“A DESCRIPTIVE STUDY TO ASSESS THE KNOWLEDGE REGARDING ASSISTIVE TECHNOLOGY FOR CHILDREN WITH LEARNING DISABILITIES AMONG SCHOOL TEACHERS IN SELECTED SCHOOLS AT KOLAR”.

PROJECT REPORT-2022

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We hereby declared that Sri Devaraj Urs College of Nursing Tamaka, kolar-563103 shall have the right to preserve, use and disseminate the project in print or electronic format for academic research purpose.

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"Gratitude makes sense of our past, brings peace for today, creates a vision for tomorrow"

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ABSTRACT

Introduction: Assistive technology has the potential to help students with mild disabilities in many academic areas, including reading, writing, spelling, and organization. Assistive technology is formally defined as "any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" Several researchers have attempted to identify knowledge to assistive technology among school teachers and implementation for students with disabilities. Despite the prevalence of students with mild learning disabilities in normal education and the legal mandate to consider assistive technology to support their needs, research suggests low rates of assistive technology use by this population. With this background, a topic selected for the study was "A descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected schools at Kolar".

Objectives:

1. To assess the level of knowledge on Assistive technology for children with Learning Disabilities among school teachers by using Structured Knowledge Questionnaire (SKQ).

2. To find out association between the level of knowledge with selected socio-demographic Variables of school teachers

Methodology: A non-experimental descriptive survey research design was used for the study. 120 schoolteachers were selected by using non-probability convenient sampling technique from selected schools at Kolar. The data was

collected by using structured knowledge questionnaire on assistive technology for children with learning disabilities. The analysis was done by using descriptive and inferential statistics.

Results: Distribution of socio-demographic variables of school teachers. Stated that maximum number of teachers 23.3% belongs to the age group of 21-30 years, 44.2% belongs to31-40 years and 32.5% belongs to the age group of 41-50 years. Among the school teachers, 87.5% were female teachers and 12.5% were male teachers. With regard to the religious status,68.3% were Hindu, with respect to the educational status of teachers,33.3% were (UG),17.5% were (PG) and 30.0% were in other degree category with additional qualifications. With respect to place of residence, 76.7% were living in urban area The marital status of teachers 13.3% are un married.

According to the type of school working 4.2% of teachers are from government schools, 90% of teachers are from private schools. In terms of Total year of working experience of school teachers 20.8% of teachers having experience 1-5 years, 37.5% of teachers having experience 6-10 years. With regard to type of employment 32.5% of teachers were working on temporary basis and 52.5% of teachers working as permanent employee.

Regarding level of knowledge on assistive technology, 35.8 % of the teachers had inadequate level of knowledge, 57.5% of them had moderately adequate knowledge, whereas only 06.7% of them had adequate knowledge on assistive technology with learning disabilities. The overall mean was 11.27 with standard deviation of 3.1 and the mean percentage was 56.3%, which also states that the maximum score obtained was 17 and minimum score was 03 respectively.

The association between the level of knowledge on assistive technology and selected socio demographic variables of school teachers which states that the calculated chi square value is less than the table value at $P<0.05$ for almost all the variables except any experience of teachers towards assistive technology and on attending any workshop on assistive technology, hence there is no statistically significant association between the selected socio-demographic variables with the level of knowledge scores.

Conclusion: To conclude, this research study findings shows that providing training to in-service teachers and administrators can positively impact their perceptions and knowledge of assistive technology. In order to better serve students with disabilities, as well as other at-risk students who may or may not qualify for special education, further efforts should be made to train and support the regular education and special education teachers who work daily with students who could benefit from using assistive technology on a more frequent and consistent basis.

LIST OF ABBREVATIONS USED

AT : Assistive technology

SLD : Specific Learning Disability

LD : Learning Disabilities

ADHD: Attention deficit hyperactivity disorder

UDL: Universal design for learning

IEC: Institutional ethics committee

ICT: Information and Communication Technologies

ICF: Informed Consent Form

OPD: Out Patient Department

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CHAPTER-I

INTRODUCTION

"Technology will never replace great teachers, but technology in the hands of a great teacher can be transformational"

-George couros".

A learning disability a neurological condition that interferes with a person is ability to store process or procedure information Learning disabilities can affect one's ability to read, write, speak, spell compute, math, reason and also effect a person's attention memory coordination social skills and emotions and maturity.[1]

Specific learning disabilities means a disorder is one or more of the basic psychological processes involved understanding or in using language spoken or written which may manifest itself in an imperfect ability to listen, read spell, or to do mathematical calculation. Causes of learning disabilities: 1) Heredity 2) Illness during and after birth 3) Stress during infancy 4) Environment 5) co morbidity. [2]

Types of learning disabilities: ***Dyslexia:*** -Difficulty in reading, ***Dyscalculia:*** Difficulty in math, ***Dysgraphia:*** Difficulty with writing, ***Dyspraxia:*** Difficulty with the motor skills, ***Dysphasia:*** Difficulty with language, ***Auditory processing disorder (APD):*** Difficulty learning difference between sounds, ***Visual processing***

disorder: Difficulty interpreting visual information, ***ADHD:*** Attention deficit Hyperactivity disorder, Autism spectrum disorder. [3]

The term **"assistive technology"** has usually been applied to computer hardware and software and electronic devices. Assistive technology is any item piece of equipment software problem or product system that used to increase maintain or improve the functional capacities of persons with disabilities. Assistive technology helps children who have difficulty in speaking, typing. Writing, remembering, pointing, seeing, hearing, learning and many other things. [4]

Various assistive technology in schools to enhance quality of learning Assistive technology is any device software are equipment that helps work around their challengers Ex: a) Assistive technology text-to-speech and word prediction b) assistive technology include low-tech tools like pencil grips, Examples of assistive technology tools: Assistive technology for reading, Assistive technology for writing, Assistive technology for math, assistive technology for listening comprehension. Soft technologies example of assistive technology in the classroom: Electronic worksheets. Students with learning disabilities, reading and writing can be a challenge, talking calculators. Variable speed records. Videotaped social skills. [5]

Assistive technology (AT) is available to help individuals with many types of disabilities-from cognitive problems to physical impairment. The use of technology to enhance learning is an effective approach for many children. Additionally, students with LD often experience greater success when they are allowed to use their abilities (strengths) to work around their disabilities

(challenges). Assistive technology (AT) tools combine the best of both of these practices. [6]

Assistive technology (AT) for children with LD is defined as any device, piece of equipment or system that helps bypass, work around or compensate for an individual's specific learning deficits. Over the past decade, a number of studies have demonstrated the efficacy of Assistive technology (AT) for individuals with LD. Assistive technology (AT) doesn't cure or eliminate learning difficulties, but it can help your child reach their potential because it allows them to capitalize on their strengths and bypass areas of difficulty. For example, a student who struggles with reading but who has good listening skills might benefit from listening to audiobooks. [7]

In general, Assistive technology (AT) compensates for a student's skills deficits or area(s) of disability. However, utilizing AT does not mean that a child can't also receive remedial instruction aimed at alleviating deficits (such as software designed to improve poor phonic skills). A student could use remedial reading software as well as listen to audiobooks. In fact, research has shown that Assistive technology (AT) can improve certain skill deficits (e.g., reading and spelling).AT can increase a student self-reliance and sense of independence. Children who struggle in school are often overly dependent on parents, siblings, friends and teachers for help with assignments. By using Assistive technology (AT), children with learning disabilities can experience success with working independently. [8]

Assistive technology (AT) can address many types of learning difficulties. A student who has difficulty writing can compose a school report by dictating it and having it converted to text by special software. A child who struggles with math

can use a hand-held calculator to keep score while playing a game with a friend. And a teenager with dyslexia may benefit from Assistive technology (AT) that will read aloud his employer's online training manual. The kinds of assistive technology tools which are available were listed as [9]

Abbreviation expanders: Used with word processing, these software programs allow a user to create, store, and re-use abbreviations for frequently-used words or phrases. This can save the user keystrokes and ensure proper spelling of words and phrases he has coded as abbreviations.

Alternative keyboards: These programmable keyboards have special overlays that customize the appearance and function of a standard keyboard. Students who have LD or have trouble typing may benefit from customization that reduces input choices, groups keys by color/location, and adds graphics to aid comprehension.

Audiobooks and publications: Recorded books allow users to listen to text and are available in a variety of formats, such as audiocassettes, CDs, and MP3 downloads. Special playback units allow users to and search and bookmark pages and chapters. Subscription services offer extensive electronic library collections.

Electronic math work sheets: Electronic math worksheets are software programs that can help a user organize, align, and work through math problems on a computer screen. Numbers that appear onscreen can also be read aloud via a speech synthesizer. This may be helpful to people who have trouble aligning math problems with pencil and paper.

Freeform database software: Used in conjunction with word processing or other software, this tool allows the user to create and store electronic notes by "jotting

down" relevant information of any length and on any subject. He can later retrieve the information by typing any fragment of the original note.

Graphic organizers and outlining: Graphic organizers and outlining programs help users who have trouble organizing and outlining information as they begin a writing project. This type of program lets a user "dump" information in an unstructured manner and later helps him organize the information into appropriate categories and order.

Information/data managers: This type of tool helps a person plan, organize, store, and retrieve his calendar, task list, contact data, and other information in electronic form. Personal data managers may be portable, hand-held devices, computer software, or a combination of those tools working together by "sharing" data.

Optical character recognition: This technology allows a user to scan printed material into a computer or handheld unit. The scanned text is then read aloud via a speech synthesis/screen reading system. Optical Character Recognition (OCR) is available as stand-alone units, computer software, and as portable, pocket-sized devices.

Personal FM listening systems: A personal FM listening system transmits a speaker's voice directly to the user's ear. This may help the listener focus on what the speaker is saying. The unit consists of a wireless transmitter (with microphone) worn by the speaker and a receiver (with earphone) worn by the listener.

Portable word processors: A portable word processor is lightweight device that is easy to transport (e.g., from classroom to home). It can be helpful to kids who may have trouble writing by hand and prefer to use a keyboard. Word processing allows the user to edit and correct his written work more efficiently than doing so by hand.

Proof reading programs: Students who struggle with writing (e.g., spelling, grammar, punctuation, word usage, and sentence structure) may benefit from software programs (included in many word processing systems) that scan word processing documents and alert the user to possible errors.

Speech-recognition programs: A speech recognition program works in conjunction with a word processor. The user "dictates" into a microphone, and his spoken words appear on the computer screen as text. This can help a user whose oral language ability is better than his writing skills.

Speech synthesizers/screen readers: These systems can display and read aloud text on a computer screen, including text that has been typed by the user, scanned in from printed pages (e.g., books, letters), or text appearing on the Internet.

Talking calculators: A talking calculator has a built-in speech synthesizer that reads aloud each number, symbol, or operation key a user presses; it also vocalizes the answer to the problem. This auditory feedback may help him check the accuracy of the keys he presses and verify the answer before he transfers it to paper.

Talking spell checkers and electronic dictionaries: Talking spell checkers and electronic dictionaries can help a poor speller select or identify appropriate words

and correct spelling errors during the process of writing and proofreading. Talking devices "read aloud" and display the selected words onscreen, so the user can see and hear the words.

Variable-speed tape recorders: Tape recorders/players allow a user to listen to pre-recorded text or to capture spoken information (e.g., a classroom lecture) and play it back later. Variable speed control (VSC) tape recorders speed up or slow down the playback rate without distorting the "speaker's" voice.

Word-prediction programs: Word prediction software can help a user during word processing by "predicting" a word the user intends to type. Predictions are based on spelling, syntax, and frequent/recent use. This prompts kids who struggle with writing to use proper spelling, grammar, and word choices, with fewer keystrokes.

Other technology tools for learning: There are other forms of technology designed to help all students, including those with LD, improve their academic performance. These technologies differ somewhat from AT but are worth mentioning.

Instructional software: is used to teach specific academic skills (like reading and writing) or subject matter content (such as history and science). It differs from AT in that it provides instruction rather than bypassing areas of difficulty.

Universal Design for Learning (UDL): is a philosophy that encompasses learning models, methods and products to enhance the educational experience of diverse learners (whether or not they have learning disabilities). In this approach,

AT is often built into educational materials and can be customized to help students with disabilities be successful with the general curriculum.

1.2: NEED FOR THE STUDY:

Assistive technology is any device, software or equipment's that helps people work around challenges. So, they can learn, communicate and function better. Learning disability, learning disorder or learning difficulty is a condition in the brain that causes difficulties comprehending or processing information and can be caused by several different factors. [10]

Students often learn best by doing. Assistive technology uses this concept, supplying students with hands-on learning aids to make learning fun and less stressful. Each assistive technology tool strengthens a student skill set through the act of playing and many of these devices and outfitted with vibrant colors and engaging designs that fuel a student empowerment for learning. [11]

World report on disability 2011 says about 15% of world population lives with same form of disability of whom 2-4% experience significant difficulties in function. The global disabilities prevalence is higher than previous WHO estimate which data from the 1970s and suggested a figure of around 10%. [12]

Globally, more than 1billion people need one or more assistive products. With an ageing global population and a rising non-communicable diseases, more than 2

billion people will need at-least one assistive products by 2030, with many older people needing 2 or more. Today, only one in ten people in need have access to assistive products. [13]

In India overall 2.21% of Indian population has one or other kind of disability. This means 2.68crores (26.8million) people in India are disabled. In male out of total 62.32crores male Indian citizen there are 1.5crores (15 million) disabled male in India In female out of 58.76crores female Indian citizen there are 1.18crores (11.8million) disabled female in India. [14

A 2019 survey conducted in India revealed that just around 23% of severely disabled users encountered problems when using Assistive Technology (AT) products. In Karnataka, there are 3.30lakh children between the ages 5 and 19 with disabilities. In the state of them 21.6% have never received education and 15.5% attended educational institutions previously but later dropped out. These are the findings of UNESCO's state of education report for India 2019-children with disabilities. [15]

Specific Learning disability (SLD) can be defined as a disorder of one or more of the basic cognitive abilities involved in understanding or using a language. This disability may manifest itself in an imperfect ability to read, write or to perform mathematical calculations (Rufus, Liman, Abubakar & Kwalzoom, 2015). [16]

Children with Specific Learning Disabilities are educated in the general education classrooms and often experience difficulties in classroom settings in comparison to their peers (Wood, et.al, 2017). One way to address these difficulties is to adopt innovative educational strategies in the classroom to enhance the performance of children with learning disabilities and to eliminate weaknesses that can be a

barrier to successful life. In recent years, researchers have become increasingly interested in investigating the use of technological devices to enhance the achievement of children with specific learning disabilities in inclusive classrooms (Starcic & Istenic, 2010; Susan, 2009 and Wood, et.al, 2017). [17]

These studies have demonstrated that assistive technology is a potential aid to promote the educational needs of children with SLD and the integration of technology is important to increase the efficiency of learning among children with learning disabilities (Starcic & Istenic, 2010 and Wood, et.al, 2017). However, little information was drawn from teachers regarding how the technological devices would be beneficial for children with specific learning disabilities (Rufus, et.al. 2015: Susan, 2009 and Wood, et.al. 2017). [18]

Students with disabilities face many challenges in learning and assistive technology can be a potential aid for compensating for their educational needs. The purpose of this research was to gather information about assistive technology knowledge and skills among teachers. Data were collected from one hundred and twenty-seven participants via a self-reporting questionnaire. Interviews were also used with three participants to gather data of greater breadth and depth to the analysis of the data gathered from the survey. Results suggested that teachers do not have adequate level of knowledge and skills of using assistive technology. Teachers, then, should have pre-service and in-service training to increase their overall knowledge of implementing assistive technology and using universal design for learning for students with disabilities. [19]

The successful implementation of technologies in the classroom largely depends on the knowledge and attitude of teachers regarding the use of technology in the

teaching and learning process (Cope & Ward 2002). Therefore, it is essential to focus on teacher perceptive on the effectiveness of assistive technology among children with specific learning disabilities. [20]

Much needs to be done to improve the quality of special education technology research. Little research has been conducted on the use of assistive technology in inclusive schools, and only a few researchers are conducting systematic, well-designed research that can lead to confident conclusions on how the use of assistive technology affects learning. In addition, research cannot be produced quickly enough to match the rate of technological innovations, and as a result, educators tend to rely on the claims of the producers of the technologies rather than evidence-based research. Despite the enthusiasm that may surround the application of assistive technology in the classroom, assistive technology is not a panacea. Lack of common vision, limited training, access to support services, insufficient funding, and lack of teacher time are commonly cited problems in regards to the implementation of assistive technology. Researchers have noted that there is still an enormous gap between the potential of assistive technology and how much it actually helps. Assistive technology can reduce students' dependence on others to read, write, and organize their work When provided with effective strategy instruction, outlining programs and concept mapping software can help with planning, and word processing, spell check, word prediction, and speech recognition can offer support for transcription and revision. While assistive technology can support struggling learners, cautions that technology by itself has little impact on learning. In order for students to benefit from the technology, educators must have an understanding of assistive technology and how to embedded it within quality instruction. [21]

In a large-scale survey study nearly three-quarters of respondents indicated that improved staff training and knowledge were the most important actions that could be taken to promote technology use Assistive technology devices and services have to be coupled with context-appropriate instruction from trained teachers, as students' successful implementation of assistive technology is directly related to the knowledge, skills, and dispositions of special education teachers. While educators acknowledge the potential of assistive technology, they may feel overwhelmed by the responsibility of understanding and using this technology with their students. [22]

Many teachers feel that they lack the knowledge and support to more fully integrate assistive technology into the curriculum. This is not surprising given that only a third of special education programs surveyed addressed assistive technology, and few workshops or professional development opportunities exist to continually support teachers' use of assistive technology during instruction. Teachers' uses and understanding of assistive technology may increase when provided with effective instruction during pre-service education or professional development opportunities. General educators and special educators need to become familiar with assistive and instructional technology so that they can embed this technology within their instruction to meet the needs of all their students. [23]

CHAPTER-II

CHAPTER-II

OBJECTIVES

2.1 STATEMENT OF THE PROBLEM

"A descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected schools at Kolar"

2.2 OBJECTIVES OFTHE STUDY

1. To assess the level of knowledge on Assistive technology for children with Learning Disabilities among school teachers by using Structured Knowledge Questionnaire (SKQ).

2. To find out association between the level of knowledge with selected socio-demographic variables of school teachers.

2.3 OPERATIONAL DEFINITIONS

Assess: In this study, it refers to estimation of knowledge using questionnaire.

Knowledge: In this study, it refers to responses given to questions ask by the investigator provided in structured knowledge questionnaire on Assistive Technology.

Assistive technology: In this study, assistive technology for children with learning disability is defined as any device piece of equipment or system that help bypass, work around or compensate for an individual's learning deficits.

Learning disability: In this study, learning disability is the effect of one's ability to read, write, speak, spell, compute, math, reason and also effect a person's attention memory, co-ordination social skill and emotional maturity.

School teacher: In this study, it refers to teachers who are qualified with basic degree under basic education and teaching students in the school.

Selected school: In this study, it refers to different schools which provides primary education to children at Kolar.

2.4: HYPOTHESIS:

Ho: There will be no statistically significant association between the level of knowledge of school teachers regarding assistive technology for children with learning disability and selected socio demographic variables.

2.5: ASSUMPTIONS:

- School teachers may have some basic knowledge regarding assistive technology used for children with learning disabilities.
- Screening the school teacher's knowledge regarding assistive technology will help them in handling the devices for children with learning disabilities of class room management.

2.6: DELIMITATIONS:

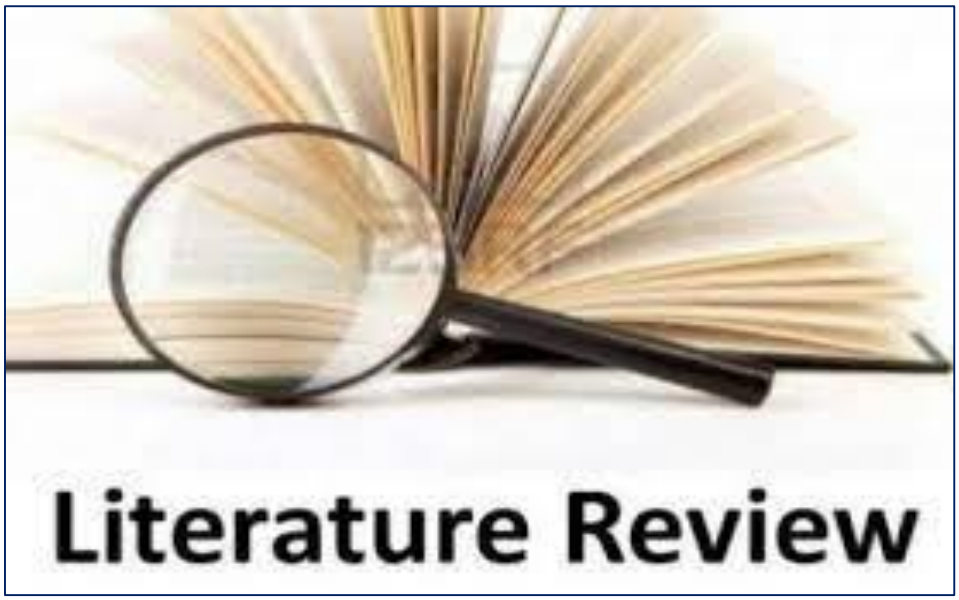
The study is delimited to:

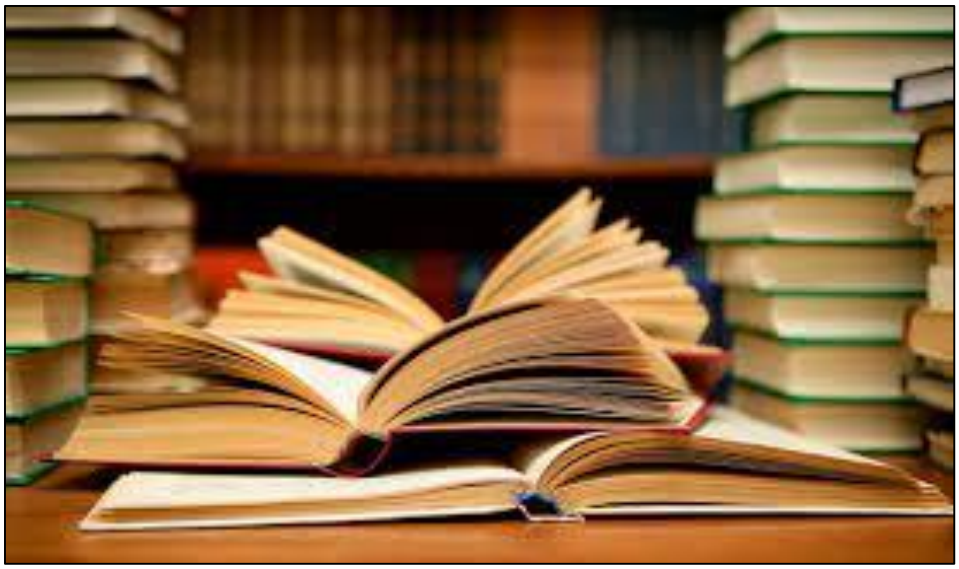
1. Only the school teachers of selected schools at Kolar.

2. The sample size of 120 school teachers.

3. Only on assessment of knowledge level regarding assistive technology for children with learning disabilities.

CHAPTER-III





CHAPTER-III

REVIEW OF LITERATURE

3.1: INTRODUCTION: A review of literature is description and analysis of the literature relevant to a particular field or topic. It provides an overview of world already had been carried out, who are the key researchers, who did that work.

1.Studies related to learning disabilities and specific learning disabilities with Assistive Technology

2.Studies related to knowledge regarding Assistive Technology for children with learning disabilities

3.1.1: STUDIES RELATED TO LEARNING DISABILITIES AND SPECIFIC LEARNING DISABILITIES WITH ASSISTIVE TECHNOLOGY

The study examined how assistive technologies are integrated to students with learning disabilities in universities in Nigeria. The study adopted a descriptive survey design. The study was carried out in Northern Region of Nigeria. The population of the study comprised a total of 269 respondents with learning disabilities in Northern Region of Nigeria. The instrument for data collection was structure questionnaire. There was no any sampling technique since the populations was manageable. A 20 items structure questionnaire titled: Integrating Assistive Technology for Students with Learning Disabilities (IATSLD) was used as the instrument for data collection. Data collected were analyzed using mean and standard deviation for the research questions. The findings of the study

revealed challenges that hinder the use of assistive technology for students with learning disabilities. These include: instructors' views, lack of availability of resources, lack of trained instructors, lack adequate planning and collaboration time for instructors, absence of technical assistance, instructors working with outdated computers, lack of collaboration with family, lack of ICT specialist to teach students with learning disabilities, and limited flexibility in training options for children with learning disabilities. Based on the findings, it was recommended that parents of the children with learning disabilities should be supportive in terms of the provision of assistive technology devices for use in school. [24]

A study was carried out on Assistive Technology for Learning Disabled -Making Room for Diverse Learning Needs, where for years, learners with diverse needs have struggled with their assignments or been shut out of different classes or subjects because schools had accessibility or instructional problems. The teachers understand the differences thoroughly as they have the better chance of meeting the diverse learning needs of all of their students. Nowadays learning technologies transformed educational systems with impressive progress of Information and Communication Technologies (ICT). With the integration of Information and Communication Technologies (ICT) in education, a growing interest is indicated in the educational use of the World Wide Web, implementing activities that support collaborative learning. Technological developments like Web 2.0 technology can enable learners with disabilities to improve their quality of life. They represent real opportunities with access to an inclusive education and help to overcome the obstacles they meet in traditional educational systems. This study reviews basic concepts of learning disabilities in classroom and assistive

technologies, with a special focus on accessible eLearning systems and also outlines their pedagogical implications. [25]

A systematic review was done on Assistive technology for the inclusion of students with disabilities, has ensured that the concept of Assistive Technology (AT) has become increasingly widespread in education. The main objective of this systematic review focuses on studies regarding the impact of Assistive Technology for the inclusion of students with disabilities. In order to achieve the above, a review of relevant empirical studies published between 2009 and 2020 in four databases (Web of Science (WoS), Scopus, ERIC and PsycINFO) was carried out. The sample consists of 31 articles that met the inclusion criteria of this review, out of a total of 216 identified. Findings of this study included that the use of Assistive Technologies is successful in increasing the inclusion and accessibility of students with disabilities, although barriers such as teacher education, lack of information or accessibility are found. [26]

This research study was done to expose the meaning, benefits, and answer why the use of assistive technology for children with learning disabilities. The paper discussed the various types of assistive technology devices that were designed and used to solve written language, reading, listening, memory and mathematic problems of children with learning disabilities. It pointed out the need for selecting the right technology tools for the children with learning disabilities, to enable achievement of the target goals, and highlighted instructional guides for the classroom teachers, that would make children with learning disabilities benefit maximally from the use of assistive technology tools, whether in the classroom or at home, in order that the technology would make the teaching – learning process enjoyable and productive. The possible challenges faced by developing nations in

using assistive technology were mentioned. It concluded that there was potential for assistive technology to improve the lives and to eliminate learning difficulties for children with learning disabilities. [27]

A study was conducted in Jordan on using assistive technologies in the curriculum of children with specific learning disabilities served in inclusion settings. In this Study 157 SLD teachers were included. A random sampling method was used for this study. The result showed that the SLD teacher's self-reported use of AT in curriculum of Children with SLD was high. The teachers Perception of their professionalism in using assistive technologies in the teaching Process Sub-Scale had the highest mean, whereas the availability of AT had the lowest. The results revealed a Statistically significant correlation between teacher's beliefs and professionalism. The results also revealed that there were no significant differences between SLD teachers according to the teacher's gender of experience level, or the level of child disability. The results also showed that There was only difference regarding the availability of AT Sub-scale, pertaining to Public School and private School and in favor of private Schools. [28]

3.1.2: STUDIES RELATED TO KNOWLEDGE REGARDING ASSISTIVE TECHNOLOGY FOR CHILDREN WITH LEARNING DISABILITIES

A survey was conducted on teachers of students with learning disabilities: assistive technology knowledge, perceptions, with the background information that Assistive technology (AT) helps bridge the gap between students with learning disabilities (LD) and their peers without LD. However, this implies a need for teachers to become well-trained and proficient in the use of AT. There are established AT competencies for educators, and AT services professionals

must be knowledgeable about AT to select and recommend specific technology to individual education program teams. Professionals should also be well-versed with AT to be able to train students in its use. There is a significant need for research on teachers' knowledge and perceptions of AT (i.e., interest in using it and barriers to incorporating it) as well as the best ways to provide AT training. To investigate these areas, a survey was administered to teachers of students with LD at the elementary and middle school levels. The results indicated that completing an AT course in college along with self-reported AT proficiency in iPad reading apps were associated with higher ratings of AT knowledge. Additionally, higher AT proficiency ratings and completing AT college course work were associated with perceptions of college preparation of AT, but these factors did not predict perceptions of workplace preparation. Teachers were clearly interested in utilizing AT but felt their college did not adequately prepare them in AT, and funding issues were the most common barriers to implementing AT. The findings suggest a need for an emphasis on AT training in college courses. [29]

The study was conducted to explore teachers' knowledge of using assistive technology (AT) with students with Autism Spectrum disorder (ASD) based on their gender, years of teaching experience, level of education, grade level of instruction, and training. A sample of 312 teachers were collected in this study. Multiple Linear Regression was conducted for data analysis. Results indicated that trained teachers showed more knowledge of the using of AT in classrooms for students with ASD. Teachers who have more years of teaching experience reported more knowledge of using AT in classrooms for students with ASD. The

results support a greater need for further studies using AT for students with ASD from stakeholders and decision makers perspectives in Saudi Arabia. [30]

This research study was to expose the meaning, benefits, and answer why the use of assistive technology for children with learning disabilities. The study discussed the various types of assistive technology devices that were designed and used to solve written language, reading, listening, memory and mathematic problems of children with learning disabilities. It pointed out the need for selecting the right technology tools for the children with learning disabilities, to enable achievement of the target goals, and highlighted instructional guides for the classroom teachers, that would make children with learning disabilities benefit maximally from the use of assistive technology tools, whether in the classroom or at home, in order that the technology would make the teaching-learning process enjoyable and productive. The possible challenges faced by developing nations in using assistive technology were mentioned. It concluded that there was potential for assistive technology to improve the lives and to eliminate learning difficulties for children with learning disabilities. [31]

The research was done on Teachers' Knowledge and Use of Assistive Technology for Students with Special Educational Needs as the Students with disabilities face many challenges in learning and assistive technology can be a potential aid for compensating for their educational needs. The purpose of this research was to gather information about assistive technology knowledge and skills among teachers. Data were collected from 127 participants via a self-reporting questionnaire. Interviews were also used with three participants to gather data of greater breadth and depth to the analysis of the data gathered from the survey. Results suggested that teachers do not have adequate level of knowledge and

skills of using assistive technology. Teachers, then, should have pre-service and in-service training to increase their overall knowledge of implementing assistive technology and using universal design for learning for students with disabilities. [32]

This study examined teachers' attitude and competence in the use of assistive technologies in special needs schools. The descriptive survey method was employed for the study among 100 teachers who were drawn using purposive sampling technique from special needs schools in Osun State, Nigeria. Six research questions were generated while four hypotheses were tested at 0.05 level of significance. A researcher-constructed questionnaire tagged "Teachers' Attitude and Competence in the Use of Assistive Technology Questionnaire (TACUATQ)" was used for data collection. Data were analyzed with percentage, mean and rank order, t-test and ANOVA statistical tools. The findings revealed that teachers have a positive attitude towards the use of assistive technologies. However, teachers were not competent in the use of assistive technologies. Gender and teaching experience did not influence teachers' attitude and competence in the use of assistive technologies. It was recommended among other things that teachers should be trained and re-trained on the use of assistive technology for students with speech disorders, visual impairments, hearing impairments, physical impairments and emotional and behavioral disorders. [33]

A quasi-experimental study was carried out to investigate the effectiveness of an educational intervention on improving teachers' knowledge and attitudes toward the use of assistive technology devices. A quasi-experimental research design was applied with 68 purposive samples of teachers selected conveniently from four settings located at Jeddah, Saudi Arabia. Three tools were used including

participants' demographic and personal data, knowledge scale and attitudes questionnaire. Results: A highly significant difference was reported between pre and post-test among studied teachers according to their total knowledge in pre-assessment (66.1 ± 11.4) compared with (72.9 ± 12.0) in post-test and attitude in pre (77.9 ± 11.2) compared with post total score (86.4 ± 11.2) at p-value < .05. to conclude, the program is effective in developing the knowledge and attitudes of the participants with a highly statistically significant difference between the pre and post interventions. Therefore, a well-planned and structured educational program should be undertaken to improve the level of awareness of special education teachers [34]

Mixed-method research was done on the teachers' use of assistive technology in Saudi special education schools with the aim to examine assistive technology (AT) use, elements teachers take into consideration when selecting AT, and barriers from the standpoint of teachers of students with severe intellectual and developmental disabilities. To answer the research questions, the researcher employed a sequential explanatory mixed-methods design. A self-administered online survey and interviews were conducted to collect data. A total of 92 special education teachers from four special education institutes were surveyed, and five teachers were interviewed to provide interpretations for the analyzed quantitative data. The results demonstrated there were cultural factors that could influence AT use with students. The findings also revealed there was a lack of AT use, with teachers reporting higher use of low-tech than mid-tech and high-tech. The most reported barriers were lack of AT devices and lack of training. The results also revealed there were statistical differences in AT use between the four special education institutes and between teachers with previous AT training. Four major

themes and several sub-themes emerged from the interviews. The themes were (a) AT use, (b) considerations, (c) barriers, and (d) professional development. These themes made it possible to interpret and elaborate on the quantitative data. The findings suggest the necessity of professional development for teachers, an increase in financial support, and provision of appropriate curriculum for successfully using AT in classrooms. [35]

The study was done to examine the challenges and availability of assistive technologies for visually impaired English language teachers. This study purposively selected seven visually impaired English teachers from five selected secondary and comprehensive schools in Wolaita zone. Interview was used to generate qualitative data for the study. Data were analyzed according to theme that emerged from the data but guided by main research objectives. The findings revealed that the lack of insufficient knowledge, time, communication channels and availability of assistive technology limited the visually impaired teachers' ability to fully engage in practical activities and slowed the adoption process. [36]

This research study was done to investigate Indian mainstream secondary school teachers' awareness and attitude toward assistive technology (AT) and its implementation level in an inclusive setting. The study followed a descriptive survey method within the cross-sectional research design, and the selected approach consisted of a mixture of quantitative (e.g. questionnaire surveys) and qualitative (e.g. interviews) methods. A survey was distributed among 150 teachers from 15 secondary schools following the stratified random sampling technique. Collected data were analyzed descriptively and inferentially. The findings revealed that teachers' awareness of AT was not up to the satisfactory level yet they showed an overall positive attitude toward it. Regarding teachers'

knowledge, professional support or institutional support, almost everywhere the inadequacy was obvious. These schools were running with a poor resource pool of assistive products along with a squat implementation level. Hence special needs students did not get required supports from schools as they deserved which had been hampering the overall inclusive atmosphere. Lack of suitable policies, adequate awareness and financial limitations were evolved as major barriers in the implementation of AT in these schools. Further, statistical analysis revealed a surprising output that male teachers showed slightly higher awareness level regarding AT than their female counterparts but in respect of attitude they were found overpowered by the females. Teachers of urban schools also exhibited slightly better awareness and attitude toward AT than those of rural schools. The survey can also serve as a source for academic planners in the country by getting information on the current state of resources, both human and material, and thus by making suitable measures for optimum use of available resources. [37]

CHAPTER-IV

CHAPTER-IV

RESEARCH METHODOLOGY

4.1. INTRODUCTION:

This chapter describes the methodology formulated for the problem selected, "A descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected schools at Kolar". This phase of study includes research approach, research design, variables, setting, population, sample, sample size, sampling technique, data collection, procedures and plan for data analysis.

4.2: RESEARCH APPROAC

A quantitative descriptive survey research approach is considered appropriate for the present study.

4.3: RESEARCH DESIGN

Research design selected for the present study is non-experimental descriptive survey research design

4.4: VARIABLES UNDER STUDY

Study variable: Assessment of knowledge of school teachers regarding assistive technology for children with learning disabilities.

Attribute variables: In this study, it refers to the characteristics of school teachers like, age, gender, qualification, place of residence, marital status, years of

experience, monthly income, any workshop or confidence attended on assistive technology.

4.5: SETTING OF THE STUDY

This study was conducted in selected schools at Kolar like Sri Venkateshwara Vidyalaya Goweripet, Kolar, Government Urdu Higher Primary Boys Middle School, Kolar, Chinmaya Vidyalaya, Nursery/Primary/Highschool, Kolar, Ravi International School, Goweripet Kolar. Oxford high school, old post office road, Kolar, G.U.Main Lower primary school, Darvesh mohalla, Kolar, Suvarna central school, Cottenpet, Kolar These schools were selected based on the approval of the permission from the concerned school authorities.

4.6: POPULATION:

All the school teachers working in selected schools at Kolar.

4.7: SAMPLE AND SAMPLE SIZE:

The sample of the study consist of 120 school teachers teaching in selected schools at Kolar who fulfills the inclusion criteria.

4.8: SAMPLING TECHNIQUE:

Sampling technique for the study is Non-Probability Convenient Sampling Technique.

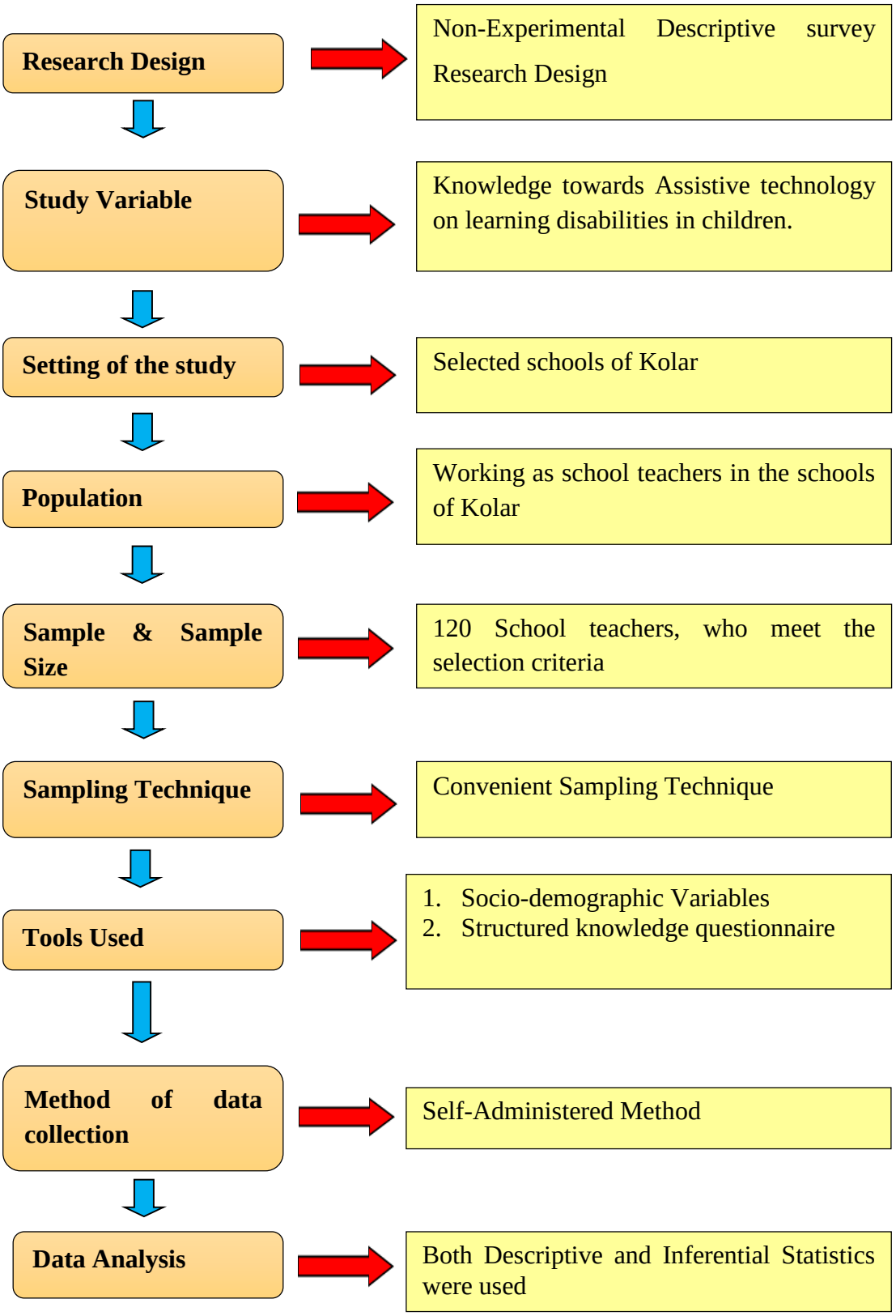


Fig1: -SCHEMATIC REPRESENTATION OF STUDY DESIGN

4.9: SAMPLING CRITERIA:

4.9.1: Inclusion Criteria

- School teachers who are willing to participate in the study and handling class from Pre-kg to 7th standard.
- School teachers who will be available during the data collection period.

4.9.2: Exclusion Criteria

- School teachers of high school are excluded
- School teachers who are reluctant to participate in this study

4.10: DATA COLLECTION TOOL:

It consists of two sections: -

Section A: -Socio-demographic profile:

It includes questions regarding the personal details of the school teachers such as age, gender, place of residence, years of experience, monthly income, any workshop or conference attended on assistive technology.

Section B: Standard knowledge questionnaire on Assistive technology for children with learning disabilities:

It includes multiple choice questions of approximately 30 items on the knowledge regarding assistive technology used in children with learning disabilities.

Score interpretation:

The score was prepared for section A by coding the Socio-demographic variables.

For section B, if the score is <50%, it is interpretated as inadequate knowledge, if the score is 51%-75%, it is interpretated as moderately adequate knowledge, and if the score is >75%, it is stated as adequate knowledge.

4.11: METHODS OF DATA COLLECTION:

Step 1: Group members collected the data after getting formal permission from Institutional Ethics Committee (IEC) of SDUCON.

Step 2: Formal official permission from the concerned school authority was obtained.

Step 3: School teachers were selected by using Non-Probability Convenient Sampling technique according to sample size who fulfills the selection criteria.

Step 4: The purpose of the study was explained to the school teachers and written informed consent was obtained from the study subjects.

Step 5: The data was collected with the help of structured knowledge questionnaire on assistive technology for children with learning disabilities through self-administered method until the desired the sample is achieved.

4.12. PLAN FOR DATA ANALYSIS:

Data was analyzed by using descriptive and inferential statistics.

- Frequency and percentage distribution for socio demographic variables and Assessment of knowledge regarding Assistive technology among school teachers as well as mean and standard deviation.
- Chi-square (X^2-test) was used for association between the level of knowledge and selected socio- demographic variables of school teachers.

CHAPTER-V

DATA ANLYSIS AND INTERPRETATION

CHAPTER-V

RESULTS

Data analysis and interpretation:

This chapter deals with the interpretation and the analysis of data collected from 120 school teachers of Sri Venkateshwara Vidyalaya Goweripet, Kolar, Government Urdu Higher Primary Boys Middle School, Kolar, Chinmaya Vidyalaya, Nursery/Primary/Highschool, Kolar, Ravi International School, Goweripet Kolar. Oxford high school, old post office road, Kolar, G.U.Main Lower primary school, Darvesh Mohalla, Kolar, Suvarna central school, Cottenpet, Kolar The data was collected from 120 school teachers were analysed according to the plan for data analysis, which includes descriptive and inferential statistics. The findings have been organized and presented under the following headings:

Section A: Distribution of socio-demographic variables of school teachers.

Section B: Distribution of level of knowledge on assistive technology among school teachers.

Section C: Overall mean, mean percentage and standard deviation of knowledge scores regarding assistive technology for children with learning disabilities.

Section D: Association between the level of knowledge and selected socio-demographic variables of school teachers.

SECTION A: Distribution of Socio-Demographic Variables of School Teachers.

Table1: Frequency and percentage distribution of socio-demographic variables of school teachers. N=100

Sl. No.	Socio-demographic variables	Frequency (f)	Percentage (%)
1.	**Age (in years)**	-	-
	a) <20	28	23.3%
	b) 21-30	53	44.2%
	c) 31-40	39	32.5%
	d) 41-50		
2.	**Gender**	15	12.5%
	a) Male	105	87.5%
	b) Female		
3.	**Religion**		
	a) Hindu	82	68.3%
	b) Muslim	26	21.7%
	c) Christian	12	10.0%
	d)Any others	-	-
4.	**Educational Status**		
	a) Diploma	23	19.2%
	b) B.Sc./B. Ed (UG)	40	33.3%
	c) M.Sc./M. Ed(PG)	21	17.5%
	d) Any other	36	30.0%
5.	**Place of Residence**		
	a) Urban	92	76.7%
	b) Rural	28	23.3%

6.	**Marital status** a) Unmarried b) Married c) Widows d) Divorced	 16 101 03 -	 13.3% 84.2% 02.5% -
7.	**Monthly Income in (Rs)** a) <20,000 b) 20,000-30,000 c) 30,000-40,000 d) >40,000	 62 41 14 03	 51.7% 34.2% 11.7% 02.5%
8.	**Type of school working** a) Government b) Private c) Aided	05 108 07	04.2% 90.0% 05.8%
9.	**Total year of experience of school teachers** a) <1 year b) 1-5 years c) 6-10 years d) >10 years	07 25 45 43	05.8% 20.8% 37.5% 35.8%
10.	**Type of employment** a) Contract basis b) Probation c) Temporary	- 18 39 63	- 15.0% 32.5% 52.5%
11.	**Type of family** a) Nuclear b) Joint c) Extended	 80 40 -	 66.7% 33.3% -
12.	**During your service have you identified any child with learning disabilities**		

	a) Yes	79	65.8%
	b) No	41	34.2%
13.	**Do you have any exposure on assistive technology**		
	a) Yes	42	35.0%
	b) No	78	65.0%
14.	**Do you attend any training/workshops on management of children with learning disabilities.**		
	a) Yes	54	45.0%
	b) No	66	55.0%

Table1: Reveals the distribution of socio-demographic variables of school teachers. The maximum number of teachers 23.3% belongs to the age group of 21-30 years, 44.2% belongs to31-40years and 32.5% belongs to the age group of 41-50 years. Among the school teachers, 87.5% were female teachers and 12.5% were male teachers.

With regard to the religious status,68.3% were Hindu, 21.7% were Muslim, 10.0% were Christian. With respect to the educational status of teachers, 19.2% were Diploma in teachers training,33.3% were B.Sc./B.Ed. (UG),17.5% were in M.sc/M.Ed. (PG) and 30.0% were in other degree category with additional qualifications. With respect to place of residence, 76.7% were living in urban area and 23.3% were living in rural areas. The marital status of teachers 13.3% are un married, were 84.2% are married and 2.5% are divorced.

With regards to the monthly income 51.7% teachers having <20,000 of salary, were 34.2% teachers having 20,000-30,000 of salary, were 11.7% of teacher

having 30,000-40,000 of salary and 2.5% of teachers were having >40,000 of monthly individual salary.

According to the type of school working 4.2% of teachers are from government schools, 90% of teachers are from private schools and 5.8% of teachers are working in aided schools. In terms of Total year of working experience of school teachers 5.8% of teachers having experience <1 year, 20.8% of teachers having experience 1-5 years, 37.5% of teachers having experience 6-10 years and 35.8% of teachers having experience >10 years.

With regard to type of employment 15.0% of teachers working under probation period, 32.5% of teachers were working on temporary basis and 52.5% of teachers working as permanent employee. According to type of family 66.7% of teachers from nuclear family,33.3% of teachers are from joint family.

With respect to the data, during your service have you identified any child with learning disabilities 65.8% of school teachers responded “Yes” whereas 34.2% of the had said “No”. According to the question do you have any exposure on assistive technology 35.0% of teachers had responded “Yes” where as 65.0% of them reported “No”. On the variable that whether the teachers have attended any training/workshops on management of children with learning disabilities 45.0% of the teachers had attended some training programs on learning disabilities and its related whereas the remaining 55.0% of the teachers did not have undergone any training sessions.

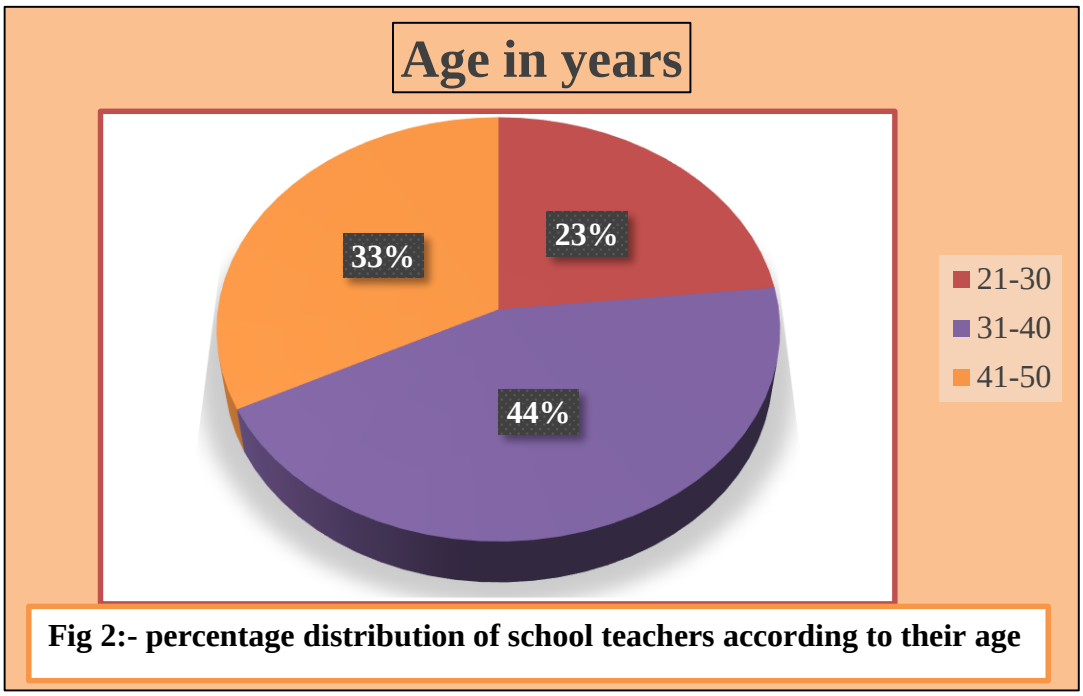


Fig 2:- percentage distribution of school teachers according to their age

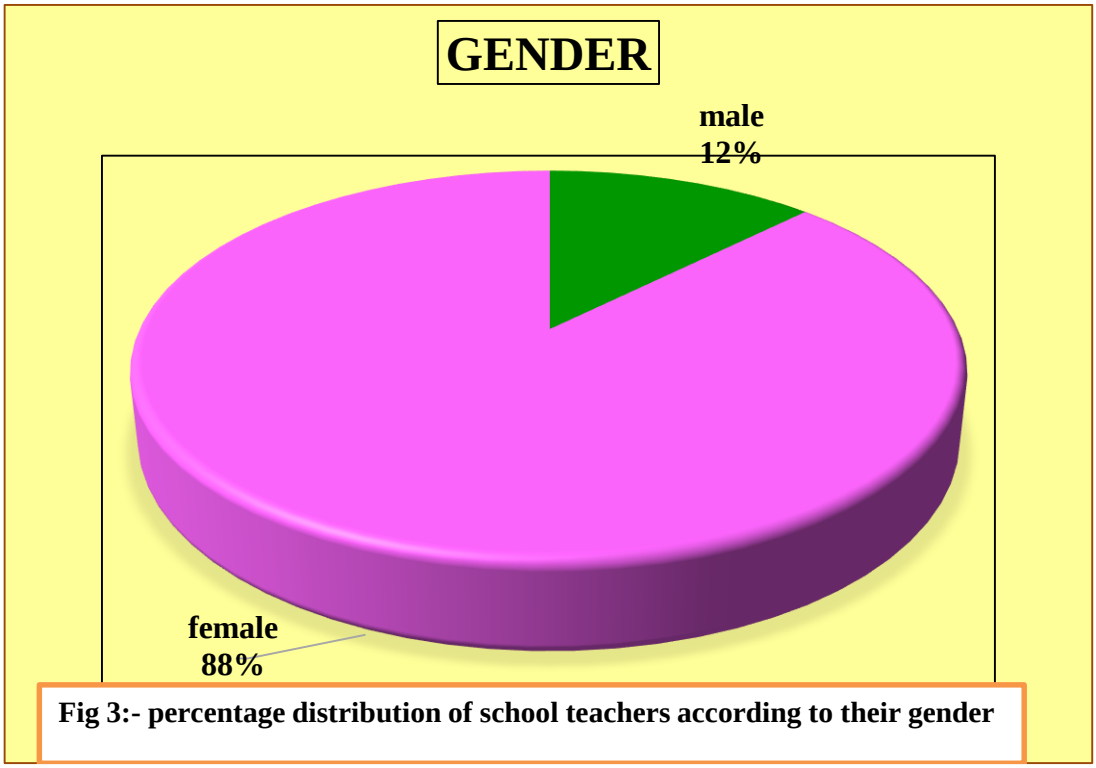


Fig 3:- percentage distribution of school teachers according to their gender

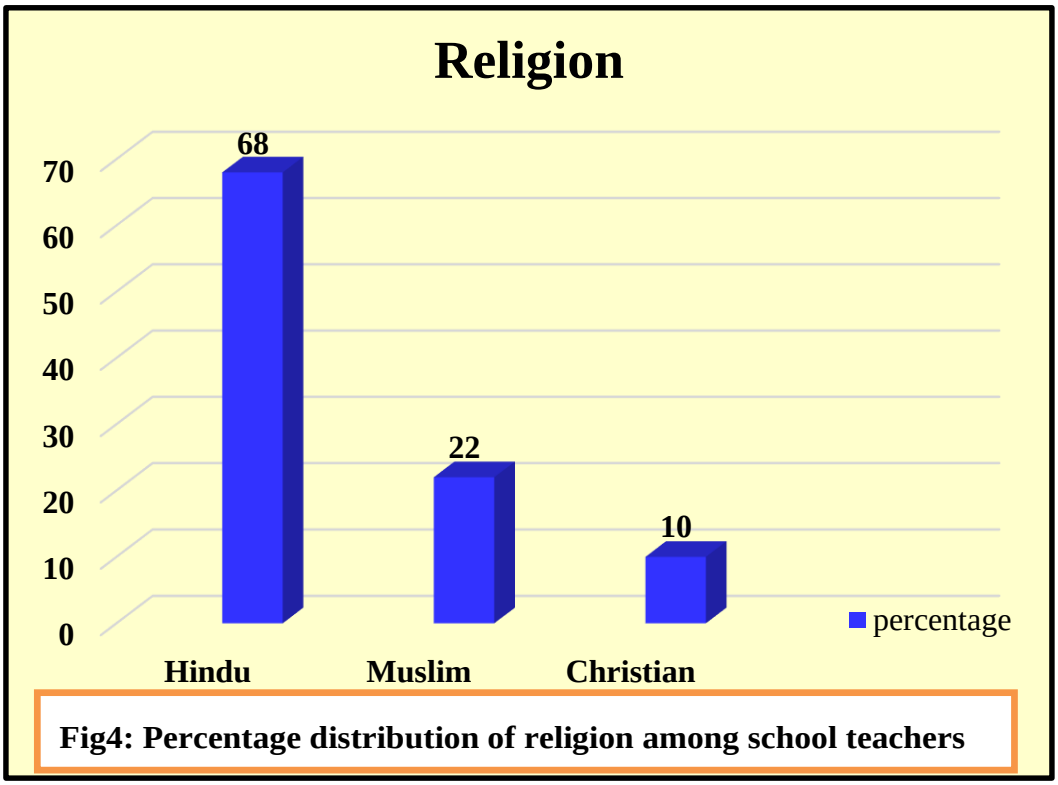


Fig4: Percentage distribution of religion among school teachers

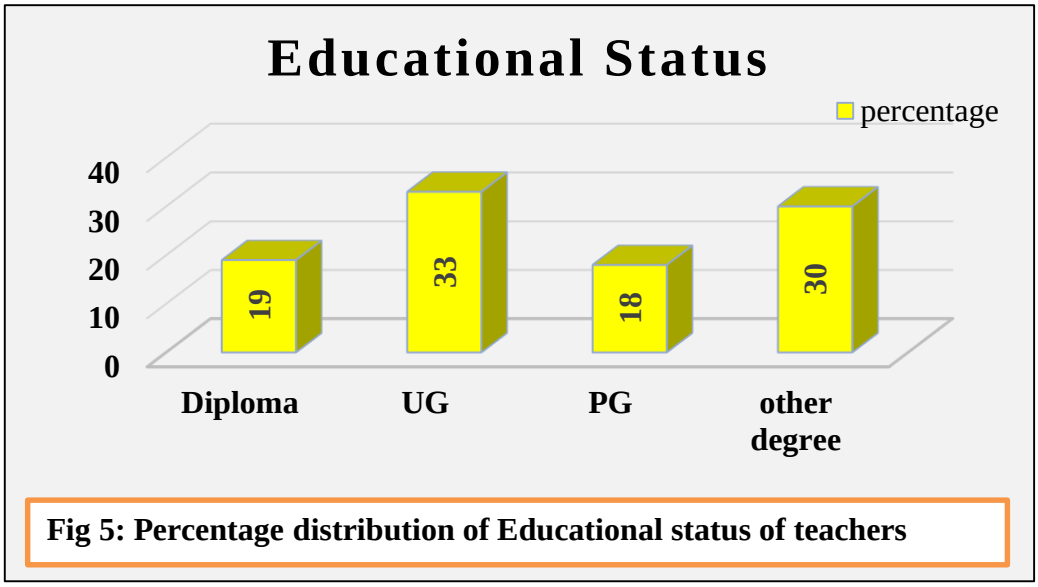


Fig 5: Percentage distribution of Educational status of teachers

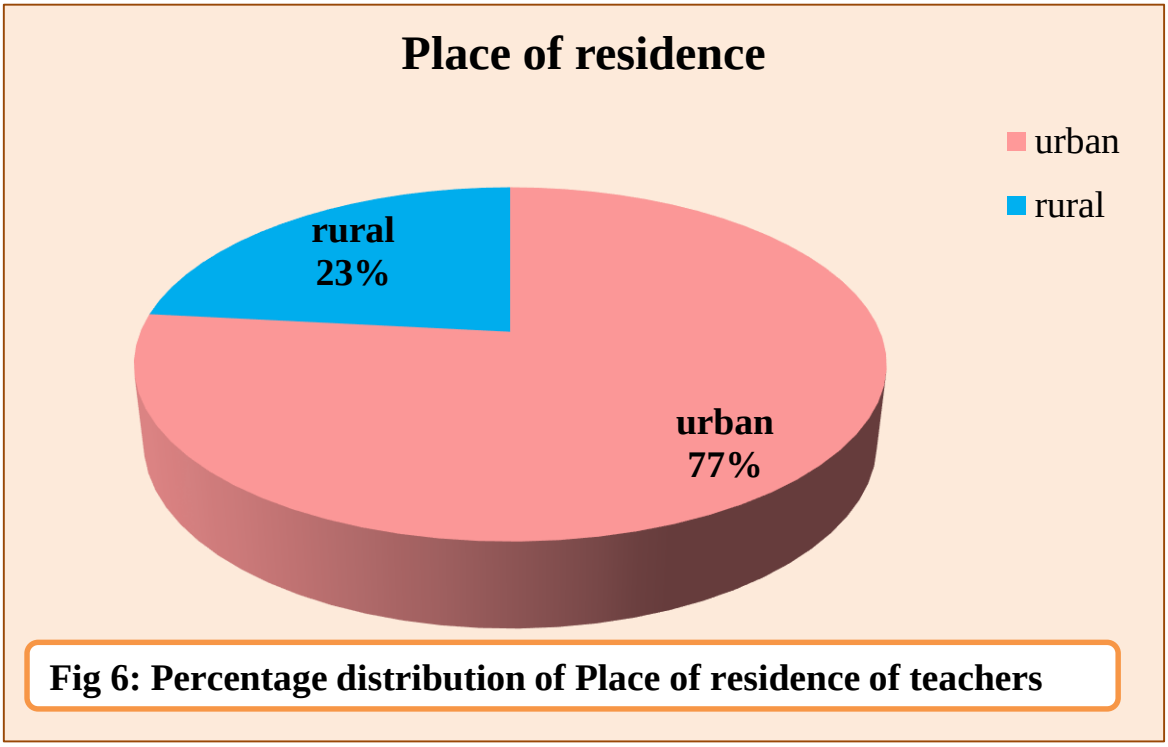


Fig 6: Percentage distribution of Place of residence of teachers

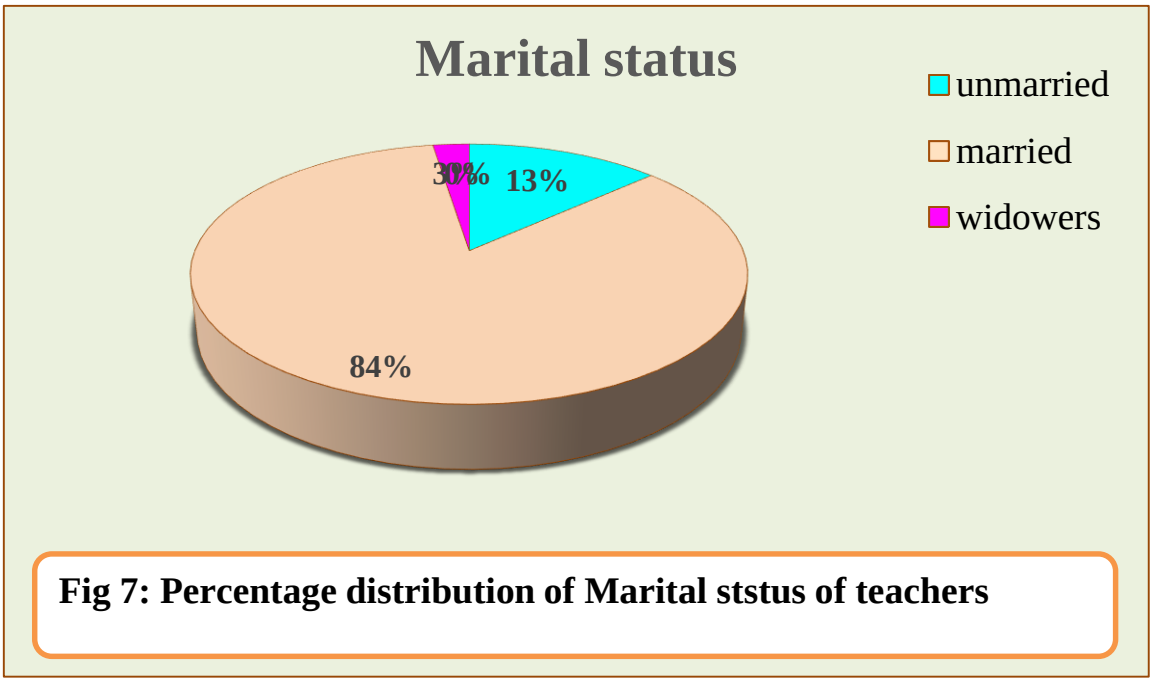


Fig 7: Percentage distribution of Marital ststus of teachers

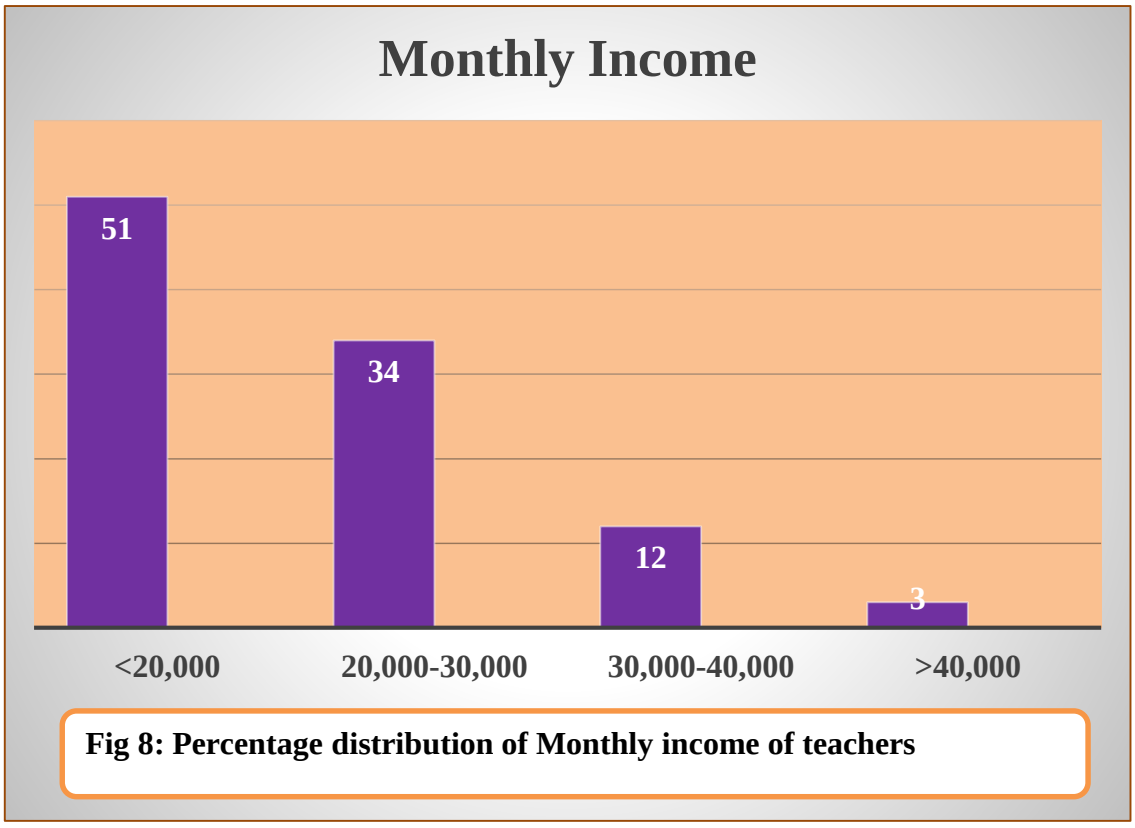


Fig 8: Percentage distribution of Monthly income of teachers

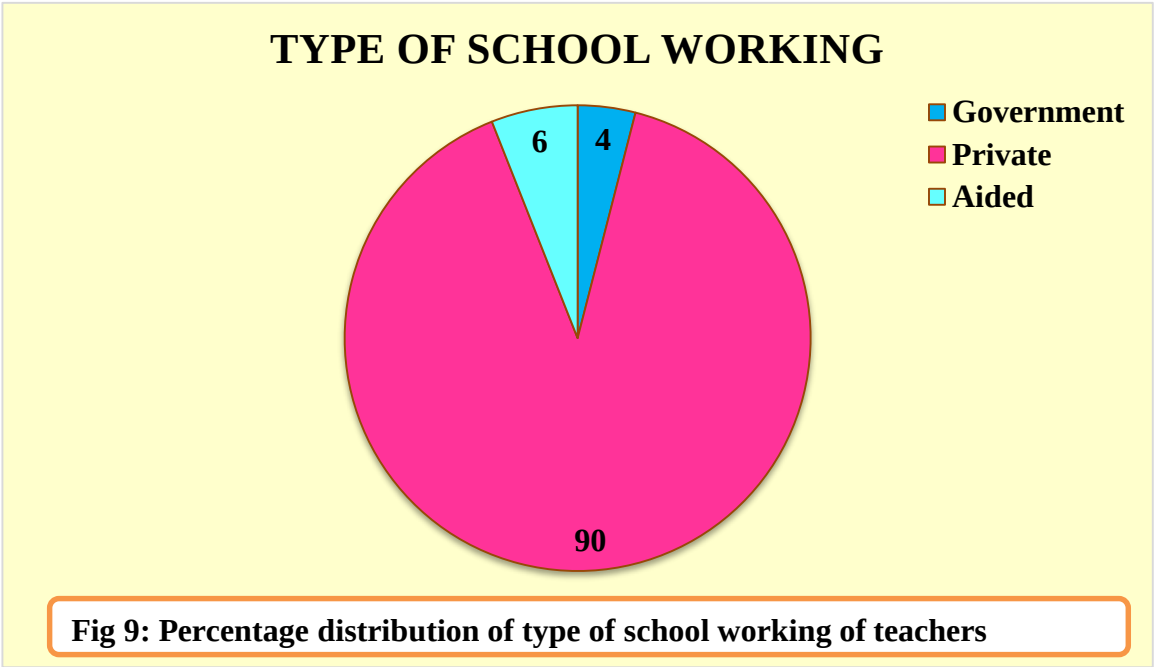


Fig 9: Percentage distribution of type of school working of teachers

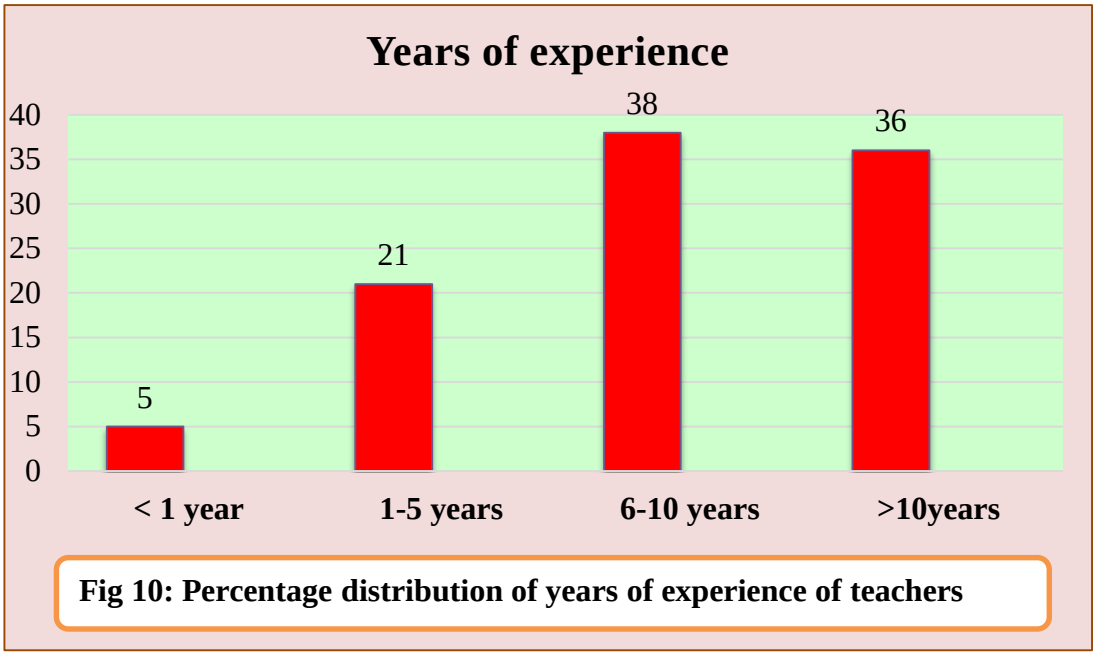


Fig 10: Percentage distribution of years of experience of teachers

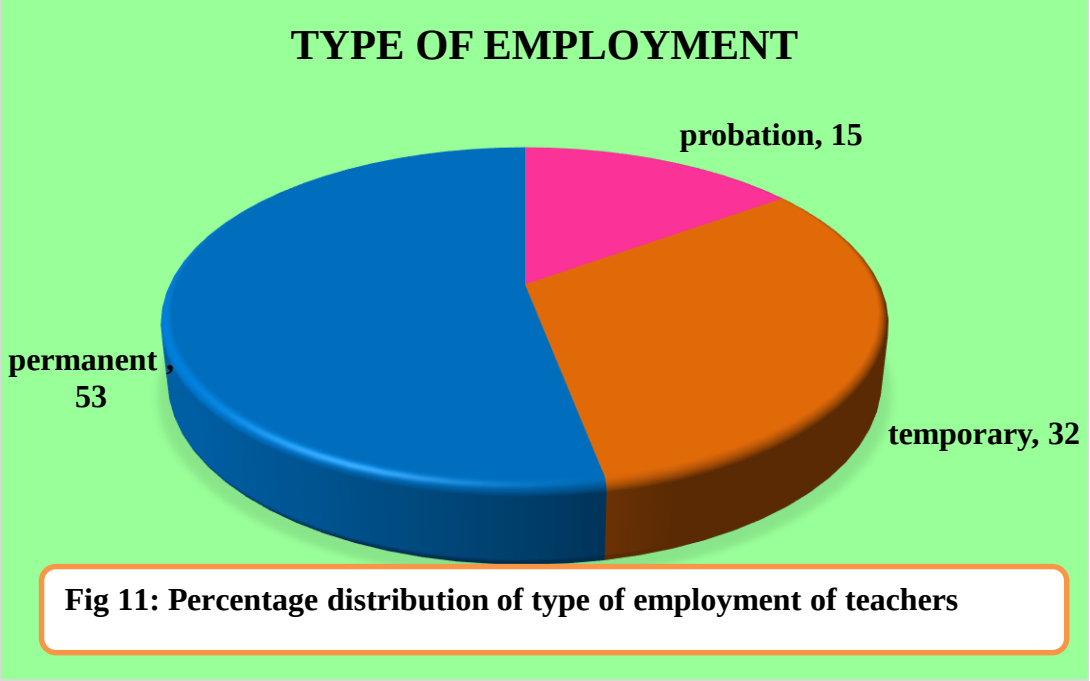


Fig 11: Percentage distribution of type of employment of teachers

SECTION: B Distribution of level of knowledge on assistive technology among schoolteachers.

Table 2: Frequency and Percentage Distribution of Level of Knowledge on Assistive Technology among School Teachers N=120

Sl.No.	Level of knowledge	Frequency(f)	Percentage (%)
1.	Inadequate knowledge (0-50%)	43	35.8%
2.	Moderate, adequate knowledge (51-75%)	69	57.5%
3.	Adequate knowledge (76-100%)	08	6.7%

Table 2: describes about the frequency and percentage distribution of level of knowledge on assistive technology among school teachers which states that 43(35.8%) had inadequate knowledge, 69(57.5%) had moderately adequate knowledge whereas only 08(6.7%) of teachers had adequate knowledge about assistive technology on children with learning disabilities.

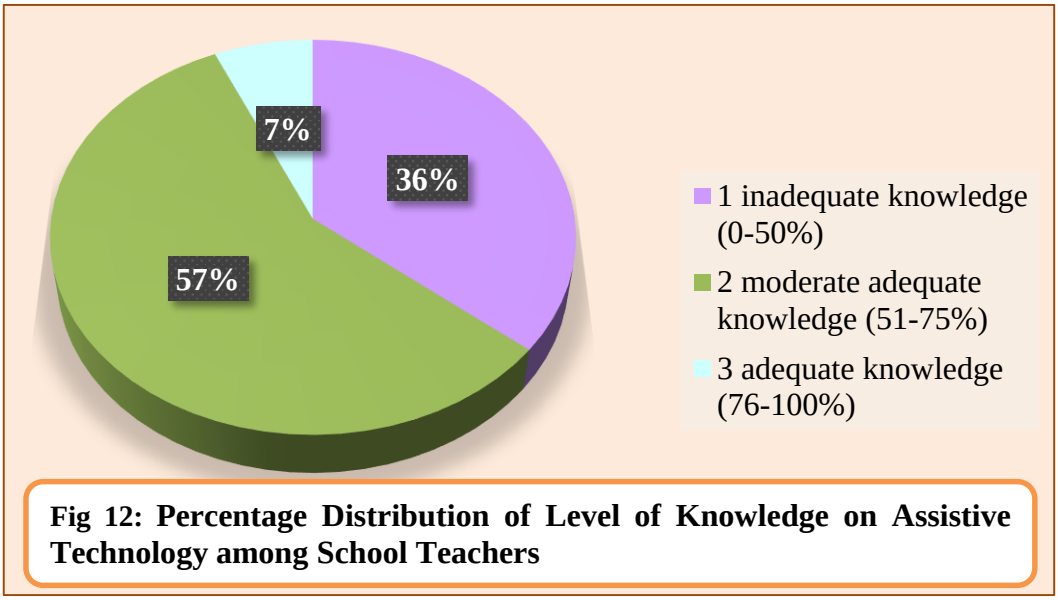


Fig 12: Percentage Distribution of Level of Knowledge on Assistive Technology among School Teachers

Table 3:-Overall mean, mean percentage and standard deviation of knowledge scores regarding assistive technology for children with learning disability. N=120

Study Variable	Statement	Max. score	Min. score	Overall mean score	Overall mean percentage	Overall standard deviation	SE
Knowledge scores regarding assistive technology for children with learning disabilities among schoolteachers.	20	17	03	11.27	56.3	3.01	0.274

Table 3: Discusses about the overall mean score was 11.27 with standard deviation of 3.01 and overall mean percentage was 56.3, which also states that the maximum score obtained was 17 and the minimum score was 03 respectively with the knowledge scores regarding assistive technology for children with learning disabilities among schoolteachers.

Table 4: Association between the level of knowledge and selected socio-demographic variables of school teachers. N=120

Sl.No	Socio-demographic variables	Level of knowledge			Chi-square value (x^2)/ df/ Significance
		IAK	MAK	AK	
1.	Age in years a) 21- 30 b) 31-40 c) 41-50	11 20 12	16 27 26	01 06 01	4.502 df=4 **(NS)**
2.	Gender a) Male b) Female	03 40	12 57	0 08	4.046 df=2 **(NS)**
3.	Religion a) Hindu b) Muslim c) Christian	30 09 04	45 17 7	07 0 01	2.369 df =4 **(NS)**
4.	Education status a) Diploma b)B Sc / B . E d . c) MSc /M.Ed. d) Any others	10 12 04 17	13 26 13 17	0 02 04 02	11.432 df = 6 **(NS)**
5	Place of residence a) Urban b) Rural	32 11	52 17	08 0	3.347 df = 2 **(NS)**
6	Marital status a) Unmarried b) Married c)widower	08 33 02	08 60 01	0 08 0	4.758 df=4 **(NS)**

7	Monthly income a) <20,000 b) 20,000-30,000 c) 30,000-40,000 d) 40,000	 29 09 05 0	 31 27 08 03	 02 05 01 0	10.584 df=6 **(NS)**
8	Type of school a) Government b) Private c)Aided	 01 40 02	 04 60 05	 0 08 0	2.564 df=4 **(NS)**
9	Total years of experience a) <1 years b) 1-5 years c) 6-10 years d) >10 years	 04 09 13 17	 03 15 27 24	 0 01 05 24	4.344 df= 6 **(NS)**
10	Type of employment a) Probation b) Temporary c) Permanent	 04 18 21	 14 20 35	 0 01 07	8.079 df =4 **(NS)**
11	Type of family a) Nuclear b) Joint	 31 12	 42 27	 07 01	3.063 df= 2 **(NS)**
12	Identification of child with LD a) Yes b) No	 23 20	 49 20	 07 01	5.407 df=2 **(NS)**
13	Experience on use of Assistive Technology a) yes	 12 31	 24 45	 06 02	6.579 df=2 **(S)**

	b) No				
14	Attended any training a) Yes b) No	 12 31	 36 33	 06 02	9.420 df = 2 **(S)**

df = Degree of freedom, NS = Not significant, S = Significant

Table 5: describes the association between the level of knowledge and selected socio-demographic variables of school teachers which states that the calculated Chi-square value of Experience on Assistive Technology, attended any training is found to be statistically significant at $P < 0.05$, whereas the other socio-demographic variables were not found to be statistically significant at $P< 0.05$. Since the calculated value was less than the table value for their respective degree of freedom.

CHAPTER-VI

CHAPTER-VI

DISCUSSION

This chapter deals with major finding of the study and discusses them in relation to similar studies conducted by the other researcher. The aim of the study was to assess the knowledge about the assistive technology for children with learning disabilities among schoolteachers. in Sri Venkateshwara Vidyalaya Goweripet, Kolar, Government Urdu Higher Primary Boys Middle School, Kolar, Chinmaya Vidyalaya, Nursery/Primary/Highschool, Kolar, Ravi International School, Goweripet Kolar. Oxford high school, old post office road, Kolar, G.U.Main Lower primary school, Darvesh mohalla, Kolar, Suvarna central school, Cottenpet, Kolar with a view to assess the knowledge on assistive technology for children with learning disabilities among school teachers. Data collection and analysis was carried out based on the objectives of the study.

OBJECTIVES OF THE STUDY

1. To assess the level of knowledge on Assistive technology for children with Learning Disabilities among school teachers by using Structured Knowledge Questionnaire (SKQ).
2. To find out association between the level of knowledge with selected socio-demographic variables of school teachers.

The first objective of the study was to assess the level of knowledge on Assistive technology for children with Learning Disabilities among school teachers.

The findings of the study (Table 2) revealed that majority regarding level of knowledge on assistive technology, 43(35.8%) of the teachers had inadequate level of knowledge, 69(57.5%) of them had moderately adequate knowledge, whereas only 08(06.7%) of them had adequate knowledge on assistive technology with learning disabilities. The overall mean was 11.27 with standard deviation of 3.1 and the mean percentage was 56.3%, which also states that the maximum score obtained was 17 and minimum score was 03 respectively.

Special education has received much attention worldwide in recent years, and moves in the Kingdom of Saudi Arabia are underway to create greater access to free and proper education for students with disabilities. To support this type of education, AT plays an essential role in enhancing the educational process of students. This study investigated the perceptions of teachers of special education with reference to their knowledge, competencies, and professional development in using AT to teach students with disabilities. **Alsolami, A. S. (2022) conducted a** to quantitatively investigate special education teachers' use of Assistive Technology (AT) in special education through a questionnaire distributed to special education teachers in the Jeddah School District. In all, 64 questionnaires were included in data analysis, which found that teachers have a moderate level of AT knowledge and skills and a moderate knowledge of AT concepts and terms, and felt moderately confident about identifying a variety of AT devices. Moreover, 90% of respondents are strongly interested in receiving more training on AT, preferably through one-on one individualized instruction and attendance at workshops or conferences. Thus, the study recommends AT training as having special importance in preparing a conducive educational environment for students with disabilities, for as the professional development of teachers' competency has

a significant influence on teaching students with disabilities, this would better enable teachers to integrate AT into the school curriculum. [38]

The second objective of the study was to find out the association between the level of knowledge with selected socio- demographic variables of school teachers. The findings of the study (Table 4) The association between the level of knowledge on assistive technology and selected socio demographic variables of school teachers which states that the calculated chi square value is less than the table value at $P<0.05$ for almost all the variables except any experience of teachers towards assistive technology and on attending any workshop on assistive technology, hence there is no statistically significant association between the selected socio-demographic variables with the level of knowledge scores.

A similar study was conducted on Teachers' Knowledge and Use of Assistive Technology for Students with Special Educational Needs by Alkahtani, Keetam. (2013) states that Students with disabilities face many challenges in learning and assistive technology can be a potential aid for compensating for their educational needs. With The purpose of gathering information about assistive technology knowledge and skills among teachers, Results indicated that the vast majority of responding teachers 93.7% (n=119) do not use or request assistive technology evaluation for their student. Nearly 94% (n=119) of the participants had not considered assistive technology when planning student's IEP. Ninety-one and three-tenths percent (n=116) of the participants reported that assistive technology was not available to be used in their schools. Approximately nine percent (n=11) of the participants reported the availability of low-tech devices, while 7.1% (n=9) reported the availability of

mid-tech devices, and only 3.9% (n=5) reported the availability of high-tech devices in their schools. The findings also stated that teachers do not have adequate level of knowledge and skills of using assistive technology. Thus, the Teachers should have pre-service and in-service training to increase their overall knowledge of implementing assistive technology and using universal design for learning for students with disabilities. [39]

CHAPTER-VII

CHAPTER–VII

SUMMARY

The aim of the study was to assess the knowledge about the assistive technology for children with learning disabilities among school teachers. in Sri Venkateshwara Vidyalaya Goweripet, Kolar, Government Urdu Higher Primary Boys Middle School, Kolar, Chinmaya Vidyalaya, Nursery/Primary/Highschool, Kolar, Ravi International School, Goweripet Kolar. Oxford high school, old post office road, Kolar, G.U.Main Lower primary school, Darvesh mohalla, Kolar, Suvarna central school, Cottenpet, Kolar, with a view to assess the knowledge about the assistive technology for children with learning disabilities among school teachers.. Data collection and analysis were carried out based on the objectives of the study.

OBJECTIVES OF THE STUDY

1. To assess the level of knowledge on Assistive technology for children with Learning Disabilities among school teachers by using Structured Knowledge Questionnaire (SKQ).

2. To find out association between the level of knowledge with selected socio-demographic variables of school teachers.

The data collected from 120 school teachers in Field Suvarna Central School at Kolar, GU Main LPS School at kolar, Oxford High School at Kolar, Ravi International School at Kolar,Chinnmaya Vidyalaya at Kolar, Government Urdu Higher Primary Old Middle School at Kolar, Sri Venkateshwara Vidyalaya at Kolar,based on inclusion and exclusion criteria, by using a tool, which was validated by 6 nursing experts it was found to be feasible for the study. The tool includes two sections:

Section A: Socio-demographic profile:

It includes questions regarding the personal details of the school teachers such as age, gender, place of residence, years of experience, monthly income, any workshop or confidence attended on assistive technology.

Section B: Structured knowledge questionnaire on Assistive technology for children with learning disabilities.

It includes multiple choice questions of approximately 20 items on the knowledge regarding assistive technology used in children with learning disabilities.

MAJOR FINDINGS OF THE STUDY

A sample of 120 schoolteachers were analyzed for the data collection, the following were the inclusive features of the findings: -

- Distribution of socio-demographic variables of school teachers. The maximum number of teachers 23.3% belongs to the age group of 21-30 years, 44.2% belongs to31-40years and 32.5% belongs to the age group of 41-50 years.
- Among the school teachers, 87.5% were female teachers and 12.5% were male teachers.
- With regard to the religious status,68.3% were Hindu, 21.7% were Muslim, 10.0% were Christian.
- With respect to the educational status of teachers, 19.2% were Diploma in teachers training,33.3% were B.Sc./B.Ed. (UG),17.5% were in M.sc/M.Ed.

(PG) and 30.0% were in other degree category with additional qualifications.

- With respect to place of residence, 76.7% were living in urban area and 23.3% were living in rural areas.
- The marital status of teachers 13.3% are un married, were 84.2% are married and 2.5% are divorced.
- With regards to the monthly income 51.7% teachers having <20,000 of salary, were 34.2% teachers having 20,000-30,000 of salary, were 11.7% of teacher having 30,000-40,000 of salary and 2.5% of teachers were having >40,000 of monthly individual salary.
- According to the type of school working 4.2% of teachers are from government schools, 90% of teachers are from private schools and 5.8% of teachers are working in aided schools.
- In terms of Total year of working experience of school teachers 5.8% of teachers having experience <1 year, 20.8% of teachers having experience 1-5 years, 37.5% of teachers having experience 6-10 years and 35.8% of teachers having experience >10 years.
- With regard to type of employment 15.0% of teachers working under probation period, 32.5% of teachers were working on temporary basis and 52.5% of teachers working as permanent employee.
- According to type of family 66.7% of teachers from nuclear family,33.3% of teachers are from joint family.
- With respect to the data, during your service have you identified any child with learning disabilities 65.8% of school teachers responded “Yes” whereas 34.2% of the had said “No”.

- According to the question do you have any exposure on assistive technology 35.0% of teachers had responded “Yes” where as 65.0% of them reported “No”.
- On the variable that whether the teachers have attended any training/workshops on management of children with learning disabilities 45.0% of the teachers had attended some training programs on learning disabilities and its related whereas the remaining 55.0% of the teachers did not have undergone any training sessions.
- Regarding level of knowledge on assistive technology, 43(35.8%) of the teachers had inadequate level of knowledge, majority of them 69(57.5%) of them had moderately adequate knowledge, whereas only 08(06.7%) of them had adequate knowledge on assistive technology with learning disabilities.
- The overall mean was 11.27 with standard deviation of 3.1 and the mean percentage was 56.3%, which also states that the maximum score obtained was 17 and minimum score was 03 respectively.
- The association between the level of knowledge on assistive technology and selected socio demographic variables of school teachers which states that the calculated chi square value is less than the table value at $P<0.05$ for almost all the variables except any experience of teachers towards assistive technology and on attending any workshop on assistive technology, hence there is no statistically significant association between the selected socio-demographic variables with the level of knowledge scores.

CHAPTER-VIII

CHAPTER- VIII

CONCLUSION

The rapid advances in AT in education have many practical applications, allowing teachers to use technology to help their students learn and achieve the highest levels of education The study concluded that the, teachers were not competent in the use of assistive technologies for students with learning disabilities. Furthermore, the outcomes of this study will provide valuable information for schools to improve their learning programs by including various kinds of AT so that future teachers are better prepared.

Assessment of the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected schools at Kolar states that level of knowledge on assistive technology, 43(35.8%) of the teachers had inadequate level of knowledge, 69(57.5%) of them had moderately adequate knowledge, whereas only 08(06.7%) of them had adequate knowledge on assistive technology with learning disabilities. The overall mean was 11.27 with standard deviation of 3.1 and the mean percentage was 56.3%, which also states that the maximum score obtained was 17 and minimum score was 03 respectively.

The association between the level of knowledge on assistive technology and selected socio demographic variables of school teachers which states that the calculated chi square value is less than the table value at $P<0.05$ for almost all the variables except any experience of teachers towards assistive technology and on attending any workshop on assistive technology, hence there is no statistically

significant association between the selected socio-demographic variables with the level of knowledge scores.

The null hypothesis was not accepted as the association between the level of knowledge and selected socio-demographic variables of schoolteachers which states that the calculated Chi square value of any experience of teachers towards assistive technology and on the data attending any workshop on assistive technology is found to be statistically significant at $P<0.05$, whereas the other socio-demographic variables are found to be not statistically significant at $P < 0.05$ level of significance.

IMPLICATIONS:

Findings of the study have drawn implications in the area of Nursing Education, Nursing Practice, Nursing Administration and Nursing Research.

NURSING PRACTICE:

- As a clinician, the nurse has various functions and responsibilities in the promotion of child health with learning disabilities because they are at high risk of facing social, psychological, and academic challenges, especially in high education environments.
- Nurse clinician should periodically evaluate themselves by assessing their knowledge on assistive technology and its benefits.
- The knowledge assistive technology helps the clinical nurse to provide health education to the parents regarding the utilization of assistive technology aids for children with learning disabilities who visit the OPD as well as the special schools.

- Nurse practitioners can expand and extend their practice beyond the hospital and share their knowledge in community. In a school setting, the disability support staff ought to ensure AT needs are satisfied to improve the educational experience. Integrating AT in an educational setting will not only promote inclusion but also reduce stigma significantly, hence improving educational outcomes
- The application of assistive technology devices in special education will have a positive impact on the well-being and health of children with disabilities and their families in general.

NURSING EDUCATION:

- Integrating AT in an educational setting will not only promote inclusion but also reduce stigma significantly, hence improving educational outcomes.
- Using AT not only enable social participation but also academic engagement, hence transforming the entire learning process.
- In education, teachers now increasingly recognize diversity in the school environment and use AT to provide an excellent opportunity for all students to learn.

NURSING ADMINISTRATION:

The nurse as an administrator should,

- Need to prepare and train teachers to implement the strategy of AT successfully to teach students with disabilities effectively,
- Organize and conduct in-service education program regarding assistive technology under School health programme
- Provide opportunity for nursing students to attend the workshop and

conference or training programs regarding assistive technology and its uses on children with learning disabilities.

- Collaborate with the governing bodies in conducting programs regarding assistive technology and its uses, and this must be sponsored by an official authority of education.

NURSING RESEARCH

- Research provides nurses the credibility to influence the witnessing growth and maturation in the field of assistive technology (AT), fueled by increasing global awareness of the role of AT in facilitating access to rights of persons with learning disabilities.
- The nurse educators and administrator should encourage the nurses and schoolteachers as well as young scholars in adopting a new research framework, which identifies specific areas of research to inform the growth of a mature, evidence-informed field.
- It is responsibility for the future research scholars to keep pace with changes in the field, and address the need for evidence to inform AT products and practice, and the programs, systems, and policies which promote and govern access to AT. While AT users, practitioners and researchers understand intuitively, or through experience, that access to AT offers benefit to those who use it, we often lack key evidence to advocate for increased access to AT for all.

RECOMMENDATIONS:

- To help improve the standards and level of use and implementation of at in classrooms for students with learning disabilities.
- Teachers need to be trained and professionally refreshed more often to allow greater use of AT.

- The same study can be conducted among school-going students at various settings.
- Studies in the future ought to consider investigating AT training courses provided by educational colleges for special education teachers.
- Strong preparations of AT in the pre-service level can aid teachers to be more confident in their abilities to implement AT in classrooms**.**
- An information pamphlet can be prepared on utilizing the various assistive technology tools on children with learning disabilities and its effectiveness can be determined.
- The provision of AT and other modern educational means to teach students with disabilities has a special importance in teaching students; therefore, the government, community, and teachers of special education play a significant role in implementing AT strategies.
- Workshop can be conducted for the teachers and parents in order to create awareness towards uses of assistive technology.
- Teachers must be provided with adequate opportunities for professional development on the implementation and use of assistive technology.

LIMITATIONS:

- A weakness of the study was that the number of teachers who agreed to be part of the study which makes the findings less generalizable to the general population of teachers.
- The sample size consists only 120 schoolteachers who are working in selected Schools at Kolar, the generalization of the findings will be only applicable for the study population. Hence, the generalization is only possible to selected settings.

- The information is completely assessed from the schoolteacher’s self-report and the group members could not visit the special education institutes and recruit teachers.

CONCLUSION:

Teachers of students with LD must be flexible in their use of AT. To be effective in an inclusive classroom, all students need to access lessons and make effective and beneficial use of the AT. To develop a more effective that embraces all students, examining existing classroom adaptations and modifications is necessary. Children with LD can benefit from AT-based learning tools. Adopting this strategy may boost one's sense of self-worth and motivation, to name just a few benefits. There seems to be a deeper awareness of classroom technology within stakeholder involvement teams. It is the responsibility of team members to guarantee that existing technology can be adapted to these advancements and utilized efficiently to keep pace with children's rising abilities. A child's future is unpredictable, but assistive technology has many possibilities today and in future years. Therefore, the outcomes reveal the necessity of professional development for teachers, an increase in financial support, and provision of appropriate curriculum for successfully using AT in classrooms.

CHAPTER-IX

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CHAPTER-X

ANNEXURES

ANNEXURE-I

INSTITUTIONAL ETHICS COMMITTEE APPROVAL

	SRI DEVARAJ URS COLLEGE OF NURSING TAMAKA, KOLAR – 563 103.	Format No.	IEC 01
		Issue No.	02
	INSTITUTIONAL ETHICS COMMITTEE	Rev No.	01
		Date	01-09-2018

Review/ Meeting Minutes No of IEC 01 **Date: 28/07/2022**

The meeting of the IEC for the year **2021-2022** was held at SDUCON Council Hall on **28/07/2022** at 10.00 am onwards under the Chairmanship of **Dr. Prashanti N, Chairperson,** Institutional Ethics Committee. **Mrs. Gayathri K V, Member Secretary** welcomed committee members. Following members attended the meeting

Sl. No.	Name	Position	Signature
1	Dr. Prashanti N	Chair person	
2	Dr.Dayanand	Member	NOT PRESENT
3	Dr.Prabhakar K	Member	
4	Dr.Asha B	Member	
5	Mr.Ganesh	Member	
6	Achary Chinmayananda Avadutha	Member	
7	Mrs.Gayathri K V.	Member Secretary	

	SRI DEVARAJ URS COLLEGE OF NURSING TAMAKA, KOLAR – 563 103. INSTITUTIONAL ETHICS COMMITTEE	Format No.	IEC 01
		Issue No.	02
		Rev No.	01
		Date	01-09-2018

After the proceeding, the proposals listed were presented and was taken up for discussion. After deliberation the following decisions were arrived:

No. of proposal received 43.

No. of proposals approved 43.

No. of proposals approved and subjected to correction Nil

No. of proposals rejected Nil.

The recommendation made by the committee to each proposal is detailed below:

Sl. No	Topic	Batch	Project	Names	Guide	Remarks	Sign
84.	A descriptive study to assess the knowledge regarding assistive technology for children with learning disabilities among school teachers in selected schools at kolar.	B.Sc(N)	Mini project	Abigale Thomas Amrutha GN Ansu James Athulya CS Gayathri N Meghana V Rajeena Biju Sneha Benny Tessy Thomas Suresh (PBBSc) Arunamma (PBBSc)	Mr. R Rajesh	Ryfa minute copy. (KMC	

	SRI DEVARAJ URS COLLEGE OF NURSING TAMAKA, KOLAR – 563 103. INSTITUTIONAL ETHICS COMMITTEE	Format No.	IEC 01
		Issue No.	02
		Rev No.	01
		Date	01-09-2018

Ref.:No.SDUCON/IEC/ /2022 **Date:28/07/2022**

This is to certify that the Institutional Ethics committee of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has examined and unanimously the following projects of III Year Basic B.Sc Nursing and II year P.B.B.Sc, I Year M.Sc Nursing Students and Faculty projects for the academic year 2021-22

Number of projects B.Sc Nursing: 11
Number of projects M.Sc Nursing: 18
Number of Faculty Projects: 14

Sl. No	Name of the Topic	Guide	Investigators	Accepted/ Not accepted	Remarks
1.	A descriptive study to assess the knowledge regarding assistive technology for children with learning disabilities among school teachers in selected schools at kolar.	Mr. R Rajesh	Abigale Thomas Amrutha GN Ansu James Athulya CS Gayathri N Meghana V Rajeena Biju Sneha Benny Tessy Thomas Suresh (PBBSc) Arunamma (PBBSc)	Accepted	
2	"A Descriptive Study To Assess The Academic Stress And Self Efficacy In Relation To Study Habits Among Adolescents In Selected Pu Colleges, Kolar."	Mrs. Punitha M	Miss. Achangel Sebastian Miss. Amrutha S Miss. Anu Johnson Miss. Ayana Joseph Miss. Husna N Miss. Merin Lenin Mr. Rakesh M P Miss. Sneha Rajmohanan	Accepted	

	SRI DEVARAJ URS COLLEGE OF NURSING TAMAKA, KOLAR – 563 103. INSTITUTIONAL ETHICS COMMITTEE	Format No.	IEC 01
		Issue No.	02
		Rev No.	01
		Date	01-09-2018

Signature of the IEC Members

List of Projects. Approved by IEC members

Sl. No.	Name	Signature
1	Dr.Dayanand	
2	Dr.Prabhakar K	
3	Dr.Asha B	Asha B 28/7/2022
4	Mr.Ganesh	
5	Achary Chinmayananda Avadutha	

Member Secretary

Chairperson

ANNEXURE-II

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY

From,

1st Group of Research

3rd year B.Sc. Nursing

SDUCON, Tamaka, Kolar-563103

To,

Govt urdu Higher primary and middle School Kolar.

Forwarded Through:

The Principal,

SDUCON, Tamaka, Kolar-563103

Respected Madam /Sir,

Subject: Requesting permission to do data collection from school teachers for our research project.

We, the undersigned 3rd year B.Sc. (N) and PB B.Sc. (N) Students of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has selected the below mentioned topic for our research project as a partial fulfillment for B.Sc. (N) program.

Tittle of the Topic:

"A descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected school at Kolar."

With regarding to above, may we request you to grant permission to collect data from school teachers in your esteemed school and do the needful .Further we assure you that we will collect the data from the teachers without disturbing their academic activities, and the information collected from the teachers will be kept confidential. Here with we are enclosing the research topic along with the objectives of the study, tool for your kind consideration and approval.

Thanking you.

Date: 3/12/22

Place: Kolar

Forwarded with a request to Consider & permit our students to collect data.

06/12/22

Principal

Nursing

Asei Begum 7/12/22

HEAD MISTRESS

Urdu Boys

Forwarded to Principal.

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY

From,

1st Group of Research

3rd year B.Sc. Nursing

SDUCON, Tamaka, Kolar-563103

To,

HM

G.U.MAIN LPBS

Darvesh Mohalla-Kolar

Forwarded Through:

The Principal,

SDUCON, Tamaka, Kolar-563103

Respected Madam /Sir,

Subject: Requesting permission to do data collection from school teachers for our research project.

We, the undersigned 3rd year B.Sc. (N) and PB B.Sc. (N) Students of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has selected the below mentioned topic for our research project as a partial fulfillment for B.Sc. (N) program.

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Thanking you.

Date: 3/12/22

Place: Kolar

forwarded with a request to consider & permit our students to collect data

06/12/22

Forwarded to Principal.

Head Mistress
U. MAIN LPS
Mohalla, Kolar
9190738[illegible]

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY

From,

1st Group of Research

3rd year B.Sc. Nursing

SDUCON, Tamaka, Kolar-563103

To,

Suvarna Central School,
Coltonpet
Kolar

Forwarded Through:

The Principal,

SDUCON, Tamaka, Kolar-563103

Respected Madam /Sir,

Subject: Requesting permission to do data collection from school teachers for our research project.

We, the undersigned 3rd year B.Sc. (N) and PB B.Sc. (N) Students of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has selected the below mentioned topic for our research project as a partial fulfillment for B.Sc. (N) program.

Tittle of the Topic:

"A descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected school at Kolar."

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Thanking you.

Date: 8/12/22

Place: kolar

Forwarded to a request to permit our students to collect data

06/12/22

Principal

Forwarded to Principal.

Principal
Nursing

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY

From,

1st Group of Research

3rd year B.Sc. Nursing

SDUCON, Tamaka, Kolar-563103

To,

Oxford High School

Kolar

Forwarded Through:

The Principal,

SDUCON, Tamaka, Kolar-563103

Respected Madam /Sir,

Subject: Requesting permission to do data collection from school teachers for our research project.

We, the undersigned 3rd year B.Sc. (N) and PB B.Sc. (N) Students of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has selected the below mentioned topic for our research project as a partial fulfillment for B.Sc. (N) program.

Tittle of the Topic:

"A descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected school at Kolar."

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Thanking you.

Date: 3/12/22

Place: Kolar

Forwarded to a request to permit our students to collect data

Principal

06/12/22

Principal
College of Nursing

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY

From,

1st Group of Research

3rd year B.Sc. Nursing

SDUCON, Tamaka, Kolar-563103

To,

Ravi International School.
Kesavripet, Kolar.

Forwarded Through:

The Principal,

SDUCON, Tamaka, Kolar-563103

Respected Madam /Sir,

Vaziya Seit
RAVI INTERNATIONAL SCHOOL
2nd CROSS, GOWRIPET.
KOLAR-563101.
9538923383.

Subject: Requesting permission to do data collection from school teachers for our research project.

We, the undersigned 3rd year B.Sc. (N) and PB B.Sc. (N) Students of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has selected the below mentioned topic for our research project as a partial fulfillment for B.Sc. (N) program.

Tittle of the Topic:

"A descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected school at Kolar."

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Thanking you.

Date: 3/12/22.

Place: Kolar

Forwarded the a request to permit our students to collect data

06/12/22

Principal

Principal.

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY

From,

1st Group of Research

3rd year B.Sc. Nursing

SDUCON, Tamaka, Kolar-563103

To,

Chinmaya Vidyala
Nursery Primary School
P.C Extension Kolar

Forwarded Through:

The Principal,

SDUCON, Tamaka, Kolar-563103

Respected Madam /Sir,

Subject: Requesting permission to do data collection from school teachers for our research project.

We, the undersigned 3rd year B.Sc. (N) and PB B.Sc. (N) Students of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has selected the below mentioned topic for our research project as a partial fulfillment for B.Sc. (N) program.

Tittle of the Topic:

"A descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected school at Kolar."

With regarding to above, may we request you to grant permission to collect data from school teachers in your esteemed school and do the needful .Further we assure you that we will collect the data from the teachers without disturbing their academic activities, and the information collected from the teachers will be kept confidential. Here with we are enclosing the research topic along with the objectives of the study, tool for your kind consideration and approval.

Thanking you.

Date: 3/12/22.

Place: Kolar

Forwarded to a request to permit our students to collect data

06/12/22

Principal

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY

From,

1st Group of Research

3rd year B.Sc. Nursing

SDUCON, Tamaka, Kolar-563103

To,

Sri Venkateshwara Vidyalaya
Gowripet
Kolar

07/12/22
Head Master
Sri Venkateshwara Vidyalaya
Gowripet, Kolar.
Mob : 7795534049.

Forwarded Through:

The Principal,

SDUCON, Tamaka, Kolar-563103

Respected Madam /Sir,

Subject: Requesting permission to do data collection from school teachers for our research project.

We, the undersigned 3rd year B.Sc. (N) and PB B.Sc. (N) Students of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has selected the below mentioned topic for our research project as a partial fulfillment for B.Sc. (N) program.

Tittle of the Topic:

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Thanking you.

Date: 3/12/22

Place: Kolar

Forwarded as request to permit our students to collect data

6/12/22
Principal

Forwarded
Principal

ANNEXURE-III

LETTER REQUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH TOOL

From,

3rd yearBSc(N)Students

SDUCON Tamaka, Kolar

To,

Respected Madam,

Subject: Letter requesting opinions & suggestions for establishing content validity of the tool.

We the students of 3rd year BSc(N), belongs to department of Psychiatric Nursing have selected below mentioned topic for the research project for the fulfillment of requirements of nursing research subject of B.Sc. (N)degree.

Title of the topic: "A descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected schools at Kolar."

With regards to the above, we kindly request your good-self to validate the tool for its relevancy and adequacy. Hereby, we are enclosing the objective of the study and structured questionnaire for your kind reference. We will highly obliged and thankful for your great help.

Thanking You

Yours Faithfully,

Research3rd GroupStudents

Through Research Guide

ANNEXURE-IV

LIST OF TOOL VALIDATORS

1. Dr. Zeanath C.J

Prof & HOD of MSN

SDUCON

2. Mrs. Mary Minerva

Prof. & HOD of CHN

SDUCON

3. Mrs. Gayathri KL. V

Assoc. Prof. of OBG

SDUCON

4. Dr. Malathi K. V

Asso. Prof. of CHN

SDUCON

5. Mrs.Vani. R

Asst.prof. of CHN

SDUCON

6. Mrs.Sumana yesu priya

Asst.prof. of CHN

SDUCON.

7. Mrs.Ramya M

Asst.prof. of MHN

SDUCON

ANNEXURE-V

INFORMED CONSENT FORM

Name of the Principal Investigator: - Dr. R Rajesh, Professor

Name of the Co- Investigators: - Ms. Abigale Thomas, Ms. Amrutha GN, Ms. Ansu James, Ms. Athulya C.S, Ms. Gayathri N, Ms. Meghana v, Ms. Rajeena Biju, Ms. Sneha Benny, Ms. Tessy Thomas, Mr. Suresh, Ms. Arunamma

Name of the organization: Sri Devaraj Urs College of Nursing, Tamaka, Kolar

Title of the study: "A **descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected school at kolar."**

If you agree to participate in the study. We will collect information (as per Proforma) from you as a person responsible for you or both. We will collect relevant details.

You are invited to participate in this research study. You are being asked to participate in the study because you satisfy our eligibility criteria. The information in the given document is meant to help you decide whether or not take part. Please be free to ask any queries, I give my consent to collect the information and also can be used for research, test validation or education as long my privacy is maintained.

I have read this information or it has been read and explained to me in my own language, I have understood the purpose of the study, the nature of the information that will be collected and disclosed during the study. I had the opportunity to ask questions and the same has been answered to my satisfaction. I understood that I remain free to withdraw from the study at any time and this will not change my future care. I the undersigned agree to participate in this study and authorized the collection and closure of my personal information of presentation and publication and agree to take part in the research.

ANNEXURE-VI

LETTER REQUESTING PERMISSION FOR CONDUCTING

RESEARCH STUDY

From,

1st Group of Research

3rd year B.Sc. Nursing

SDUCON, Tamaka , Kolar-563103

To,

Forwarded Through:

The Principal,

SDUCON, Tamaka, Kolar-563103

Respected Madam /Sir,

Subject: - Requesting permission to do data collection from school teachers.

We, the undersigned 3rd year B.Sc. (N) and P.B B.Sc. (N) students of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has selected the below mentioned topic for our research project as a partial fulfillment for B.Sc. (N) program.

Title of the Topic: "A descriptive study to assess the knowledge regarding Assistive Technology for children with learning disabilities among school teachers in selected school at Kolar."

With regarding to above, may we request you to grant permission to collect data from school teachers in your esteemed school and do the needful. Further we assure you that we will collect the data from the teachers without

disturbing their academic activities. And the information collected from the teachers will be kept confidential.

Here with we are enclosing the research topic along with the objectives of the study, tool for your kind consideration and approval.

Thanking you.

Date:

Place:

Enclosure:

1. Statement and objectives.
2. Tool used for data collection

Guide: -

Dr. R. Rajesh

Professor Dept of Psychiatric Nursing

SDUCON, Kolar

Yours Sincerely,

Ms. Abigale Thomas

Ms. Amrutha GN

Ms. Ansu James

Ms. Athulya CS

Ms. Gayathri N

Ms. Meghana V

Ms. Rajeena Biju

Ms. Sneha Benny

Ms.TessyThomas

Ms. Arunamma

Mr. Sures

ANNEXURE-VII

SECTION A: SOCIO DEMOGRAPHIC PROFILE

INSTRUCTIONS

Teachers are instructed to read the following questions carefully and encircle the answer. Please do not skip any questions or leave unanswered. The information that provided is kept confidential and used only study purpose.

1. Age (in years)

a) <20
b) 21-30
c) 31-40
d) 41-50

2. Gender

a) Male
b) Female

3**. Religion**

a) Hindu
b) Muslim
c) Christian
d) Any others

4. Educational status of teachers

a) Diploma in teacher training
b) B.sc/ BED (UG)
c) M.sc, MED (PG)
d) Any others

5. **Place of Residence**

a) Urban
b) Rural

6. Marital status

a) Unmarried

b) Married

c) Widower

d) Divorced

7. Monthly income in (Rs)

a) < 20,000

b) 20,000-30,000

c) 30,000-40,000

d) >40,000

8. Type of school working

a) Government

b) Private

c) Aided

9. Total year of experience of school teachers

a) <1 years

b) 1-5 years

c) 6-10 years

d) >10 years

10. Type of employment

a) Contract basis

b) Probation

c) Temporary

d) Permanent

11. Types of family

a) Nuclear

b) Joint

c) Extended

12. During your service have you identified any child with Learning Disabilities?

a) Yes

b) No

13. Do you have any previous exposure on Assistive Technology for children with Learning Disabilities as a part of the curriculum?

a) Yes

b) No

14. Have you attended any training/workshops on management of Learning Disabilities?

a) Yes

b) No

SECTION B

STRUCTURED KNOWLEDGE QUESTIONNAIRE ON ASSISTIVE TECHNOLOGY

INSTRUCTIONS

Teachers are instructed to read the following questions carefully and encircle the answer. Please do not skip any questions or leave unanswered. The information that provided is kept confidential and used only study purpose.

1. Assistive Technology is defined as

a) Software to increase child's memory

b) Any device or equipment that helps an individual with learning disabilities

c) Limiting the capability of a person with Learning disability

d) Given an advantage to person with disability over others

2. A children who struggles with reading but has good listening skills is benefited by

a) Chrome vex

b) Graphic calculator

c) Audio books

d) Artificial lamina

3. A child who struggles with maths can use a

a) Test to speak

b) Optical characters recognise

c) FAVIIS

d) Hard –held calculator

4. Children who have trouble in writing by hand uses

a) Portable word processors

b) Maths software

c) Personal listening system

d) Abbreviation expands

5. Assistive Technology devices have been beneficial for children struggling with

a) ADHD

b) Specific learning disabilities

c) Communicative dysfunction

d) All of the above

6. What is Assistive Technology?

a) A device that eliminates students' disability

b) An expensive device of equipment that helps to student move to different activity in the school

c) Any device programme or piece of equipment that helps the students learn communicate or function better

d) A device students must where during passing tendency

7. Which of the following is an example of a low-tech assistive technology device?

a) Timer

b) Text to speech software

c) Talking spell check

d) Portable word processor

8. Children struggling with writing, grip or information organization is supported by

a) Audio book

b) Electronic maths workbook

c) Pencil grip

d) Brattier

9. A visual task that enable the students to organize their thoughts and ideas for writing tool is by

a) Printed graphic organization

b) Seat cushions

c) Sip and puff system

d) Sound field system

10. An assistive technology device that brings a real-world reality in the class room.

a) House

b) Gotti

c) Virtual reality (VR)

d) JAWS

11. The assistive technology used for visual impairment students/children.

a) Portable magnifier

b) Assistive listening device

c) Text to speech software

d) Speech recognition software

12. For which type of learning disability the device, artificial larynx is used?

a) Hearing impairment

b) Visual impairment

c) Physical impairment

d) Speech disorder

13. Reminder system is the assistive technology used for

a) Learning cognition & development

b) Speech communication development

c) Mobility

d) Environmental adaptation

14) Digital type of writers & word prediction software is the assistive technology used for?

a) Dysgraphia

b) Dyslexia

c) Dyscalculia

d) Dysphagia

15) Which of the following is not an example of a digital assistive technology for children with learning disabilities?

a) Text to speech

b) Hand writing tools

c) Graphic calculators

d) Optical character recognition

16) Assistive technology for children with learning disabilities makes

a) Learning & engagement easy

b) Improves moral and confidence of students

c) Easy to use

d) All of the above

17) A common assistive technology which is used for children with specific learning disabilities?

a) Smart phone

b) Concept mapping

c) Pen top computer

d) Maths drill

18) A student has information processing of disability he/she has trouble listening to lecturer & taking notes at the same time, which assistive technology would you recommended.

a) High lighter tape

b) Carbon copied notes

c) Word prediction software

d) Timmer

19) A children with learning disabilities uses a computer programme to convert class teaching assignment into Braille , what type of disability the does child have?

a) Visual impairment

b) Physical impairment

c) Hearing impairment

d) Assistive impairment

20) Who determine the specific assistive technology a student is entitled to.

a) Parents

b) Individual student

c) Principal

d) IEP (Individual Educational Plan)

ANSWER KEY: Section B

1. b
2. c
3. d
4. a
5. d
6. c
7. a
8. c
9. a
10. c
11. a
12. d
13. a
14. a
15. b
16. d
17. c
18. b
19. a
20. d

ANNEXURE-VIII

MASTER SHEET

SAMPLE NO	SDV 1	SDV 2	SDV 3	SDV 4	SDV 5	SDV 6	SDV 7	SDV 8	SDV 9	SDV 10	SDV 11	SDV 12	SDV 13	SDV 14
1	c	b	c	d	a	b	a	b	b	c	a	a	b	b
2	d	b	a	a	b	b	a	b	d	c	a	a	a	b
3	c	b	a	b	b	b	a	b	d	c	a	b	b	b
4	c	b	a	a	a	b	a	b	d	c	a	a	b	a
5	c	b	b	d	a	b	a	b	b	d	a	b	b	b
6	c	b	b	a	a	c	a	b	c	c	a	b	b	b
7	b	b	a	d	a	a	a	b	a	b	a	b	b	b
8	b	b	a	b	b	a	a	b	a	c	a	b	b	b
9	b	b	a	a	b	b	a	b	c	c	a	b	b	b
10	c	b	a	b	b	b	a	b	b	c	a	a	a	a
11	d	b	b	a	a	b	a	b	c	c	a	a	a	a
12	c	b	b	c	a	b	a	b	d	c	b	b	b	b
13	c	b	b	a	a	b	a	b	d	c	a	a	a	a

14	c	b	b	b	a	b	a	b	c	c	b	a	a	a
15	b	b	b	a	a	b	a	b	c	c	a	a	b	a
16	c	b	a	a	a	b	a	b	c	c	b	b	b	b
17	b	b	b	b	a	a	a	b	b	c	b	b	b	b
18	b	b	a	b	b	a	a	b	a	c	a	a	b	b
19	d	b	b	a	a	b	a	b	d	c	b	b	b	b
20	d	b	c	d	a	b	a	b	b	c	a	a	a	a
21	c	b	a	d	a	b	a	b	d	c	b	a	a	b
22	d	b	a	d	a	b	b	b	d	d	b	a	b	b
23	d	b	a	d	a	b	b	b	d	d	a	a	b	a
24	d	b	a	d	a	b	b	b	c	d	a	a	a	a
25	c	d	a	d	a	b	b	b	d	b	a	b	b	b
26	b	b	a	a	a	b	a	b	a	c	a	b	b	b
27	b	b	a	d	a	b	b	b	d	d	b	a	b	a
28	d	b	a	d	a	b	b	b	c	d	a	b	b	a
29	d	b	a	d	b	b	c	a	d	d	b	b	b	b
30	d	a	a	d	a	b	b	b	c	d	b	a	a	a
31	d	b	a	d	a	b	c	b	d	d	b	a	b	a
32	d	b	a	d	a	b	a	b	d	d	a	a	b	b
33	c	b	a	b	b	b	a	b	c	d	a	b	b	a

34	c	b	a	b	a	b	a	b	d	d	a	b	b	a
35	c	b	a	b	b	b	a	b	d	d	b	a	a	a
36	c	b	a	d	b	b	a	b	d	d	a	a	a	a
37	c	b	b	b	a	b	a	b	c	d	a	a	a	a
38	c	b	a	b	a	b	a	b	c	c	a	b	b	a
39	c	b	a	b	a	b	a	b	d	d	a	a	a	a
40	c	b	a	b	a	b	a	b	c	d	b	a	a	a
41	b	b	b	a	a	b	a	b	c	a	a	a	b	a
42	c	a	a	c	a	b	b	b	d	c	a	a	a	a
43	b	b	a	c	a	a	a	b	b	c	a	a	a	a
44	b	b	b	b	a	b	a	b	b	c	b	b	b	b
45	d	b	a	d	a	b	a	b	d	d	a	b	b	b
46	c	b	a	b	a	b	a	b	b	c	a	a	a	a
47	c	b	c	b	a	a	a	b	b	c	a	b	b	a
48	b	b	b	d	a	a	a	b	a	c	b	a	a	b
49	d	b	a	d	a	b	a	b	d	d	b	b	b	b
50	c	a	b	d	a	b	a	b	b	c	b	b	a	a
51	d	a	a	c	a	b	b	b	d	d	a	a	b	b
52	d	b	c	b	a	b	a	b	b	b	a	a	b	a
53	c	b	b	a	a	b	d	a	d	d	a	b	a	a

54	d	b	c	c	a	b	d	b	c	c	b	b	a	a
55	d	a	b	a	b	b	b	b	c	b	a	a	b	a
56	d	b	b	b	a	b	a	b	c	c	b	a	a	a
57	d	a	a	d	b	a	b	d	b	b	b	a	a	a
58	c	b	a	b	a	b	a	b	a	b	b	a	b	b
59	c	b	a	b	a	b	a	b	d	d	b	a	b	b
60	d	b	a	b	b	b	b	b	d	d	b	a	b	b
61	b	b	a	c	a	a	a	b	c	d	a	a	b	a
62	c	b	a	d	a	b	b	b	d	d	a	a	b	b
63	d	a	a	c	a	b	c	b	d	d	b	a	b	a
64	c	b	a	c	a	b	a	b	c	d	b	a	b	b
65	b	b	a	d	a	a	a	b	a	c	a	a	a	b
66	c	b	b	d	a	b	a	b	d	d	a	b	b	a
67	d	b	a	d	a	b	b	b	c	d	a	a	a	a
68	d	b	a	d	b	b	b	b	c	d	a	a	b	b
69	b	b	a	c	a	b	b	b	b	d	a	a	a	a
70	d	b	a	d	b	b	b	b	c	d	a	a	b	a
71	b	b	c	c	a	b	b	b	c	d	a	a	a	a
72	c	b	a	c	b	b	b	b	c	b	a	a	b	a
73	c	b	a	c	a	b	b	b	c	b	a	a	b	b

74	c	b	a	c	a	b	b	b	c	d	a	a	a	a
75	b	b	a	c	a	b	b	b	c	d	b	a	b	b
76	b	b	a	d	a	b	c	b	c	d	a	a	b	b
77	c	b	b	c	a	b	c	b	c	d	a	b	b	b
78	b	b	b	c	b	b	b	b	c	d	a	a	a	a
79	d	b	a	d	b	b	b	b	d	d	b	a	b	b
80	d	b	a	d	a	b	b	b	d	d	a	a	b	b
81	c	b	a	b	a	b	a	b	b	d	b	b	a	b
82	d	a	a	b	b	b	a	b	d	d	a	b	b	b
83	c	b	a	a	a	b	a	b	d	d	a	a	a	a
84	c	b	a	c	a	b	b	b	c	d	a	a	a	a
85	c	b	a	b	a	b	a	b	d	d	b	a	b	b
86	c	b	a	a	a	b	a	b	d	b	a	a	b	b
87	c	a	a	a	d	b	b	a	b	c	d	b	a	a
88	c	b	c	c	a	b	b	b	c	d	a	b	b	b
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90	d	b	a	a	a	b	b	b	d	d	a	a	b	b
91	d	b	a	d	a	b	b	b	d	d	a	a	b	b
92	b	b	a	a	b	b	a	b	c	d	a	a	a	a
93	d	b	a	b	a	b	a	b	d	d	b	a	b	b

94	d	b	a	d	a	b	b	b	d	d	a	b	b	b
95	b	b	a	d	a	a	a	b	c	d	a	a	b	b
96	c	b	a	b	a	b	a	c	c	d	a	b	b	b
97	d	a	a	c	a	b	c	c	d	d	a	a	b	b
98	b	b	a	b	b	a	a	b	b	c	a	b	b	b
99	c	b	a	a	b	b	b	b	c	c	a	a	b	b
100	b	a	c	b	a	a	b	c	b	c	a	a	b	b
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104	c	b	a	a	a	d	c	c	d	d	a	a	b	b
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106	c	b	a	c	b	b	a	b	b	c	b	b	b	b
107	d	a	b	a	b	a	d	a	b	b	c	b	a	b
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109	d	b	a	d	a	b	b	b	d	d	a	a	b	b
110	c	b	a	b	a	b	a	b	b	d	b	b	a	b
111	b	b	a	b	b	b	a	b	d	d	a	b	b	b
112	b	b	b	b	a	c	b	b	b	b	c	b	b	b
113	c	b	a	a	a	b	c	c	c	c	b	b	b	a

114	c	a	b	b	a	b	b	b	c	c	a	a	b	b
115	c	a	c	b	a	b	c	b	c	b	b	b	a	b
116	c	b	c	b	a	b	b	b	b	b	b	a	a	a
117	d	b	c	c	b	b	c	b	c	b	b	a	b	b
118	c	b	c	b	a	b	b	b	c	b	b	a	a	b
119	b	b	b	b	a	a	c	b	b	b	b	a	a	a
120	d	b	b	b	a	b	c	b	b	b	b	a	a	a

ample no	QN1	QN2	QN3	QN4	QN5	QN6	QN7	QN8	QN9	QN10	QN11	QN12	QN13	QN14	QN15	QN16	QN17	QN18	QN19	QN 20	TOTAL
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2	1	1	0	1	0	0	0	0	1	1	1	0	1	0	0	0	0	0	1	1	9
3	1	1	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	1	0	8
4	1	1	1	0	0	0	0	1	1	0	0	0	1	1	0	0	1	1	1	0	10
5	0	1	0	0	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	5
6	0	1	1	0	0	1	0	0	0	1	0	1	0	0	0	1	0	1	1	0	8
7	0	0	0	0	1	1	0	0	1	1	1	0	1	0	0	1	0	1	0	1	10
8	0	1	0	0	1	1	0	0	1	1	0	0	0	0	0	1	0	1	0	1	8
9	1	1	0	0	1	1	0	0	1	1	0	0	0	1	1	1	0	0	1	0	9
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ANNEXURE-IX

PHOTOS OF DATA COLLECTION


Subject- Urdu
Topic :-