

AWARENESS OF HIGHER SECONDARY SCHOOL TEACHERS ABOUT THE KNOWLEDGE AND PRACTICE OF BRAIN BASED LEARNING

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Abstract

The knowledge about the brain function and its effects on learning has the potential to revolutionize teaching and learning. As a result of brain based learning- stronger, more meaningful learning experiences and permanent brain connections are taking place. The study was intended to find out the awareness of higher secondary school teachers about the brain based learning. The teachers' knowledge about brain based learning and their practice of brain based learning were analyzed. Significant correlation between knowledge about brain based learning its practice clearly indicate that as the knowledge about brain based learning increases, the teachers become more capable of practicing new learning strategies for the benefit of the students.

Introduction

Brain based learning is a bridged discipline between neurology and the science of education, where educational psychology plays a key role. The brain based learning is a program that stemmed from scientific development which combines the knowledge of the brain and education, which brings neuroscience to the classroom in a new way. Specialists in the fields of neuroscience, psychology, cognitive science and education converge to improve the teaching methods and academic programs. Brain based learning activities engage both hemispheres of the brain simultaneously, which results in a stronger, more meaningful learning experiences and permanent brain connections.

Brain based learning refers to the teaching methods, lesson designs and school programs that are based on latest scientific research about how the brain learns, including such factors as cognitive development.

The core principles of brain based learning developed by Caine and Caine (1991) are:

- The brain is a parallel processor, which means that it can perform several activities at once.
- Learning engages the whole physiology
- The search for meaning is innate
- The search for meaning comes through patterning
- Emotions are critical to patterning, and drive our attention, memory and meaning
- The brain processes wholes and parts simultaneously
- Learning involves both focused attention and peripheral perception
- Learning involves both conscious and unconscious processes
- We have two types of memory: spatial and rote
- We understand best when facts are embedded in natural, spatial memory
- Learning is enhanced by challenge and inhibited by threat
- Each brain is unique
- The brain is social. It develops better in concert with other brains
- Meaning is more important than just information
- Information is stored in multiple areas of the brain and can be retrieved through multiple memory and neural pathways.

By knowing how the brain works, brain based learning supports learning by discovering the ways of maximum learning (Carolyn, 1997). This approach associates learning with the brain and the way it works and mentions the positive effects of the brain's features and its enhancing performance on learning. The important point of brain based learning is meaningful learning.

Brain based education emphasizes how the brain learns naturally and is based on what we currently know about the actual structure and function of the human brain at varying developmental stages. Using the latest neural research, educational techniques that are brain friendly provide a biologically driven framework for creating effective instruction. Teachers need to connect learning to students' real lives and emotional experiences as well as their personal histories and experiences. This form of learning also encompasses such newer educational concepts like: mastery learning, experiential learning, learning styles, multiple intelligences, cooperative learning, and practical simulations, experiential learning, problem based learning etc.

Problem Selected and it's Significance

The process of changing data into knowing, according to Kolb (1983) is the transformation of experience. Through this transformation only, the learners can be changed from knowledge receivers to knowledge producers. It is the duty of the teachers to shift the learners to the producers of knowledge. For that shifting the brain based learning is essential. Here the problem selected by the investigator is for checking the awareness of the higher secondary school teachers about the implementation of brain based learning strategies in teaching learning processes.

Statement of the Problem

The present problem is about knowing the awareness of higher secondary school teachers about the knowledge and practice of brain based learning in their classrooms. So the problem can be stated as:

How the higher secondary school teachers awareness about brain based learning can be assessed.

Title of the Study

Awareness of Higher Secondary School Teachers about the Knowledge and Practice of Brain Based Learning

Hypotheses of the Study

1. The level of awareness of the higher secondary school teachers about brain based learning is high
2. Majority of the higher secondary school teachers knowledge about brain based learning is high
3. Majority of the higher secondary school teachers practice the brain based learning in their classrooms

Objectives of the Study

1. To study the level of higher secondary school teachers awareness about brain based learning
2. To study higher secondary school teachers knowledge about brain based learning
3. To study about the practice of brain based learning among higher secondary school teachers

Method adopted for the study

Survey method was adopted for the present study.

Sample

The present investigation was carried out on a representative sample of 40 higher secondary school teachers from Trivandrum district.

Tools used

In order to understand the level of awareness of higher secondary school teachers towards the brain based learning, the investigator constructed a questionnaire consisting of 2 components namely knowledge about the brain based learning and practice of brain based learning.

Statistical techniques used

Mean, SD, Percentage analysis and correlation were the statistical techniques used for the study. Mean and SD were used for the categorization of the components.

Analysis and Discussions

Table 1
Teachers Opinion about the Brain Based Learning

Sl. No.	Statements	Yes %
1.	The purpose of my classroom is to create supportive, challenging and complex environment where questions are encouraged.	90
2.	I use and update information in all my education classes	97
3.	It is important to demonstrate and show teachers the new ways of teaching	77
4.	I would be more willing to initiate various learning strategies if there were more time to do so.	70
5.	I think the brain has the capacity to adapt and change over life time	80
6.	In my classroom I give importance to students stress management	50
7.	I feel all teachers should know how to implement brain based learning	62
8.	I have sufficient understanding of how the brain learns	45
9.	I feel the need to be more trained in the area of brain based learning	42
10.	All subject teachers need the knowledge about the new methods of teaching	83
11.	I utilize the technological supports during classes	23
12.	During my class I usually repeat information in many ways	73
13.	I support the use of real-life, multi-path learning over traditional learning in my classroom and also promote group learning	67
14.	I pre expose my students to content and context of a topic prior to teaching the content	50
15.	I use brain based learning strategies like graphic organizers, brain storming etc during the classroom teaching.	20
16.	I usually correct and reorient children with learning difficulties	57
17.	I encourage creativity of students by giving opportunities for displaying through bulletin boards and display areas	80
18.	I should teach all my students the meaning and purpose of various styles of learning	20
19.	In my classroom I provide regular feedback to students performance	60
20.	I provide enough time for physical activities during my class	15

90% of the teachers supported the need of supportive, challenging and complex environments for the effective teaching learning processes. These environments are capable of promoting free questioning, which is a successful predictor of higher order thinking. As far as a successful teacher is concerned, he/she must be willing to update the new trends and knowledge in their fields. High percentage of the teachers is of the view that they are willing to: accept the changes in their fields, undergo training, initiate various learning strategies. 80% of the teachers were of the view that brain has the capacity to adapt and change over life time. So they were capable of providing appropriate strategies for effective brain functioning.

Half of the teachers were giving importance to the students stress management. Understanding and controlling emotions is a key aspect of brain based learning. The goal is not only to teach learners to control their emotions but also to show them how they can use their emotions to their advantage. The ability to use emotions to our advantage is the key to a significant learning experience.

Majority of the teachers were of the opinion that all teachers irrespective of their subjects need to be trained in the brain based learning. 45% of the teachers were of the view that they had sufficient understanding of the learning taking place in the brain. 42% of the teachers admitted the need of more training in the brain based learning field.

The analysis of the practice of brain based learning showed that only 23% of the teachers utilized the technological supports during classes. 73% of the teachers repeated the content in many ways while teaching. One of the best ways to learn and store information in the memory is to repeat the information. A good strategy from brain based learning is repeating the material in different ways through different activities and experiences. Half of the teachers' pre exposed the students prior to teaching. Information is intentionally connected to prior learning. The stage is set before a unit of study is begun by the teacher preparing the students to attach new information to prior knowledge so the new information has something to latch onto.

Majority of the teachers supported the use of real life learning than traditional methods as experiential learning is one of the important areas in brain based learning. Only 20% of the teachers practiced brain based learning strategies in their classrooms. 57% of the teachers tried to correct and re orient learning difficulties. The advances in learning disorders allow us to not only help the children who have them with personalized support but also to provide them better tools to overcome these difficulties. Neuro-educational tools help to treat dyslexia in the classroom.

80% of the teachers promoted creativity of the students by helping them to display the materials. Rich, stimulating environments using student created materials and products are evident on bulletin boards and display areas. 60% of the teachers provided regular feedback to students performances. Feedback is essential for brain based learning and learning process. Giving feedback, knowing what they have done well and what they need to improve on is the basic help guide for learning. The teachers who gave time for physical activities during class time were only 15%. Physical activities can stimulate the brain's capacity and hence students are capable of becoming more active participants while teaching learning processes.

Table 2

Percentage of Teachers under Three Categories on the Knowledge about Brain Based Learning and Practice of Brain Based Learning

Components of brain based learning	High	Average	Low
Knowledge	12.5%	75%	12.5%
Practice	20%	62.5%	17.5%
Total	22.5%	62.5%	15%

This analysis shows that the higher secondary school teachers' awareness about brain based learning is in the average level. Higher secondary school teachers' knowledge about brain based learning and practice of brain based learning is in the average level. From this it is clear that the three null hypotheses are accepted.

A positive, significant correlation ($r=.716$, $p=.000$) was obtained between the knowledge about brain based learning and practice of brain based learning.

Conclusions

The higher secondary school teachers showed average level of awareness about brain based learning. The teachers have understanding about the need of providing creative and supportive classroom environment to the students for the free expression of their thoughts. For better understanding of students, teachers try to repeat the content in different ways. Due to the over emphasis on securing high results, teachers are usually in a hurry to finish the prescribed syllabi within the stipulated time. So they are not in a position to follow all the steps for the effective implementation of the brain based learning strategies. The positive and highly significant relationship between knowledge about brain based learning and practice of brain based learning would help the teachers in practicing it in their classrooms.

Implications

The study reveals the higher secondary school teachers' awareness about brain based learning. The results of the study showed that teachers have knowledge about brain based learning and also they practice the brain based learning strategies. The study also revealed the teachers need to get more opportunities for getting training over new learning strategies.

Suggestions

- Efforts to be made to eliminate fear, while maintaining a highly challenging learning environment.
- Teachers can design lessons for classroom environments to reflect conditions that facilitate learning.
- Teachers can encourage children to eat more healthy foods or exercise more, which are the two physical factors that have been shown to affect the brain health.
- The principles of brain based learning should be introduced into teacher-preparation programs and also the findings of neuroscience should be balanced with the practice of teaching.
- Help the learners to consolidate and internalize the information by actively processing it.

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