

CONCEPTUAL AWARENESS ABOUT BRAIN BASED LEARNING AND NEUROTHEOLOGICAL PRACTICES AT SECONDARY LEVEL

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Abstract

In the last decade of 20th century, educational neuroscience transfigured the field of education and posed different challenges to the educationists, scholars and intellectuals. The objectives of the study were; 1) to find out students perceptions about brain based learning at secondary school level 2) to check the awareness of neurotheological practices among secondary school student. It was a descriptive study. All the public secondary school students were the population of the study and sample of the study was selected through multistage sampling technique and finally 250 students were chosen randomly from the population of the study. Data was collected through the questionnaire that was constructed by the researchers after reviewing the related literature. The study found that emotions are critical to decision making that helps in creating innovation and novelty. The study concluded that a conducive environment within the classroom/institution makes feel to the students that they are active learners. The study may recommend that teachers may create a friendly and conducive atmosphere for students' better learning and it also recommend that students may offer prayer five times a day to relax their brain for better learning and innovative ideas and become happier.

Keywords: *Conceptual awareness, Brain based learning, neurotheological practices*

Introduction

Emergence of new fields of study in all disciplines revolutionized the world. In the result, people are facing various challenges in the all the fields especially in the field of education.

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In the last decade of 20th century, educational neuroscience transfigured the field of education and posed different challenges to the educationists, scholars and intellectuals. Aslan (2015) described that possession of knowledge and skills is no longer enough to overawe the challenges without utilizing different intellectual competencies at various situation in practical life. Therefore, most of the educational institutions are focusing to prepare its individuals to achieve their foremost emerging idea of life through cognitive capabilities. It is also the responsibility of the educational institutions to develop mental and physical abilities across disciplines (Al-Balushi & Al-Balushi, 2018). In his book, *save your brain*, Nussbaum (2010) described the five essential gears for brain health lifestyle; these five components are as: Socialization, physical activity, mental stimulation, spirituality and nutrition.

Educational neuroscience relates learning with brain and its ways of working. It further elaborates the improved performance of brain through neuroplasticity. The features of neuroplasticity positively affect the learning process. In other words, it can be said that educational neuroscience studied the association among brain, integration of neurons with learners' behavior toward learning. Brain based learning is a modern teaching learning technique that is promoted with the findings of educational neuroscience and modern technologies (Hansen & Monk, 2002). Brain based learning is a blend of various teaching learning concepts as cooperative learning, mastery learning, experiential learning, multiple intelligences and different theories related to human brain. In a brain based learning classroom, a teacher can make the frequent use of brain based activities. Classrooms is a place where a students learn the things in congruent way, so it is filled with brain friendly environment used brain based learning teaching methods to maximize learning and to minimize rote-learning (Noureen, Awan and Fatima, 2017). On the other hand, Nussbaum (2010) said that scientists reported, "Prayers which can be considered a form of meditation on daily basis enhances the immune system" and it is also explained that deep meditation integrates internal and external existence into a form of peaceful surrounding. The idea discussed in the above lines belongs to neurotheology; the neurotheological practices in routine life also impact students learning to a great extent.

The present study explores secondary school students' concept and awareness about the brain based learning and neurotheological practices. The very concept encourages

the students to integrate their learning with modern trends. Most of the educational institutions are focusing towards students' academic achievement (Hulleman, Schragar, Bodmann, & Harackiewicz, 2010). The academic outcomes of a student whether it is in quality or quantitative form represent the efficiency of the educational institution (Muis, Ranellucci, Franco, & Crippen, 2013). Shift of traditional teaching method to the modern teaching learning processes inspiring the teachers as well as students around the globe. In this way, brain based teaching learning accustomed a second nature to the teachers and students. Teachers can engage the students in brain based activities that encourage the explorations and support of professional and learning standards. Ramakrishnan and Annakodi (2013) asserts that teachers and students can create an effective community of learners who see learning as an opportunity to be successful problem solvers while anticipating each new challenge as another exciting adventure.

The objectives of the study are as under;

1. To find out students perceptions about brain based learning at secondary level.
2. To check the awareness of neurotheological practices among secondary school students.

Review of Related Literature

In teaching, educational neuroscience focuses the brain based learning principles and techniques. It is considered as student centered learning. During BBL teaching, students experience the utilization of whole brain. In this process, students engage actively in constructing their knowledge according to the prevailing situation. BBL education focus how brain works to develop understanding about students, how they learn and grow in a class environment (Madrazo and Motz, 2005). In this way, the teachers should inspire to study the current brain based researches to created learner oriented environment. Basically, the concept of BBL method informs that how the synthesis of learners' experiences, common sense and researches in the field develops research apparatuses and principles for classroom. The prevailing educational trends are guiding for students' better learning that teachers have sufficient knowledge about long term memory (LTM) and the short term memory (STM). It is also obligatory for a teacher to be well versed about how the previous learning affects learning at large.

Neuroscience explores that learning is an academic outcome that enhance learners' knowledge and skills through cognitive practices. Duman (2010) elaborates that principles of brain based learning and working of a brain in improving the learning, enhancing academic achievement and providing equal opportunities for individual differences. Brain based education suggests educators how to plan teaching strategies according to the working of brain for better learning. The major goal of brain based learning is motivating all type of learners and enhance positive attitude within the classroom. Jensen (2008) suggests more emphasize on how to learn than what to learn. Caine and Caine (1991) argued related to the nature of learning; how all learning is emotional and social. It is evidenced in the repercussions of precise brain research. Presently, the work of Caines' directed to understand how young adults learn. They presented a set of twelve principles that can apply to every child for their better learning.

Brain based learning gives positive feeling and ideas to the students. BBL not only increases students' educational performance but it also stresses team mood, interest and collaboration (Duman, 2010). The BBL principles encourage teachers and students toward effective learning through real life experiences. It's dramatic and life like situations supports the search for meaning and constructs. According to this learning method, students are motivated to take part in academic activities whereas the teaching material and instructions should be chosen according to learners' preferences. Ozden & Gultekin (2008) found that brain based learning is a better teaching method as compared to the prevailing teaching methods for science subjects at secondary level.

Brain based learning is not a packed suite that will resolve all educational problems (Sousa, 2011). A classroom comprised of learners having different intellectual and conceptual abilities; while brain based learning identified some principles, techniques, and strategies to improve learning for majority of the learners. Some of the brain based strategies that are most suitable for brain compatible class are; group work, innovative and creative learning experiences, storytelling, physical movements, learners' interaction, challenging environment, teacher's timely feedback. Teacher has assured about the lesson plan that it is relevant (Jones, 2008) because lesson relevance guarantee learners' success. Students' learning enhanced when they work in small groups.

One of the characteristics of brain base learning is the brain friendly environment. Teachers can use brain friendly approaches to arrange information for learners' better understanding. It is indicated the creating organizer after the content and vocabulary had been discussed significantly expedited the learning process. At first, teachers realize the learners to feel appreciated and safe, and then establish classroom routines related to brain friendly environment were perceived as vivacious constituents in highly successful educational institutions. Appropriate seating plan can impact students' learning. Ridling (1994) suggests three types of seating plan: rows, u-shaped and clusters. Teacher can observe carefully the classroom seating that should be flexible enough to alter according to the situation or set objectives.

Irrespective of the physical resources, spirituality plays a significant role that promotes learners' brain health. The study related to spirituality and the human brain is called neurotheology. The scientists reported that daily prayers and deep meditation enhance the mental faculties of human beings. So, it may assume that the study of neurotheology may interpret the mechanism of learning among students. Nussbaum (2010) informed us that persons who visit formalized religious services report happier lives and healthier live. Here, need a clarity regarding spirituality that it does not certainly related to religious beliefs rather it has various meanings, sometimes it means of tuning inwardness to adoptive a peaceful existence and to confiscate oneself from the hustle and bustle of the contemporary society.

Neurotheological practices provide a strong immune system to the students. Nussbaum (2010) supports that when the body and mind of students will be at ease, they can achieve a relaxed state of being for their study. When teachers apply brain base learning strategies within the classroom and encourage students to inspire the neurotheological practices. In the result of above-mentioned process, they reached to a type of homeostasis that is difficult to achieve but not impossible. Homeostasis is a term which refers to symmetry, balance and smoothness that exist within our body and support the deep learning processes (Nussbaum, 2010).

Further, BBL teaching method encourages expressive education instead of memorization. It is commonly observed that brain does not learn the material or things easily that are not interesting, expressive and rational. So, there is a natural tendency in the brain for the coherent and integrated information. A teacher must

create active and positive linkages in lecture during teaching learning process when he involves with learners. He should tell stories, images, comparisons, differences and metaphors in order to associate comprehensible information. The learner's brain is coerced and he actively involved in activities and come across patterning; in this way, he learns and it is a non-threatening environment (Tüfekçi, & Demirel, 2009). Neurologist and educators pinpoint how understanding of brain functions can improve teaching practices and increase students' dormant faculties.

Research Methodology

The present study was exploring the conceptual awareness about brain based learning and neurotheological practices at secondary level. It was a descriptive research. According to Gay, Mills, & Airasian (2008) data is collected to test the hypothesis or to find the answers of questions about existing position of the topic under study. Purpose of a descriptive research is to describe the things in such a way as they are present. Survey method was used to collect data that was most common in educational research. In survey studies effect of one or more variables is observed on a sample by researcher to generalize it on entire population taken for the study. All the public secondary school students from district Vehari constituted the population of the study. Researcher used multistage sampling technique for present study. The sample of fifty schools was selected from district Vehari at first stage. At second stage, 5 secondary school students were randomly selected from the chosen public secondary schools. The total sample comprised of 250 public secondary school students. The researchers designed a questionnaire for the study. As the study was descriptive, so questionnaire was an appropriate research tool to find the perceptions of public secondary school students about brain based learning and neurotheological practices. Questionnaire was developed after getting the thorough review of related literature. Questionnaire's validity was confirmed through expert's opinion. Pilot testing is used to confirm the reliability of questionnaire while the overall reliability was 0.83 co-efficient alpha. The questionnaire was finalized with 28 items. Data was collected through questionnaire. The researchers distributed 250 questionnaires in 50 public secondary schools. But 240 questionnaires were found thoroughly filled, so, the response rate of the filled questionnaires was 96%. Data was analyzed through SPSS and both descriptive and inferential statistics used. Researchers used the most

frequently used statistical techniques as frequency, percentage, mean score and standard deviation.

Data Analysis

Table No. 1

Students' Perceptions about Brain Based Learning

S. No.	Statements	DA		UD		A		Mean	SD
		f	%	f	%	f	%		
1	Emotions are critical to decision making	78	32.5	18	7.5	144	60	2.28	.924
2	Human brains seek novelty	--	--	38	15.8	202	84.2	2.84	.336
3	Learning is a constructive process	--	--	14	5.8	226	94.2	2.94	.235
4	Stress impact the learning negatively	--	--	4	1.6	236	98.4	2.98	.128
5	Learning is enhanced by challenge	108	45	24	10	108	45	2.00	.951
6	Learning inhibited by threat	84	35	14	5.8	142	59.2	2.24	.942
7	Movement can enhance learning due to increased oxygenation of the brain	72	30	34	14.2	134	55.8	2.26	.892
8	Self-regulation is an integral part of higher order thinking skills	48	20	70	29.2	122	50.8	2.31	.785
9	What I am learning is interesting to me	--	--	46	19.2	194	80.8	2.81	.394
10	Students learn better when they receive information in their preferred learning style (e.g. auditory, visual, kinesthetic)	--	--	06	2.5	234	97.5	2.98	.156
11	Environments that are rich in stimulus improve the brain of students	--	--	--	--	240	100	3.00	.000
12	Due to sufficient drinking water, students feel active in learning	66	27.5	16	6.7	158	65.8	2.38	.889
13	In most of my classes, I do not do anything interesting	88	36.7	2	0.8	150	62.5	2.26	.964
14	When I am in school I feel comfortable and happy	104	43.3	--	--	136	56.7	2.13	.993

Table 1 reveals that the mean score and standard deviation increases (from 2.00 to 2.00; from .000 to .993) respectively. The respondents (60%) describes that emotions

are critical to decision making. It is informed that the respondents (100%) are agreed to the statement that rich environment provide stimulus to improve student brains. The respondents are equally divided in their views regarding the statement, "learning is enhanced by challenge". Majority of the students (84.2%) are clear in opinion that human brain seeks novelty and they (94.2%) also endorsed that learning is a constructive process. The respondents (98.4%) accepts the fact that stress impact the learning negatively. The secondary school students (59.2%) agreed that learning repressed by threat while rest of the students (35%) disagreed the statement simultaneously. Majority of the respondents (55.8%) accept the myth of brain based learning that movement can enhance learning due to increased oxygenation in the brain whereas as respondents (50.8%) support the idea that self-regulation is an essential part of higher order thinking skills. Majority of the students (80.8%) support that they learn the things which they feel interesting to them while they (97.5%) learn in a better way when they receive information in their preferred learning style. Again, majority of the respondents (65.8%) support the brain based learning myth, "due to sufficient drinking water, students feel activeness in learning". In the last statement, "when I am in school I feel comfortable and happy" respondents (56.7%) agreed to the statement while the respondents (43.3%) are disagreed to it.

Table No. 2*Students' Perceptions about Neurotheological Practices*

S. No.	Statements	DA		UD		A		Mean	SD
		f	%	f	%	f	%		
15	I offer prayer five times a day	100	41.7	40	16.6	100	41.7	2.00	.915
16	I attend a formalized place of worship daily	72	30	58	24.2	110	45.8	2.16	.858
17	I feel happier and healthier due to visit to formalized place of worship	56	23.3	38	15.8	146	60.8	2.38	.839
18	I offer prayer once a week	92	38.3	10	4.2	138	57.5	2.19	.962
19	I attend a formalized place of worship weekly	94	39.2	58	24.2	88	36.7	1.98	.872
20	I attend a formalized place of worship monthly	82	34.2	76	31.7	82	34.2	2.00	.828
21	I engage myself in relaxation procedures daily	100	41.7	6	2.5	134	55.8	2.14	.979

22	I believe that meditation offers inner peace	66	27.5	30	12.5	144	60	2.33	.879
23	I get enough sleep daily to feel rested and energetic	126	52.5	--	--	114	47.5	1.95	1.00
24	I get insufficient sleep daily to feel somewhat energetic	78	32.5	--	--	162	67.5	2.35	.939
25	I observe the fasts in Ramdan	46	19.2	42	17.5	152	63.3	2.44	.795
26	I perform breathing exercises to put my mind at ease	44	18.4	62	25.8	134	55.8	2.38	.777
27	I sit in silence, away from technology use	109	45.4	--	--	131	54.6	2.09	.998
28	When I feel anxious, I take a moment to relax	78	32.5	--	--	162	67.5	2.35	.939

Table 2 reveals that the mean score and standard deviation increases (from 1.95 to 2.44; from .777 to 1.00) respectively. The respondents (41.7%) were agreed and disagreed simultaneously to the statement, "I offer prayer five times a day" while the respondents (16.6%) having neutral view regarding the statement. Respondents (45.8%) opinion informed that they daily visit the formalized worship place i.e. masjid or church etc. whereas the respondents (60.8%) described that they feel happier and healthier to visit the formalized place of worship. The respondents (57.5% and 36.7%) narrated that they offer prayer once a week and attend a formalized worship place once a week respectively; on the other hand, the respondents (34.2%) visit the formalized worship place on monthly basis. The respondents (55.8%) agreed that they engage themselves in relaxation procedures daily and they (60%) also believe that meditation offers inner peace. The students (52.5%) disagreed that they get enough sleep daily to feel rested and energetic while majority of the respondents (67.5%) response that they get insufficient sleep. Next, they (63.3%) acknowledge that they observe the fasts in Ramdan. Somewhat, they (55.8%) perform breathing exercises to put their mind at ease for their working conditions. The respondents (54.6%) affirm that they find some lonesome place where they can avoid technology use while rest of the respondents (45.4%) disagreed to the statement. Majority of the respondents (67.5%) response that they take rest when the feel anxious.

Findings and Conclusion

At present times, the secondary school students are shifting from traditional way of teaching to modern teaching skills and brain based learning techniques. The study found that emotions are critical to decision making that helps in creating innovation and novelty. It is also found that learning is a constructive process that can be opted through different challenging situations. The study found that stress impact the learning negatively and it is also affirmed by the majority of the students (59.2%) that threat repressed their learning. The study found that students (80.8%) learn the things quickly which they feel interesting and important for them, so, they like to receive information/instruction in their preferred learning style (97.5%). It is found that the majority of the students accept the idea of sufficient drinking water for their active learning. The study concluded that drinking sufficient water is essential for students for the activation of their brain cells because it provide oxygen to the brain cells and overhaul the process of neuroplasticity. No doubt, emotion play a significant role in decision making, when the brain of a student will be in an active form, he/she will take good or right decisions for their future or learning. It is also concluded that a conducive environment within the classroom/institution makes feel to the students that they are active learners. Further, the study found obligation of spirituality related to learning and secondary school students' neurotheological practices. It is an admitted fact and various researches in the world informed us that theological practices are sources of peace and inner satisfaction to the beings. Secondary school students offer prayers and also visit to the formalized worship places and they acknowledge the importance of spirituality and theological practices for their happier and healthier life but they are lack in number who adopted the above-mentioned practices. It is admitted by the respondents (60%) that they opt the techniques of meditation for inner peace. The respondents are agreed that they are not getting the proper sleep due to their indulgence in contemporary technology use. The study concluded that students are feeling restless due to lack of sufficient sleeping habits as well as technology use.

Recommendations

The study may recommend

1. The study may recommend that teachers may create a friendly and conducive atmosphere for students' better learning.

2. It may be recommended that students may offer prayer five times a day to relax their brain for better learning and innovative ideas and become happier.
3. The students may visit the formalized worship places frequently to activate their brains for favorable learning and they may also get some time for their own self; away from the contemporary technology use.

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