Effectiveness Of Brain- Based Teaching Strategies To Enhance Pronunciation Among Prospective Teachers

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ABSTRACT: Learning is a process through which knowledge, skills, values and attitudes are to be acquired and applied by the B.Ed students. Hence, the role of a prospective teacher in the learning process is very important. Every B.Ed institutions in the prospective teachers, parents, community members and institution management committee share common aims for their B.Ed students, where the polices can be implemented effectively and where staff can carry the message towards quality education effectively at institution level to get desired results, can be considered as effective. The B.Ed institutions which are well run and where quality of learning is high, can be considered effective and progressive. Therefore the researcher felt a great need to study the strategies implemented by teachers to enhance learning and pronunciation in institutions.

Keywords: Brain based learning, teaching skills, Learning Strategies, Pronounce Enhancing.

1. INTRODUCTION

Organized education system aims at effective teaching and learning. Prospective teachers have been exploring creative ways of engaging learners for achieving the objectives of teaching. The learning should be planned based on knowledge about the learners, their previous knowledge, abilities, interests, needs or preferences. Knowing the learners helps us to understand that one size does not fit all. Since many years the learners are taught with the teaching methods that have been perceived as boring and learners tend to lose interest in subject. With such teaching learning process, learners are expected “to adjust to the learning when the learning should really be adjusted to the learner”. Each prospective learner is different and hence needs classroom environment where they can be prepared for lives by becoming self-directed, productive problem solvers and thinkers. There is a need to provide such a classroom environment where learner should own responsibility of their leaning and behaviour. They need to realize what they learn is useful, relevant and meaningful for them. Also a prospective teacher in a classroom needs to believe in potential of each student as they play crucial role in learning and about human potential and in the ability of all B.Ed students to learn and achieve are critical. These aspects of the prospective teacher's mental models have profound impact on the learning climate and learner's states of mind that teachers create. Prospective teacher need to understand student's feelings and attributes will be involved and will profoundly influence student learning. An effective prospective teacher understands that what they do and say has effect on learners and the way their learners perceive success. She believes in the potential of her students and creates an environment where this can be realized to the optimum. Teaching approaches determine perception about classroom environment. The classroom interactions affect the self-esteem of students. It is said that teachers impact eternity. Effective teachers explore ways to improve achievement of students and build their confidence. Everything that happens in the classroom is monitored by three parts of the brain, two of which has no spoken language but is very adept at reading body language and tone of voice. Understanding there cannot be one way to cater needs of each learner and realizing the crucial role that teachers play in process of learning have led researchers to keep on developing different innovative strategies and methods to improve the learning by enriching the pedagogy of teaching. Most strategies fail to utilize the basic principle of growth and development. Thus, uniqueness of every individual in a heterogeneous class of learners demands the variation in instructional strategies so that the process of acquiring knowledge can be more effective. Researches show that to improve learning, learners must be "engaged" during the teaching learning and pronunciation process ensuring an uninterrupted flow of ideas. A good learning environment should make the learners feel safe and secure both emotionally and socially to help them become independent and confident learners. Also the learning environment should include the varying degree of complexity to make the learning challenging but not burdensome, establishing the state of "flow" a condition when learners are absorbed and exuberant about learning, confronted with challenges and receive pertinent and relevant criticism that anything else becomes incognizant to them, in this state they become most efficient and innovative. English language is one of the most important methods for correspondence and communicating among people and networks. Any individual who needs to explore on emotions or messages whether in a composed structure or orally should utilize their language.

1.1 LINGUISTIC COMPETENCE

Linguistic skill enables one to shape and decipher words and sentences of one's language. The major components are,

(i) Phonetics – The articulation and perception of speech sounds.
(ii) Phonology - The patterning of speech sound
(iii) Morphology - Formation of words
(iv) Syntax - Formation of phrases and sentences
(v) Semantics - Interpretation words and phrases

The role of pronunciation within different approaches to foreign language teaching are,

(i) From Price to Jespersen (1655 – early 20th century)
(ii) Audio lingualism and the Oral Approach (1940’s – 1950’s)
(iv) The Communicative Approach (1980’s and later)
(v) Brain-based Approach
2. BRAIN BASED LEARNING

The brain scanning technology has helped researchers to study the functioning of brain like how the memory, recall, emotion, attention, pattern, context, speech, language, thinking, reasoning, speaking, reading, learning, etc. are processed. It has opened the ways to study extensively the biologically alive brain and the various functions and complex processes involved during the process of learning. The brain based learning is a developing discipline which coalesce the findings of education, neuroscience, psychology, and pedagogy in order to maximize the output of teaching learning process. The understanding of the functioning of brain and its application in the field of education has given rise to the concept of "brain based learning". Brain based learning has emerged as a multidisciplinary approach and has linked neuroscience, pedagogy and the educational psychology. Brain based learning is designed in such a way that the attention, memorization, understanding and meaningfulness are maximized during the learning by encouraging the natural operational principles of the brain. Brain based learning is also known as brain-compatible learning and is based on findings of neurology applied in the field of education to understand how the brain naturally learns the best. It involves designing instruction for learning which promote learning by understanding the functioning and processes of brain. These instruction strategies thus help the brain to learn better. Brain based learning is an extensive approach that applies the findings in education to improve the teaching learning process.

2.1 Neurological Perspective

The recent researches in field of neuroscience and cognitive psychology have given a new perspective to study and understand structure and functioning of brain and how the various parts of the brain effect the learning and how learning, thinking and emotions are related. Teachers needs to know and understand that the brain is an organ responsible for thinking and learning and understanding of its structure and functions will help to develop the instructional strategies that enable efficient learning.

The human brain is divided into lobes and each lobe has certain functions. The frontal lobe is involved in thinking and planning, the temporal lobe controls sound, speech and a part of long term memory, occipital lobe controls visual processing and parietal lobe controls orientation, calculations with certain types of identification. The motor cortex controls movement of the body and in coordination with cerebellum, it leads to motor skills. The brain stem is also called reptilian brain and deals with control and maintenance of various functions of body like heartbeat, respiration, body temperature, digestion and brain’s alertness. Then there is the limbic area of brain which regulates fear conditioning and other aspects of emotional memory.

Some part of limbic area process and interpret specific memory, but the three parts of limbic area which are important to learning and memory are thalamus, hippocampus and amygdala. Thalamus is the part of limbic area where the incoming stimulus is first received, except stimulus of smell, and they are then directed to other parts of the brain. Hippocampus, consolidate learning by concerting information from working memory to long term memory through electric signals. It constantly controls the information carried to the working memory, as it helps to establish the meaning. Amygdala plays significant role in controlling emotional behaviour, specifically the response for fear. It also controls the interactions that are necessary for the organism’s survival, such as fight or flight response. The cerebrum has two hemispheres which are connected through corpus callosum and communicate with each other to coordinate activities. The left hemisphere of the brain controls speech, logic sequence time, and math. The right hemisphere control music, art, emotional responses, intuition, pictures and summarization. Each hemisphere of the brain is further divided into four lobes that (i) controls visual and auditory processing, (ii) manages feelings and touch, (iii) regulates decision making and planning, creativity and problem solving and (iv) regulates emotions, personality, working memory, attention and learning. A basic understanding of structure and functioning of brain gives an idea how brain is involved in the learning, thinking and emotions. For learning to take place communication between neurons is crucial. As soon the information received by neurons passes through synapse, it undergoes physical and chemical changes. These changes allow one neuron to influence another. The formation, reformation or dissolution of neuron – neuron interaction, called neural plasticity, causes change in structure of brain due to external experiences. The neurons that are not required by the brain get degraded, damaged or are removed leading to synaptic pruning. After birth, the gray matter in brain shows
growth spurt, and at age of 11 years this reaches to a maximum density of neurons and increased gray matter, followed by synaptic pruning which prevent overcrowding of neural circuits for efficient functioning of brain.

2.2. Principles of Brain Based Learning
Human beings have natural tendency to learn from experiences. Classroom instruction is a complex sequential exercise of directing attention of diverse ability groups and backgrounds towards the topic; hold it so that development of interest may take place. It works on the assumption that understanding would occur and formation of meaning or learning would follow. Prospective teachers must understand the structure and function of brain to plan teaching strategies. It is claimed that each principle is confirmed by research from several domains, is universal and applies to everyone. The principles thus evolved showed that head, heart and hands are engaged in natural learning. These principles are as follows:

(i) All learning engages the whole Physiology: Physical movement when used with the teaching of subject matter brings changes in the brain and helps in learning. Individual remember physical movements and gestures better than anything else, sitting still can be boring and counterproductive. Therefore, the physical movement, involvement of all senses, role plays, educational games, making presentations, working on projects, should be included in the teaching learning process.

(ii) The brain/mind is social: The brain undergoes changes when there is interaction among individuals. The changes in brain due to social interpersonal relationship are explained by mirror neurons. Reflective neurons are “an alternate class of neurons that release both when an individual executes an engine demonstration and when he watches another individual playing out the equivalent or a comparative engine act”.

(iii) The search for meaning is innate: Every individual is born with ‘explanatory drive’ i.e. everything should make some sense. Each individual has inherent ability to filter input, systematically arrange information and experiences, and question about things of their interest and what they care for. At a deeper level every individual is yearning for meaningfulness and purpose.

(iv) Learning involves both focused attention and peripheral perceptions: Everything that an individual learns involves firstly, attention and emotional engagement and secondly, it is learned indirectly from the background. Learners should be emotionally engaged in learning and must be exposed to techniques like breathing, observation, etc. to acquire the skill of concentrating and maintain attention. The context should also be included during teaching learning process which can include aroma, colour, feel, temperature, sound of classrooms, posters, seating arrangement, etc. as context helps learners to understand and remember the information for longer duration as these indirectly give a background to the experiences.

3. BRAIN-BASED TEACHING
Brain based teaching is a new perspective in using technology and knowledge of the brain and its functions in order to get the most out of the education process. Brain based educational discipline unites the knowledge of neuroscience, psychology, and education, with the objective to optimize the learning and teaching process. Brain based teaching will change the way children study and learn. Learn how to teach better and how the brain learns new thing. Brain based teaching consists of teaching methods, lesson designs, and school programs that are based on the latest scientific research about how the brain learns, including such factors as cognitive development.

4. PROBLEM ISSUES
Prospective teacher face the problem of creating a brain-friendly classroom where all B.Ed students are engaged and active. Though overwhelming amount of considerations have emerged from current brain research, not all prospective teacher all over the world in general, and in our India in particular, are aware of the findings of these studies. In such a case, an unbalanced prospect for teachers to provide maximal learning opportunities for all students prevails and is created. Accordingly, there will be an urgent need to create positive emotional connections to learning so that long-term learning can be transferred easily and successfully to the real-world. If students feel unsafe, stressed, or are experiencing a low-cycle of brain activity, learning becomes impossible and they may hate the learning process as a whole and drop out. Conventional methods might be problematic and no longer is beneficial to students. B.Ed students on average, retain only five percent of information delivered through lecture twenty-four hours later. Prospective teachers try to do the teaching without considering whether the learners are motivated or not. Hence, employing methods that are more brain-friendly may be a way to increase the effectiveness of teaching and learning.

5. MOTIVATION
This study aims to investigate the effect of a brain-based learning program on working memory and academic motivation among the educational students. By gaining a better understanding of this process, prospective teachers can apply the findings to create safe, stress-free classrooms that will engage the minds of B.Ed students, improving their working memory, and that will help to ameliorate their academic motivation. Pronunciation is a reproduction of language sounds in such a way that the intended message is passed easily, and is properly understood by a fluent speaker of the language. An inability to learn articulation is a critical impediment in language learning. It is important to make the B.Ed students aware of this fact and get them to try intonation activities to help them become better at hearing and producing different intonation patterns.

6. INTERACTIVE TEACHING ELEMENTS OF BRAIN BASED LEARNING
The interactive teaching elements and principles of brain based learning are deeply interrelated. Based on the understanding of principles and teaching elements of brain based learning researcher has tried to organize different principles with interactive teaching element of brain based learning as presented below. It was also felt by the researcher that placement of few principles can be under more than one element, so the categorization of these principles under these elements is considered flexible.

1) Relaxed alertness
a) The brain/mind is social
b) Emotions are critical to patterning

c) Learning is enhanced by challenge and inhibited by threat

2. Orchestrated immersion
   a. All learning engages the whole physiology
   b. The search for meaning is innate.
   c. The search for meaning occurs through patterning
   d. The brain/mind processes parts and wholes simultaneously

3. Active processing
   a. Learning involves both focused attention and peripheral perceptions
   b. Learning always involves conscious and unconscious processes
   c. There are at least two approaches to memory: contextual and rote
   d. Learning is developmental
   e. Each brain is uniquely organized.

6.1 Elements, Principles and Strategies of Brain Based Learning

The elements and principles of brain based learning can be applied in the classrooms by identifying the teaching strategies that help the brain to learn naturally. These elements and principles can be utilized in classroom during teaching learning process by using appropriate resources and various instructional methods that can improve learning. The elements and principles of brain based learning with resources and instructional method that can be used in classroom. Though the effort has been made by researcher to enlist elements, principles and strategies, the list of strategies is non-exhaustive. Understanding of elements and principles of brain based learning help in selection of appropriate resources and methods for teaching to make learning effective. The brain based learning can be best described as engagement, strategies and principles. Learners need to be engaged in classroom using various strategies and resources based on principles of brain based learning. Emotional engagement, physical involvement, breaks, threat free environment, social interconnectedness, etc. must be included in a classroom to enhance learning.

Strategies: Individualized learning, Zero tolerance policy for teasing, humiliation, put downs, etc. Collaborative learning, Cooperative learning, Think-pair-share, Experience sharing, Freedom of expression, Problem based learning, Demonstrations, Experiments, Observations, Questioning, Brainstorming, Feedback, Reflective writing, KWLH charts, Practice, Memorization, Audio visual aids, Videos, Storytelling, Role plays, Art and drawing, Games, Movement, Humour, Mediation, Relaxation, Music, Analogies, Puzzles, Quiz, Seating arrangement, Break for water.

Phonics: Effective programs for phonics instruction help prospective teachers systematically and explicitly instruct B.Ed students in how to relate sounds and letters, how to break words into sounds, and how to blend sounds to form words.

Vocabulary: Skilled prospective teachers can expand their B.Ed student’s vocabulary by building background knowledge, reading rich literature aloud to their class and inspiring their B.Ed students to love read.

Fluency: Fluent readers can decode, recognize and comprehend the meaning of text at the same time, so their networks fire effectively and efficiently. Utilizing the slow arrival of duty model, to advance perusing familiarity is an acknowledged procedure among understanding specialists.

Reading Comprehension: Most prospective teachers would agree that the ultimate goal of reading is comprehension. When B.Ed students have mastered the alphabetic principle, and can masterfully decode words and read with fluency, their working memory is freed up for the task of comprehending the text. B.Ed students with a strong knowledge about the world and a wide range of things, bring to the reading process prior knowledge. When prospective teachers model comprehension strategies, they show the B.Ed students how to break down the text to extract meaning. When B.Ed students practice comprehension strategies correctly after teacher modeling, they strengthen their neurological circuitry.

7. METHODOLOGY

A sample is a small representation proportion of a population selected for observation and analysis. By observing the characteristics of the sample, one can make certain influences about the characteristics of the population from which it was drawn. For the present study, stratified random sampling technique was adopted. Stratified sampling is a method of sampling from a given population. In the present study, the sample was selected in the three phases.

(i) Selection of district
(ii) Selection of institutions
(iii) Selection of students

(i) Selection of district: In India, there are 29 states out of which Tamil Nadu was selected. Tamil Nadu has 37 districts. Among 37 districts, Karaikudi ranks 10th with a literacy rate of 90.49%. The Karaikudi was the most popular district of Tamil Nadu in literacy rate. It is educationally and socially best district.

(ii) Selection of institutions: There were four B.Ed institutions in Karaikudi, selected using random sampling method.

(iii) Selection of students: 500 B.Ed student datas were collected from the four B.Ed institutions. In each institution, a sample of 75 B.Ed students taken from the four B.Ed institutions. Thus the total B.Ed students sample size was 300.

<table>
<thead>
<tr>
<th>Category</th>
<th>I-1</th>
<th>I-2</th>
<th>I-3</th>
<th>I-4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.Ed Students</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>300</td>
</tr>
</tbody>
</table>

Table-1: Teacher sample size

Learning and pronunciation Enhancement Strategies tool was developed with six dimensions. They were Teacher Classroom Preparation, Classroom Environment, Curricular Learning Experiences, Co-Curricular Learning Experiences, Assessment and Follow up. The following scoring pattern was used to measure the tool for the prospective teachers.

<table>
<thead>
<tr>
<th>Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>3</td>
</tr>
<tr>
<td>Average</td>
<td>2</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
</tr>
</tbody>
</table>

Table-2: Scoring Pattern
8. RESULTS AND DISCUSSION

Pearson’s Product Moment Correlation was employed to find out the relationship between dimensions of learning and Pronunciation enhancement strategies i.e., teacher classroom preparation, classroom environment, curricular learning experiences, co-curricular learning experiences, assessment and follow up.

Table-4: Showing overall learning and pronunciation enhancement strategies

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Poor</th>
<th>Average</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher classroom preparation</td>
<td>0 (0.0%)</td>
<td>15 (5.0%)</td>
<td>285 (95%)</td>
</tr>
<tr>
<td>Classroom environment</td>
<td>0 (0.0%)</td>
<td>19 (6.3%)</td>
<td>281 (93.7%)</td>
</tr>
<tr>
<td>Curricular learning experiences</td>
<td>1 (0.3%)</td>
<td>75 (25.0%)</td>
<td>224 (74.7%)</td>
</tr>
<tr>
<td>Co-Curricular learning experiences</td>
<td>11 (3.7%)</td>
<td>208 (69.3%)</td>
<td>81 (27.0%)</td>
</tr>
<tr>
<td>Assessment</td>
<td>0 (0.0%)</td>
<td>56 (18.7%)</td>
<td>244 (81.3%)</td>
</tr>
<tr>
<td>Follow up</td>
<td>0 (0.0%)</td>
<td>19 (6.3%)</td>
<td>281 (93.7%)</td>
</tr>
</tbody>
</table>

Figure-4: Overall learning and pronunciation enhancement strategies

Total Learning and pronunciation enhancement strategies: Most (91.0%) of the prospective teachers were found to be good in implementing learning and pronunciation enhancement strategies in B.Ed education. Teacher classroom preparation: Most (95.0%) of the prospective teachers were found to be making good preparation before going to the classroom.

Classroom environment: Most (93.7%) of the prospective teachers were found to be good in providing motivation, encouragement, interest, guidance, good environment, creativity, punctuality and freedom for discussion to the students.

Curricular learning and pronunciation experiences: Around 3/4th of the prospective teachers appear to be providing good curricular learning and pronunciation experiences i.e., good teaching methods, teaching learning materials (TLM), computer, technology and activities.

Co-curricular learning experiences: Around 1/4th of the prospective teachers seem to be organizing good co-curricular learning experiences like sports and games, science fairs, science clubs, cultural activities and field trips.

Assessment: Majority (81.3%) of the prospective teachers were found to be conducting assessment based on continuous comprehensive evaluation i.e., oral test, slip test, written test, assignments, home work, essay writing, elocutions and quiz etc.

Follow up: Almost all the prospective teachers (93.7%) seem to be good in follow up.

9. CONCLUSION

This research indicated that on the whole most (91.0%) of the prospective teachers were implementing learning and pronunciation enhancement strategies in B.Ed education. Although most of the prospective teachers were good at classroom preparation (making good preparation before going to the classroom), classroom environment (providing motivation, encouragement, interest, guidance, good environment, creativity, punctuality and freedom for discussion to the students) and follow up, still curricular learning experiences (good teaching methods, teaching learning materials (TLM), technology and activities provided.
by the teachers), co-curricular learning experiences (sports and games, science fairs, science clubs, cultural activities and field trips organized by the prospective teachers) and assessment (oral test, slip test, written test, assignments, home work, essay writing, elocutions and quiz conducted by the prospective teachers) need attention.

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