



Conceptual Awareness about Brain-Based Learning and Neurotheological Practices at Secondary Level

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Abstract

When educational neuroscience emerged in the latter decade of the 20th century, it completely transformed the area of education and presented a slew of new difficulties to educators, scholars, and intellectuals. The study's goals were to 1) ascertain secondary school students' conceptions about brain-based learning 2) assess students' awareness of neurotheological practices. It was a descriptive study, and the study sample consisted of all public secondary school students, and 250 students were chosen at random from the study population. The researchers developed a questionnaire after reading relevant literature. The study indicated that emotions influence decision-making, fostering creativity and uniqueness, so it concluded that a suitable classroom/institution environment makes students feel like active learners. The study may suggest that teachers create a favorable learning environment for better learning, and it may also recommend that students offer prayer five times daily to relax their brains and improve learning and creativity.

Key Words: Conceptual Awareness, Brain-Based Learning, Neurotheological Practices

Introduction

The emergence of new fields of study in all disciplines revolutionized the world. As a result, people are facing various challenges in all fields, especially in the field of education. When educational neuroscience emerged in the latter decade of the 20th century, it completely transformed the area of education and presented a slew of new difficulties to educators, 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 in various situations in practical life. Therefore, most educational institutions are focusing on preparing their individuals to achieve their initial emerging idea of life through cognitive capabilities. It is also the responsibility of the educational institutions to developmental 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 Socialization, physical activity, mental stimulation, spirituality, and nutrition.

Educational neuroscience is concerned with the relationship between learning and the brain and its ways of operating. It explains how neuroplasticity can help the brain perform better than it otherwise would. The characteristics of neuroplasticity have a positive impact on the learning process. In other words, educational neuroscience is the study of the relationship between the brain and the integration of neurons and the behavior of learners in the context of learning. Brain-based learning is a modern teaching and learning technique supported by the discoveries of educational neuroscience and modern technologies. It is becoming increasingly popular (Hansen & Monk, 2002). Brain-based learning is a fusion of several concepts and theories linked to the human brain when it comes to teaching and learning. These concepts include cooperative learning, mastery learning, experiential learning, multiple intelligences, and various theories related to the human brain. In a brain-based learning classroom, a teacher can regularly incorporate brain-based exercises into the curriculum. Students' consistent learning requires that classrooms be equipped with brain-friendly environments that employ brain-based learning teaching approaches to optimize learning while minimizing rote learning (Noureen, Awan, and

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Fatima, 2017). On the other hand, Nussbaum (2010) said that scientists reported, "Prayers which can be considered a form of meditation on a daily basis enhances the immune system," and it is also explained that deep meditation integrates internal and external existence into a form of the 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 current study investigates secondary school students' conceptions and awareness of brain-based learning and neurotheological practices and their attitudes. The very concept encourages the students to integrate their learning with modern trends. Most educational institutions are focused on students' academic achievement (Hulleman, Schrager, 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). The shift of traditional teaching methods to the modern teaching-learning processes inspires the teachers as well as students around the globe. In this way, brain-based teaching-learning is accustomed to second nature to the teachers and students. Teachers can engage students in brain-based activities that foster investigation and support professional and learning standards while also encouraging them to think critically. According to Ramakrishnan and Annakodi (2013), instructors and students may work together to build an influential community of learners who see learning as an opportunity to become successful problem solvers while anticipating each new challenge as an exciting adventure.

The objectives of the study are as under;

1. To ascertain secondary school students' conceptions about brain-based learning.
2. To assess secondary school students' awareness of neurotheological practices.

Review of Related Literature

In teaching, educational neuroscience focuses the brain-based learning principles and techniques. The term "student-centered learning" refers to this approach. During BBL instruction, pupils are exposed to the use of their entire brains. When students participate actively in this process, they create their knowledge in response to the current context. Brain-based learning (BBL) education focuses on how the brain works to gain knowledge of students, how they learn, and how they grow in a classroom setting (Madrado and Motz, 2005). As a result, teachers should be motivated to learn more about current brain-based research to create a more learner-centered environment for their students. Essentially, the BBL method informs how the synthesis of learners' experiences, common sense, and field research results in the development of research equipment and principles for application in the classroom environment. The current educational trends are directing improved learning for students by ensuring that teachers have a proper understanding of long-term memory (LTM) and 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 enhances learners' knowledge and skills through cognitive practices. Duman (2010) elaborates that principles of brain-based learning and working of a brain in improving 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 the brain for better learning. The major goal of brain-based learning is to motivate all types of learners and enhance positive attitudes within the classroom. Jensen (2008) suggests more emphasis 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.

Students benefit from brain-based learning since it instills positive feelings and concepts. Students' educational performance is improved not just via BBL but also through the enhancement of team mood, interest, and collaboration (Duman, 2010). Through real-world experiences, the BBL principles guide teachers and students toward more effective learning opportunities. The search for meaning and constructs is aided by the dramatic and real-life circumstances that are presented. According to this learning technique, students are encouraged to participate in academic activities, and the learners' preferences should select the teaching material

and instructions. Ozden and Gultekin (2008) discovered that brain-based learning is a superior teaching approach for science courses at the secondary level compared to the currently used teaching methods in the field.

In contrast to popular belief, brain-based learning is not a comprehensive solution to all educational challenges (Sousa, 2011). While a classroom is made up of students with varying intellectual and conceptual ability levels, brain-based learning has discovered specific concepts, approaches, and strategies that can be used to promote learning for the vast majority of the students. The following are the brain-based strategies most appropriate for a brain-compatible class: group work, innovative and creative learning experiences (including storytelling), physical movements (including stretching), learners' interaction, a challenging environment, and timely feedback from teachers. The teacher has assured the lesson plan that it is relevant (Jones, 2008) because lesson relevance guarantee learners' success. Students' learning is enhanced when they work in small groups.

One of the characteristics of brain base learning is a brain-friendly environment. Teachers can use brain-friendly approaches to arrange information for learners' better understanding. Creating an organizer after discussing the subject and terminology accelerated the learning process. Classroom practices associated with a brain-friendly environment were recognized as vibrant constituents in highly effective educational institutions. A good seating layout can help pupils learn. The seating plan is divided into three categories by Ridling (1994). The teacher can carefully watch the classroom seating to adapt to the situation or established goals.

Irrespective of the physical resources, spirituality plays a significant role in promoting 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, we need clarity regarding spirituality that it does not certainly relate 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 are at ease, they can achieve a relaxed state of being for their study, when teachers apply brain-based learning strategies within the classroom and encourage students to inspire the neurotheological practices. As the result of the above-mentioned process, they reached a type of homeostasis that is difficult to achieve but not impossible. Homeostasis is a term that refers to symmetry, balance, and smoothness that exist within our body and supports the deep learning processes (Nussbaum, 2010).

In addition, the BBL teaching technique fosters expressive education rather than memorizing facts. It is frequently noted that the brain does not learn the material or things that are not fascinating, expressive, or reasonable as quickly as material or things. The brain naturally gravitates toward cohesive and integrated information, as evidenced by the following: When a teacher incorporates students in the learning process, he or she must establish active and positive links in the classroom during the lecture. In order to associate understandable information, he should use stories, images, analogies, distinctions, and metaphors to convey his message. The learner's brain is pressured into participating in activities and coming across patterning; in this way, he learns in a non-threatening environment (Tüfekçi & Demirel, 2009), and the environment is non-threatening to him. Researchers and educators have identified ways to understand better brain functioning that might improve teaching practices and help students develop latent talents.

Research Methodology

The current study explored secondary students' understanding of brain-based learning and neurotheological practices. It was descriptive research. According to Gay, Mills, & Airasian (2008), data is collected to test the hypothesis or to find the answers to questions about the existing position of the topic under study. The purpose of descriptive research is to describe things in such a way as they are present. The 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 the researcher to generalize it on the entire population taken for the study. All the public secondary school students from district Vehari constituted the population of the study. The researcher used a multistage sampling technique for the present study. The sample of fifty schools was selected from district Vehari

at the first stage. In the second stage, five secondary school students were randomly selected from the chosen public secondary schools. The total sample comprised 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.

The questionnaire was developed after getting a thorough review of related literature. The questionnaire's validity was confirmed through the expert's opinion. Pilot testing is used to confirm the reliability of the questionnaire, while the overall reliability was 0.83 co-efficient alpha. The questionnaire was finalized with 28 items. Data was collected through a 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 were analyzed through SPSS, and both descriptive and inferential statistics were used. Researchers used the most frequently used statistical techniques as frequency, percentage, mean score, and standard deviation.

Data Analysis

Table 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 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 increase (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 with the statement that a rich environment provides stimulus to improve student's brains. The respondents are equally divided in their views regarding the statement, "learning is

enhanced by the challenge". The majority of the students (84.2%) are clear in the opinion that the human brain seeks novelty, and they (94.2%) also endorsed that learning is a constructive process. The respondents (98.4%) accept the fact that stress impact learning negatively. The secondary school students (59.2%) agreed that learning was repressed by threat, while the rest of the students (35%) disagreed with the statement simultaneously. The 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 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 are interesting to them while they (97.5%) learn in a better way when they receive information in their preferred learning style. Again, the 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%) disagree with it.

Table 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 visiting 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 with the statement, "I offer prayer five times a day," while the respondents (16.6%) having a 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. 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%) responded that they get insufficient sleep. Next, they (63.3%) acknowledge that they observe the fasts in Ramadan. 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 the rest of the respondents (45.4%) disagreed with the statement. Majority of the respondents (67.5%) response that they take a rest when they feel anxious.

Findings and Conclusion

At present times, the secondary school students are shifting from the traditional way of teaching to modern teaching skills and brain-based learning techniques. According to the study, emotions are crucial in making decisions that help generate new ideas and concepts. Learning is also a joyous process that can occur in various harsh conditions. According to the survey findings, stress harms learning, and the majority of students (59.2%) agreed. More than eight in ten students (80.8%) prefer receiving knowledge/instruction in their chosen learning method because they are more likely to retain the material (97.5%). The majority of students agree with the idea that they need to drink plenty of water to participate fully in their education. According to a new study, students need to drink plenty of water to activate their brain cells. Water provides oxygen to the brain cells, allowing them to rewire themselves. When a student's brain is engaged, they are more likely to make excellent or proper judgments for their future and education. In addition, it has been found that students feel more engaged when they are in a setting that encourages their participation. Further, it is 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 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 the number who adopted the above-mentioned practices. It is admitted by the respondents (60%) that they opt for 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 a lack of sufficient sleeping habits as well as technology use.

Recommendations

The study may recommend

1. The study results may advise teachers to foster an environment that is more favorable to learning for their students.
2. It may be suggested that students pray five times a day to relax their brains for better learning and inventive thoughts and become happier and more positive.
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 themselves own self; away from the contemporary technology use.

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