S. (2016), “Deafness in India”. *Indian journal of otology* 22 (2), 73
- Vulchanova, M., & Kjølstad Lervåg, I. (2021). Role of Subtitles in L2 Acquisition and Comprehension: A Pilot Study of Hearing-Impaired Students. *Languages*, 6(1),Pp:17. <https://doi.org/10.3390/languages6010017>

- Wang, S., & Zhan, H. (2010). Enhancing teaching and learning with digital storytelling. *International Journal of Information and Communication Technology Education*, 6(2), 76-87. <https://doi.org/10.4018/jicte.2010040107>
- Yuksel, P., Robin, B. & McNeil, S. (2011). Educational Uses of Digital Storytelling all around the World. In M. Koehler & P. Mishra (Eds.), *Proceedings of SITE 2011--Society for Information Technology & Teacher Education International Conference* (pp. 1264-1271). Nashville, Tennessee, USA: Association for the Advancement of Computing in Education (AACE). Retrieved March 2, 2022 from <https://www.learntechlib.org/p/36461>.
- Zomer, R. N., & Kay, R. K. (2014). Technology use in early childhood education: A review of the literature. *Journal of Educational Informatics*, 1, 1-25.

APPENDIX - I
PERSONAL DATA SCHEDULE

Name :
 DOB :
 Age :
 Sex : Male/Female
 Mother Tongue :
 Language spoken at
 His/her immediate environment : English/Hindi/Tamil/Teulgu/
 Kannada/Malayalam

Paste Recent
 Passport size
 Photo of the
 child/student

Other (specify) _____

Permanent Address:

Temporary Address:

Contact No: _____

E-mail ID: _____

Family Details:

S. No	Name	Relation to the Child	Disability if any	Age	Education	Occupation	Annual Income
1		Father					
2		Mother					
3							
4							
5							

Family History:

a) Nuclear Family / Joint Family

b) Consanguinity: Yes/No

c) History of family deafness / other handicaps: _____

Nature and Type of Disability:

Age of onset of Hearing Loss :

Type : Congenital / Acquired Pre-Lingual / Post Lingual

Type of Hearing Loss : Conductive/Sensori-Neural/Mixed

Degree of Hearing Loss : Mild/Moderate/Moderately Severe/Severe/Profound

Particulars	Yes	No
Details of the Assessment Reports:		
OAE		
BERA		
CAPE		
Impedence Audiometry		
Pure Tone Audiometry		
Aided Audiogram		
Details of Aid:		
Cochlear Implant		
Hearing Aid		
a) Body worn / BTE / RIC / CONCHA / ITC / CIC		
b) Analog Hearing Aid / Digital Hearing Aid		
Details of Training/ Therapies given:		
Auditory Training		
Auditory Verbal Therapy		
Speech Therapy		

Child's Educational Details:

Name of the School :

Type of School : Regular / Inclusive / Integrated /Special

Class :

Age of Admission :

Medium of Instruction : English/Tamil

Method of Communication : Oralism / Total Communication / Educational Bilingualism

Modes of Communication:

- Aural/Oral (Listening/Speaking)
- Visual/Graphical (Reading/Writing)
- Visual/Manual (Sign Language)
- Use of lip reading

Name of the Student Teacher :

Date :

Signature

APPENDIX - II
PRE TEST TOOL

Title of the study: Digital Storytelling for Learning Thirukkural among Students with Hearing Impairment




I. சரியான விடையைத் தேர்ந்தெடுத்து எழுதுக

5 * 1 = 5

1. நிலையான செல்வம் _____

<p>அ) பணம்</p> 	<p>ஆ) ஊக்கம்</p> 	<p>இ) தங்கம்</p> 
--	---	--

2. விருந்தினரின் முகம் எப்போது வாடும்? _____

<p>அ) நம் முகம் மாறினால்</p> 	<p>ஆ) நாம் நன்கு வரவேற்றால்</p> 	<p>இ) நம் வீடு மாறினால்</p> 
--	--	---

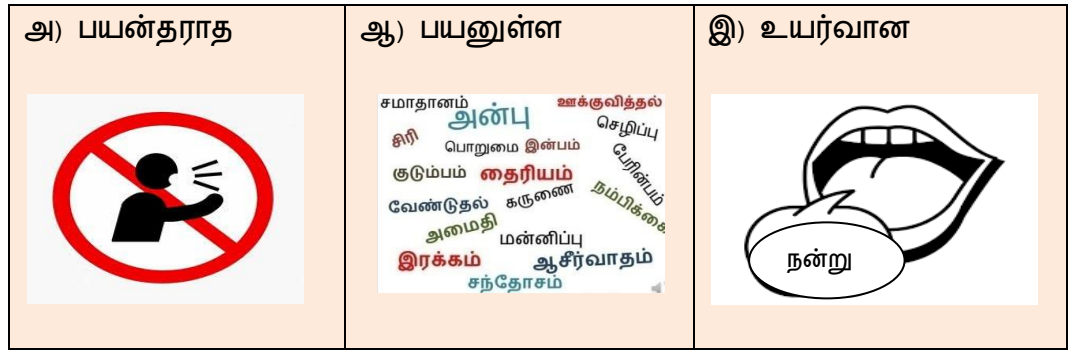
3. தளர்வில்லா ஊக்கம் உடையவருக்கு _____ தானே வரும்.

<p>அ) துன்பம்</p> 	<p>ஆ) விருந்தினர்</p> 	<p>இ) செல்வம்</p> 
---	---	---

4. _____ அளவிற்கு ஏற்ப மனிதர்கள் உயர்வார்கள்.



5. ஆராயும் அறிவு உடையவர்கள் _____ சொற்களைப் பேசமாட்டார்



II. பொருள் கூறுக

5 * 1 = 5

1. குழைதல் -
2. களவு -
3. ஆயும் -
4. வேண்டத்தக்கது -
5. உள்ளுவது -

III. விடுபட்டதை நிரப்புக

5 * 2 = 10

1. விருந்து _____ தாணுண்டல் _____
மருந்தெனினும் வேண்டற்பாற்று _____.
2. _____ உள்ளலும் தீதே _____
கள்ளத்தால் _____ எனல்.
3. களவினால் ஆகிய _____ அளவிறந்து
ஆவது _____ கெடும்.

4. உள்ளுவது _____ உயர்வுள்ளல் _____
தள்ளினும் _____ நீர்த்து.

5. அரும்பயன் ஆயும் _____ சொல்லார்
_____ இல்லாத _____.

IV. பொருத்துக

5 * 1 = 5

	இனியசொற்களைப் பேசுதல்	
	உயர்வாக எண்ணுதல்	
	களவாடுதல்	
	ஊக்கத்துடன் இருத்தல்	
	விருந்தினரை உபசரித்தல்	

V. சரியா?தவறா?

5 * 1 = 5

1. ஊக்கமே நிலையான செல்வம் _____

2. அடுத்தவர் பொருளை நாம் களவாடலாம் _____
3. அமிழ்தமே ஆனாலும் விருந்தினர் இருக்கும்போது தான் மட்டும் உண்பது விரும்பத்தக்கது அன்று _____
4. நன்மை எது என ஆராயும் அறிவு உடையவர்கள் பயன்தராத
5. சொற்களைப் பேசுவர் _____
6. நம் முகம் வாடினால் விருந்தினர் முகம் வாடிவிடும் _____

V. வினாக்களுக்கு விடையளி

5 * 2 = 10

1. நாம் எத்தகைய சொற்களைப் பேச வேண்டும் என்று வள்ளுவர் கூறுகின்றார்?

விடை:

2. 'மோப்ப' என தொடங்கும் குறளை எழுதுக

விடை:

3. ஆக்கம் யாரிடம் வழிகேட்டுச் செல்லும்?

விடை:

4. மலர்நீட்டம் அனையது வெள்ளத்து அனைய
மாந்தர்தம் உள்ளத்து உயர்வு
முறைமாறியுள்ள சீர்களை முறைப்படுத்தி எழுதுக

விடை:

5. உள்ளம் உடைமை உடைமை பொருளுடைமை
நில்லாது நீங்கி விடும்
இக்குறள் உணர்த்தும் பொருள் யாது?

விடை:

- vi. பின்வரும் நிகழ்வைப் படித்து அதற்குப் பொருத்தமான
திருக்குறள் எதுவெனக் காண்க

5 * 2 = 10

வீட்டிற்குள் வந்த வேலனை தந்தை அழைத்தார். “உங்கள் பள்ளியில் பேச்சுப்போட்டி நடப்பதாக கூறினாயே, பெயர் கொடுத்து விட்டாயா?” என்று கேட்டார். “இல்லையப்பா, அமுதன் என்னைவிட நன்றாகப் பேசுவான். அவனுக்குத்தான் பரிசு கிடைக்கும். எனவே நான் பெயர் கொடுக்கவில்லை” என்றான் வேலன். “போட்டியில் வெற்றியும் தோல்வியும் இயல்புதான். அதற்காகப் போட்டியிடாமல் விலகக் கூடாது. நாம் எந்த அளவு ஊக்கத்துடன் செயல்படுகிறோமோ அந்த அளவிற்கு வெற்றி கிடைக்கும். எனவே நீ போட்டியில் கலந்துகொள்” என்றார் அப்பா. உற்சாகம் அடைந்தான் வேலன். “நாளை பெயர் கொடுத்துவிடுகிறேன் அப்பா” என்றான்.

1. மோப்பக் குழையும் அனிச்சம் முகந்திரிந்து
நோக்கக் குழையும் விருந்து
2. வெள்ளத்து அனைய மலர்நீட்டம் மாந்தர்தம்
உள்ளத்து அனையது உயர்வு
3. அரும்பயன் ஆயும் அறிவினார் சொல்லார்
பெரும்பயன் இல்லாத சொல்

விடை:

APPENDIX - II POST TEST TOOL

**Title of the study: Digital Storytelling for Learning Thirukkural among
Students with Hearing Impairment**

vii. சரியான விடையைத் தேர்ந்தெடுத்து எழுதுக

5 * 1 = 5

1. பொறாமை,பேராசை, _____ மற்றும் கடுஞ்சொல் பேசுதல் ஆகிய நான்கும் இல்லாமல் வாழ்வதே அறமாகும்.

அ) நட்பு	ஆ) சினம்	இ) மகிழ்ச்சி
		

2. இல்லாதவருக்கு உதவி செய்வதே _____ ஆகும்.

அ) பகைமை	ஆ) வறுமை	இ) ஈகை
		

3. அறநூல்களில் கூறப்படும் அறங்களுள் ஒன்று _____

அ) பகிர்ந்து கொடுத்தல்	ஆ) தீங்கு செய்தல்	இ) இகழ்தல்
		

4. பிற உயிர்களின் _____ க் கண்டு வருந்துவதே அறிவின் பயனாகும்

அ) மகிழ்வை	ஆ) பகையை	இ) துன்பத்தை
------------	----------	--------------



5. உள்ளத்தில் இல்லாமல் இருப்பதே சிறந்த அறமாகும்.



VIII. பொருள் கூறுக

5 * 1 = 5

1. மாசு -
2. நன்னயம் -
3. ஈதல் -
4. ஆற்றுவார் -
5. வெகுளி -

IX. விடுபட்டதை நிரப்புக

5 * 2 = 10

1. ஆற்றுவார் _____ இகழாமை போற்றுவார்
_____ எல்லாம் _____.
2. _____ தாரை ஒறுத்தல் _____
நன்னயம் _____ விடல்.
3. மனத்துக்கண் _____ ஆதல் _____
ஆகுல _____ பிற.
4. _____ ஆகுவது உண்டோ _____
தந்நோய்போல் போற்றாக் _____.

5. எனனத்தானும் _____ யார்க்கும் _____
மாணாசெய் யாமை தலை.

x. பொருத்துக

5 * 1 = 5

1.	பேராசை கொள்ளுதல்	
2.	பெரியவர்களை மதித்தல்	
3.	பிறர் துயர் கண்டு வருத்துதல்	
4.	இல்லாதவருக்கு கொடுத்து உதவுதல்	
5.	கடுஞ்சொல் பேசுதல்	

சரியா?தவறா?

5 * 1 = 5

1. நமக்கு துன்பம் செய்தவருக்கு நாமும் துன்பம் செய்ய வேண்டும்.

2. ஆற்றல் உடையவர்களை இகழ்க் கூடாது. _____
3. அறநூல்களில் கூறப்படும் அறங்களுள் ஒன்று கடுஞ்சொல் பேசுதல்

4. நம் உள்ளம் ஏற்றுக்கொள்ளாத செயலை நாம் செய்யக்கூடாது

5. இல்லாதவருக்கு கொடுத்து உதவ வேண்டும். _____

XI. வினாக்களுக்கு விடையளி

5 * 2 = 10

1. எக்காலத்திலும் செய்ய கூடாத செயல் எது?

விடை:

2. 'ஈத்துவக்கும்' என தொடங்கும் குறளை எழுதுக

விடை:

3. அறிவின் பயன் யாது?

விடை:

4. உய்யார் சுடப்படினும் வார் பிழைத்தொழுகு
பெரியார்ப் எரியால் உய்வுண்டாம்
முறைமாறியுள்ள சீர்களை முறைப்படுத்தி எழுதுக

விடை:

5. இன்னாசெய் தாரை ஒறுத்தல் அவர்நாண நன்னயம் செய்து விடல்.

இக்குறள் உணர்த்தும் பொருள் யாது?

விடை:

- xii. பின்வரும் நிகழ்வைப் படித்து அதற்குப் பொருத்தமான திருக்குறள் எதுவெனக் காண்க

5 * 2 = 10

நிறைமதி அவளுடைய தோழிகளுடன் பூங்காவிற்குச் சென்றாள். அங்குள்ள இயற்கைக் காட்சிகளைக் கண்டு மகிழ்ந்தாள். நண்பகல் நேரத்தில் ஒரு மரத்தின் கீழ் அமர்ந்து தான் கொண்டு வந்திருந்த உணவைத் தோழிகளுடன் பகிர்ந்து உண்டாள். அவர்களின் அருகே பறவைகள் பறந்து வந்தன. தன்னிடம் இருந்த உணவைப் பறவைகளுக்கும் அளித்தாள்.

மனத்துக்கண் மாசிலன் ஆதல் அனைத்தறன்

ஆகுல நீர பிற

1. எனைத்தானும் எஞ்ஞான்றும் யார்க்கும் மனத்தானாம் மாணாசெய் யாமை தலை
2. பகுத்துண்டு பல்லுயிர் ஒம்புதல் நூலோர் தொகுத்தவற்றுள் எல்லாம் தலை

விடை: