Phonics Awareness for Children with Learning Disabilities Using Low–Cost Teaching-Learning Material

Nitin Raj
Assistant Professor Department of Community Education and Disability Studies Panjab University, Chandigarh, India

Abstract

In developing nations, the enhancement in low-cost teaching-learning materials is regarded as one of the major aspects that would encourage student learning and help in the accomplishment of academic goals and objectives. The educators need to explore, conduct research, and encourage sophisticated and innovative methods of teaching to enrich the system of education, as these methods may prove to be advantageous to the students in achieving academic goals and led to developments of the overall system of education. Learning disabilities involve difficulty in writing, listening, reading, speaking, reasoning, and mathematical skills, due to which these students face many academic problems. As a solution, Phonics practice is considered the most reliable method to teach children with learning disabilities ina very interesting and tactile way. The use of phonics may seem valuable for the short term, but only until they are entrenched with significant and purposeful texts and reading activities. This review paper examined the research-based articles related to the use of phonics for learning disabilities and states fine context about low-cost teaching materials and phonic awareness that were used to solve the learning problems of Learning-Disabled students and it has a positive effect on them.

KEYWORDS: Low-cost teaching-learning material, Learning Disabilities, Phonics awareness

Introduction

As one of the developing countries, most of the population of India lives below the poverty line. Due to such financial problems, Govt. can't provide the required expenditures for teaching materialon time. The unavailability of essential materials and the necessity to purchase classroom resources is concerned by many teachers, even of well-resourced schools. This shortage of teaching materials may form some learning difficulties for children Interesting and tactile courses are extremely crucial in classrooms for maintaining student engagement and enhancing learning, although finding and implementing such classroom resources can be quite difficult for teachers. Resources are particularly scarce due to a lack of funding. Teachers in both public and private schools have struggled with this since they have restricted access to classroom supplies such as colored paper and glue (Benveniste, Marshall & Araujo, 2008).There are very few manufactured teaching materials available for purchase and if they are available, they are likely to be very expensive. However, teachers are least likely to be earning salaries in these very classrooms that justify such outlay. Teachers are wishing to create cheerful, tactile lessons in their classrooms, in which young students interact with learning materials, and it requires personal financial spending.

As thesolution,educators must create and use low-cost - teaching-learning material to use in the classroom as they can be used in nursery, primary, middle, secondary, and senior secondary schools. Proper use of available waste materials as low cost or no cost experimental composition, project, model or activity led to the advancement of creative skill and the basic objective of learning knowledge, understanding,application and utilization. Low-cost teaching aids make class exciting and meaningful and provide a motivefor thinking and exploration. Children feel excited and learn a lot withactive participation in learning activities, interaction, discussion, and communication with the teachers and good relationship with peers also. As activity-based learning helpsstudentsunderstand sensory and languageand relate them to their previous understandings and let childrenlearn by their own experiences. The appropriate low-cost teaching material not only make a positive effect onchildren with learning disabilitiesbut also make their learning permanent, also develops their innate skills. Thus, for a child'spersonality development andmaximum mental growth, his/her life needs to be filled with inspiring, encouraging experiences.

Specific Learning disabilities

In the years since 1963, many people have tried to define learning disabilities, but no one has yet developed a definition that is acceptable to everyone. The federal definition (U.S.A.) of learning disabilities included in Public Law 94-142, the Education for All Handicapped Children Act of 1975, reads-as- the term 'children with specific learning disabilities' means 'those children who have a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do the mathematical calculation Kumar (2015) suggested that the term includes such conditions as perceptual handicaps, brain injury, minimal brain, dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems which are primarily the result of the mental retardation, of visual, hearing, or motor handicaps, of, environmental or emotional disturbance, cultural or economic disadvantage' (Federal Register, 1977). In India Learning Disabilities concept is still in the nascent stage (Sandhu, 2015). For the first time in India, the Right to Person with Disability (RPWD) Act, 2016 has included Learning Disabilities as a benchmark disability, defined as "a heterogeneous group of conditions where there is a deficit in processing language, spoken or written, that may manifest itself as a difficulty to comprehend, speak, read, write, spell, or do mathematical calculations, and includes such conditions as perceptual disabilities, dyslexia, and dyscalculia." Many schools in India are mostlyusingdefinitions recommended by the National Joint Committee on the Learning Disabilities "Learning disabilities is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous dysfunction, and may occur across a life span. The problem in self-regulatory behaviors, social perception, and social interaction may exist with learning disabilities but do not by themselves constitute a disability. Although learning disabilities may occur concomitantly with other handicapping conditions (for example, sensory impairment, mental retardation, serious emotional disturbance) or with extrinsic influences (such as

cultural differences, insufficient or inappropriate instruction), they are not the result of those conditions or influences. Children with specific learning disabilities are those who in the absence of the sensory defect or overt organic damage, have an intractable learning problem in one or more of reading, writing, spelling, or mathematics and who do not respond to normal teaching. These children, early identifications, assessment, and specific teaching strategies, and teaching-learning material are necessary.

Phonology

The aspect of language is well-known as phonology describes the speech sound in a language. The smallest unit of sound in a language system is a phoneme. Different languages and dialects use various phonemes. For example, the word rat contains three phonemes: r/a/t/. Phoneme identification is essential in learning to read, as well as verbal language. Phonics is the recognition, testing, and creation of phonemes elements in written words. It is the relationship between letters and sounds. Learning phonics is difficult for learning disabled children because they lack phonological awareness.Phonology is the study of how individual sounds make up words. There is evidence that learning-disabled children have difficulties both in breaking words down into their component sounds and in blending individual sounds together to make words (Kass, 1966; Liberman, Shankweiler, Liberman, Fowler, and Fischer, 1977; Vellutino, 1979; learning disabilities 127 Kavale, 1981; Tarver and Ellsworth, 1981; Ackerman, Anhalt, and Dykman, 1986; Wagner, 1986).

Digraphs are observed in words where two consonants all together produce a new sound as in '**ch**op', 'wi**th**', '**wh**eel', 'gra**ph**', '**sh**ut**'**, 'so**ng'**. Students can make as many words as possible with blends and digraphs involving CVCC OR CCVC OR CCVCC using letter scrabble and tilesand sustain interest in the students with group games like word building with rules normally consistent for most of the common words and children learn without much difficulty. Silent letters can be used as a next-level practice, as in 'E' at the end of the word, 'K' before 'N' at the beginning of the word as Silent letters

Silent 'e'	Silent 'k'
Debate	**Knew**
Excite	**Knee**
Make	**Knack**
Single	**Knife**

Children normally omit silent letters when they appear in the middle of the words as in **answer**, **duck**, **lock**, **fight**, **night**. They also tend to exclude one of the consonants when they repeat as in**rab/bit**, **suc/cess**, **run/ning**. To correct this error, the student should know that the letter repeats, which requires practice and training in syllabication which can help the students spell and read quickly.

Spelling is a skill that develops with reading as requires a complete recall of the letters to be spelled in the correct order. A student who is a good reader can not necessarily be a good speller. It is significant to note that during reading, the school child does not have to

look at each letter of the word, On the contrary, spelling involves consideration to all the letters in a proper sequence.

A grapheme is a 'symbol' of a phoneme – a unit of spelling in a language system – it's a letter or group of letters indicating a sound. the 'f' in fat is a one letter grapheme where the letter 'f'representsthe hard 'f' sound; in leaf is the two-letter grapheme where the letters 'ea' represents the long 'ee' sound; a four-letter grapheme is included in 'through' where the letters 'ough' make the long 'oo' sound.

Phonics instruction has been critiqued because it depends on phoneme-grapheme decoding and lacks an orthographically transparent writing system that is debatably inapt in English. Grapheme symbols have a uniform phonetic representation in languages like Spanish and German. In the English language, however, a number of graphemes can be used to express single phonemes: the phoneme /k/, for instance, can be represented by the letters 'c,' 'k,' 'ck,' or 'q.' Furthermore, a single grapheme or grapheme cluster can map to a variety of phonemes: the 'ou' digraph, for example, translates to minimum seven different sounds as in 'cough', 'soup', 'rough', 'thought', 'though', 'house', 'could'.Some sounds (phonemes) can be spelled with different graphemes (spellings).The hard 'c' sound can be spelled with the grapheme's 'c', 'k' or 'ck' (as 'car', 'kite' and 'lock'); while the long 'ee'sound can be spelled with a variety of graphemes, including 'ea' (leeds), 'e-e' (theme), 'ei' (ceiling).

A single mapping of phoneme to grapheme becomes undependable and ineffectual for decoding written English due to the inconsistency and undermines the usefulness of phonics instructions as a holistic solution for English reading education (Adams, 2004). The whole-word method of teaching reading to students is based on this nonuniformity in English orthography, in which childrenlearn to recognize the word as a unit, with the context or word's shapeused as clues (Pelli& Tillman, 2007). When the shape of two words is similar, such as 'cat' and 'eat,' it can be confused. Nonetheless, high-frequency words that do not obey grapheme-phoneme mapping norms, such as 'he,' 'the,' and 'are,' can be successfully dealt with using this strategy.

Rules of Teaching Phonics

Rules of Teaching Phonics	
Sr. No.	**Consonants**
1.	'a' follow by'w' sound 'o' (was, want, wash)
2.	'c' followed by 'e', 'i', or 'y' sound 's' (race, city, fancy)
3.	'g' followed by 'e', 'i' or 'y' sounds 'j' (gem, clergy, ginger)
4.	'ar' followed by 'w' sound 'or' (war, ward, swarm)
5.	'or' follow by 'w' sound 'er' (word, worse, worm)
6.	C and h followed by next to each other make only one sound
7.	Ch mostly sounds as in the kitchen and less frequently like 'sh' as in machine
8.	Ck ending followed in a word sound k
9.	Two consonants together make one sound (butter).
	Vowels
1.	When y follows a consonant in a word, it sounds long I (cry, by).
2.	r controls the preceding vowel giving it neither short nor long sound car, far, fur, fir.

The Elements of a Phonics Practices/ Practices of Phonics Elements

It is the job of the instructor to systematically provide a variety of associated comparable abilities to the children as they grow competence, which will ensure that the phonics program is successful.

The first stage is to explain how phonological awareness, or the study of the link between written letters and phonemic output, has progressed. Students must master the sound-letter relationship to correctly identify unknown words. It may begin simply with units in which the grapheme-phoneme connection is straight, such as 't,' and later progress to more multiplex presentations like diphthongs (like 'oy' and 'ow'), digraphslike 'oo' or 'th,' and phonograms (like 'ough,' which draws onto several phonemes or phoneme pairs), and phonograms like 'ough,' which draws onto several phonemes or phoneme.

The second skill is segmenting in a phonics program, which is a study of how words are made up of discrete orthographic and phonological units and includes the identification of a word's sounds. A Student must recognize the initial, medial, and final sounds in both written and oral forms of a word like 'fun,' for example (Stahl, Duffy-Hester & Stahl. 1998).When a grapheme to phoneme link is one-to-one, as in the word 'fun,' segmenting becomes easy. On digraphs like 'au,' 'ae,' or'sh,' the student must determine which graphemes do not act independently. Thus, despite the word's orthographic congestion, the student's duty for words like "thinking" or "fish" is to realize that there are just three sounds.

The third skill is blending, in which the student learns to put together the specific phonemes to create a word (Stahl et al., 1998). The Blending practice is considered essential for proficient reading andis seen as the last step of the phonics process. When a student encounters an unknown word, he or she must first correctly break it down into its constituents, then match these components to their phonemic sounds, and then merge the sounds into the completed word. As a result, the entire process is dependent on segmenting and phonemic awareness skills.

The overview of sight words is also involved by the phonic program, which contains words such as 'he', 'the' and 'our', for taking into understanding words with irregular orthographies, so that students can learn to identify them as whole units based on their shape. These words are resistant to phonics-based interpretation and are common enough that interpretive solutions aren't worth the effort. For students dealing with English's orthographical inconsistencies (Goswami, 2005) and for increasing reading speed, integration of sight-word approaches is essential.

Teachers can create activities to introduce phonics into their classrooms, aiming at phonological awareness, segmenting, and blending with the following fundamental principles:

•Students can take benefits from the number of phonemes as clues in a word, such as ‘fish’ has three sounds.Some good exercises can be constructed with Elkonin boxes or paper cups or something similar, in which students slide letters into the appropriate

position in a word, learning about how many sounds are required from and helping youngsters build segmenting skills.

•Scaffolding can help students learn to recognize the position of phonemes in words. For example, the student might be asked if they can hear the target phoneme in a word, such as the sound 'f' in 'fun' or 'boy.' Once it is effective, the instructor can use words like 'fun,' 'ask,' and 'fuss' to ask students to recognize whether it is in the beginning, medial, or final position.

•Students can also benefit from working with word families that have similar patterns, such as onset and rime activities. The onset is the first phoneme or phoneme blend, whereas the rime is the vowel and any final consonants.The terms 'famous,' 'game,' 'name,' and'same,' for example, all have the same rime. Students' reactivity to how words behave consistently is increased when the rime is greater (Goswami, 2005). Because blending just demands the linking of the onset phoneme with its rime, it serves as a valuable scaffold for students. Another pattern tool is the minimal pair, which keeps all but one of the phonemes constants ('bat' and 'bet'). To practice segmenting, the student recognizes the differences in the words. The student can concentrate on the single phoneme that has been changed by repeating sounds from one word to the next, making the blending demand simpler.'

Using Phonics with Children with Learning Disabilities

Teacher-made low-cost learning aids are the best to use in the classrooms and using them for phonic practice in class is even better. It is nothing but a productive use of the unwanted or easily available raw materials in our surroundings. Everything around us seems helpful once we start making productive and creative use of these “waste” materials for teaching in the classroom! Participating in the creative activities gives children joy and happiness and gives the teachers motivation to more creative thinking. The varieties of learning materials eliminate boredom from the classroom and have a great role in making all the children in a classroom participate actively and causes themto start looking forward to coming to school daily.The system of phonics instruction benefits children with reading disabilities that permits them to understand and learn, read words (Carnine, Silbert, &Kameenui, 1997; Chard, Simmons, &Kameenui, 1998).

Phonics awareness is the knowledge or insight that a word is made up of a series of various sounds, phonics will not make sense to children without this insight., Children must understand that words are made up of sounds before they can use knowledge of sound-spelling connections to decode words (Adams, 1990). Before students learn to read, they think of words as a whole unit, children must realize that these words can be separated into smaller units and sounded out.

In phonics practice, students become familiar with the relationships between letters and sounds in order to improve their ability to decode unexpected words(Morrow & Tracey, 1997; Fox, 2000; Rose, 2005; Jones &Deterding, 2007). For example, even if the word ‘man’ is unfamiliar to the student if he knows the sounds associated with the letters 'a','m', and 'n' may decipher it.Children are taught the relation between graphemes and

phonemes in a methodical phonics program and encouraged to use the principles to interpret written text.

The large quantity of decodable words, which becomes a debatable factor for the construction of a phonics program, warrants consideration of phonics program criticisms. A successful reading program, on the other hand, should include both systematic letter-sound correspondence training and a whole-word element for words that are not orthographically transparent.

The amended Right to Education (RTE) Act, 2012, ensures that every child with a disability in the age group of 6-14 years irrespective of the category, kind, and degree of disability, is provided significant and quality education with the assistance of resource room, learning material, etc. Only one teaching material will not be helpful for all, some students can learn better from audio, some from kinesthetic input, and some from visual input. The multi-sensory approach appears to support most school children in remembering many of the sound-symbol relationships (Special Focus, 2005).NCERT launched the National Curriculum Framework (NCF)-2005 as a part of transmuting education, which adopts an outcomes-based education method for teaching and learning. One of the major objectives of this curriculum is inventing, designing, providing, and facilitating appropriate teaching-learning systems that are child-friendly and inclusive with teaching-learning processes based on a constructivist approach that could realize the identified goals and each child's needs. The NCF-2005 has caused a series of proposals for revision of textbooks and teaching-learning materials, and renewal of school education curriculum at the State level.

The UN Handbook for Parliamentarians on UNCRPD, 'From Exclusion to Equality (OHCHR, 2007) proposes to provide suitable teaching equipment and materials to ensure an inclusive education system. The Three-Year Action Agenda of the Niti Aayog (2017) recognizes challenges such as the absence of ramps, disabled-friendly toilets, special teaching materials, and sensitized teachers. The targets are, however, limited to schools having at least one section of each class accessible under Universal Design Guidelines, providing aids to approximately 3.5 lakh beneficiaries every year, and conducting cochlear implant and corrective surgeries for 5,000 children yearly (p. 163).

Phonics and the Trainee Teachers

The teacher must provide an appropriate environment in their classrooms, where the child will enrich his knowledge by interacting with the social environment because learning takes place when the environment is exciting interactive, and active. But sometimes, children cannot interact much with the teacher in the traditional Chalk-and-talk classroom teaching, as it has become somewhat outmoded and is considered inadequate in the current educational scene. So, Teaching becomes very monotonous, and students become lazy too. Frequently used teaching materials in the classroom are essential aids like chalk, duster, and blackboard, other materials are used seldomly and when used they may not be contextspecific. All around the world teachers are trying to invent new teaching supports to make teaching-learning processes more effective, interesting, and meaningful. Teachers need to know how to create child-oriented low-cost teaching aids and use them so that their classroom interaction becomes meaningful and attractive. Teachers should

first think about the practical use before choosing the teaching-learning materials and make sure the purpose of teaching is achieved by that teaching material or not.

The study of Phonics is a skill that is vital for children to learn how to break letters into their respective sounds and read unfamiliar words. Phonic practice can be very advantageous and cooperative for teachers too, as it's a very innovative way to teach exciting and tactile lessons to students.It's widely agreed that breaking down the essential phonics skills into four elements, phonemic awareness, segmenting, blending, and sight words reduces some of the intricacies of phonics education and the literature's heated discussions about the merits of various techniques (for example Wyse & Styles, 2007; Ziegler & Goswami, 2005). In most cases, novice teachers attempting phonics education over-emphasize phonemic awareness. There is a lot of fascinating and kid-friendly content available for this.While letter-sound correspondence games are a great way to spend class time, teachers sometimes get confused about what sequence to do them in or when to move on to the abilities to segment and blend. The importance of sight-word instruction is frequently overlooked.

All four phonics abilities must be provided in real-time and practiced on a regular basis. As soon as children start becoming aware of specific phonemes, Segmenting can be introduced. For instance, the teacher can start segmenting activities once the students learn about thesound-letter combination for 'a', so that students can recognize the presence of the 'a' sound and its place as initial or final in the word. As soon as the young readers are familiar with enough graphemes to create simple words, they can begin with blending practice.

Low-Cost Material for Phonics Awareness

The use of the following low-cost teaching-learning materials could be very helpful for teaching interesting lessons to learning disabled students in the classroom. Make more such materials to enhance reading and spelling skills involving blends and digraphs.

1. **Sounds on Paper**

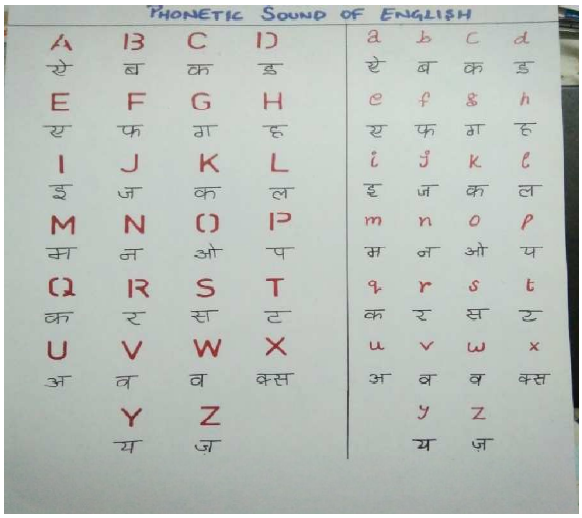

Figure 1

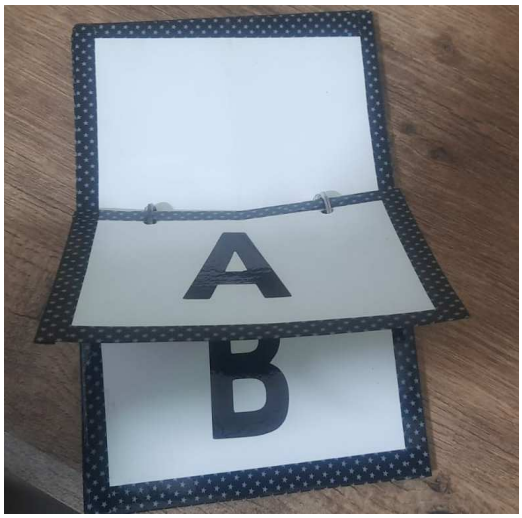

Figure 2

To help students memorize Alphabets with sounds, these activities are crucialwhichsupports the continual use and recognition of the alphabets.

Phonemic awareness: These activities expose students to the alphabet and help them memorize the sound and the image of the alphabet (figure 1).

Segmenting: Children read the alphabet and try to pronounce sounds in the Indian language, and they also trace the alphabets (figure 2) and memorize the image of alphabets.

Blending: Children use flashcards to trace and memorize the alphabet and also learn how to pronounce them, which is a very crucial step for word-building.

2. Waste Colorful Paper and Pictures

In this activity, we made a brochure-like structure of alphabets with colorful papers and pictures.

Figure 3

Figure 4

Phonic Awareness: this activity helps students to learn about sounds, pictures, and words related to the alphabet.

Segmenting: student memorize and trace the alphabet with their hands then produces the sound of the alphabet and see image related to this alphabet.

Blending: This method presumes that some children learn best when content is presented in various modalities. This method engages tracing, hearing, writing, and seeing are often referred to as VAKT (visual, auditory, kinesthetic, tactile) methods.

3. Cups and Ice-cream sticks

Figure 5

We used ice-cream sticks, paper or plastic cups, and small offcuts of paper to write words or sounds on. Although, bottle tops, nutshells, small pebbles, seeds, or buttons also work.

Figure 6

Figure 7

Phonemic awareness: The teacher yells out sounds written on the cup's side, and the student matches the sound with an ice-cream stick (Figure 5). This task can be made more competitive by altering the distance between the objects based on the size of the cup and the aptitude of the students.

Segmenting: The rime of a word family, such as ‘at’ and ‘un’, is written on the cup (Figure 5). Students place ice-cream sticks into the cup of corresponding sound to make a word (for example ‘rat’, ‘hat’, and so on).

Blending: With waste file cover built as a flower, the ‘Make a word’ activity can be done (Figure 6). Specific sounds are written on the petals, and we use a wheel to create a spinning mechanism so that the students can spin the wheel, which has alphabets written, to create CVC words. The words later can be noted down onto a blackboard, paper, or sand.

4. Waste Wedding Cards and Colorful Strips

Here, we used waste wedding cards or calendars or cut off plain papers and colorful stripes to make words.

Phonic awareness: A ‘make a word’ activity can be done here when the teacher breaks down the sounds of the words, and the children can learn and create matching words.

Segmenting: Students slide the cut-off paper over the stripes to match the onset to the matching rime to make a group of CVCC words.

Figure 8

Blending: students can use this practice to make CVCC and CCVC words. CCVC and CVCC words are learned in phase 4 of the letters and sound phonic curriculum. The words later can be noted down onto a blackboard, paper, or sand.

Conclusion

A lack of finances created a problem for teachers as a resource-impoverished environment which undermines the objectives of achieving tactile, creative, and colorful lessons and activities. Once the teachers started seeing the benefits of these materials in the classroom, their minds will start filling with creativity too, they will try to invent new teaching supports to make teaching-learning processes more effective, interesting, and meaningful Children in a rural school will get benefitted the most because of the utility and durability of these locally produced materials. Utilizing recycled material helps to keep the costs low as students help collect items to make the low-cost materials. Finally, the utilization of such low-cost teaching material in the classroom increases environmental mindfulness, which is a much-needed priority in developing nations like India.

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