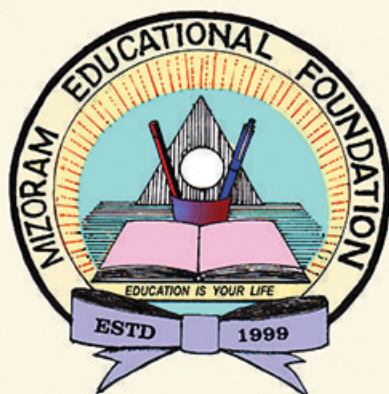


ISSN 2395-731X

Mizoram Educational Journal

(A National Refereed Journal)



Vol. VII Issue 1, March, 2021
&
Vol.VII Issue 2, June, 2021

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ISSN 2395-731X

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Annual Subscription

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Full page	₹ 1500
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Mizoram Educational Journal, a national refereed journal is a publication of Mizoram Educational Foundation (MEF), Mizoram, Aizawl. Mizoram Educational Foundation is a body of professionals interested in promoting the cause of education for the overall development of Mizoram in particular and of the country in general. It was started way back in 1999 when the first adhoc Executive Committee consisting of college teachers in Aizawl as well as teachers from Department of Education, NEHU, Mizoram Campus, Aizawl, was constituted. It was registered under Societies Registration Act, 1860 with registration no. S.R./MZ-64 of 2005-06 on 6th September, 2005. Apart from providing a forum by organizing seminars, conferences, symposia and other related academic activities on various educational matters, Mizoram Educational Foundation disseminates educational ideas, knowledge, experiences and research findings through its journal named Mizoram Educational Journal.

Views and opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of Mizoram Educational Foundation.

Published by Prof. C.Lalremruata on behalf of the Mizoram Educational Foundation.
Postal Add: Ramhlun Venglai, Aizawl, Mizoram 796 012. Contact No. 9436366369;
Email: ruatachhangte@gmail.com

Printed at:



Lois Bet
Print & Publication
Chanmari, Aizawl
Ph : 2349250 / 2349970

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From the Desk of the Chief Editor

The Editorial Board of Mizoram Educational Journal is happy to bring out Volume VII, Issue 1 & 2 of the journal. This combined issue presents interesting, informative and thought provoking research papers and a general article to the readers. A scientometric analysis of education research in the global context contributed by Akhandanand Shukla gives an insight into the performance of education research on a global scale. The paper tells us that in every way, the United States is a leading contributor to education research, whereas India's contribution to education research is negligible which is challenging to all of us.

The classification of educational objectives by Bloom is not only interesting but its knowledge and application is a must for every teacher in teaching and assessment of students. Lalchhuanmawii and Vadhera's study on awareness of teachers regarding Bloom's taxonomy of educational objectives suggests that teachers should be made more aware of Bloom's taxonomy and its relevance in education particularly in question paper setting.

The investigation done by C. Lalhmunsiamia and Nitu Kaur on scientific creativity among higher secondary school students tells us that the students possess a desirable level of scientific creativity and score highest in fluency factor followed by flexibility and originality factors of scientific creativity which is quite encouraging.

Sian Lalchhandami and H.Malsawmi analyse the exercises in the secondary school English textbooks to see whether they develop higher order thinking skills in the students or not. As finding of the study implies that the exercises in Class IX and X English textbooks are mostly concentrated on developing the ability to comprehend and apply learnt information, they recommend that more exercises to improve the higher order thinking skills of the learners be included in both the textbooks the realization of which would improve our education.

A study on access and perception of web-based learning among undergraduate students of Aizawl city submitted by V.Vanlalruati and Sweta Dvivedi tells us that the students have uncertain perception on web-based learning. Many students are not familiar with various academic sites, application software and system software. Even though the students face many problems in handling web-based learning technologies, they somehow manage to cope with the online classes during Covid 19 pandemic.

Another study conducted on depression during pandemic among secondary school students in Aizawl city by Christina Lalchhanchhuahi, Khawpuisangi Ralte and Lallianzuali Fanai reports that secondary school students of Aizawl city have a normal depression level. Comparative analysis of depression level based on their gender shows that female students of secondary schools in Aizawl city have relatively higher level of depression as compared to the male students. This finding may imply that female students need to be given more attention and counseling to save them from depression.

R. Lalthankhumi and Lalbuatsaiha take us to a different scene - Integrated Blind School at Kolasib. The study reports about the school, the facilities available, the contributions of the school, the problems confronted by the blind students and gives some suggestions for improvement of the education of blind students. A Comparative Study of Gilead Special School, Aizawl and Ashadeep, Guwahati done by V. Vanlalruati and Lalmangaihzuai also informs us about the participation and contributions of the two special schools for the welfare of the disabled under both their coverage.

One way of finding out the effectiveness and dedication of teachers to their profession is to conduct attitudinal study towards the teaching profession. This was done by Mary L. Renthlei and H. Malsawmi whose finding reveals that there are more teachers in the sample who have positive attitude towards teaching profession than those who do not.

Anxiety disorders are the most common form of emotional disorder and can affect anyone at any age. The study conducted by Lallawmkima, MS Dawngliani and Lallianzuali Fanai makes known to us that majority of secondary school students in Kolasib district have high academic anxiety and that there is a significant difference in relation to gender in which the level of academic anxiety is higher in boys than girls.

Last but not the least, the article of Lal Rem Siami and Lalhmasai Chuaungo enlightens us on the emerging trend in teaching called Whole Brain Teaching. The article encourages the teachers to break away from conventional norms and allow students to engage, involve, and activate the whole brain in learning. It also tells us that teachers can incorporate teaching techniques known as the 'Big Seven' into their everyday classroom to enhance the students' academic achievement.

Publication of a journal is not possible without contributions of research papers and articles from researchers and writers. As such, I, on behalf of the Editorial Board of Mizoram Educational Journal convey my sincere thanks to all contributors of the papers for making it possible for the journal to accomplish its task of disseminating educational ideas, knowledge and research findings among the public.

Lalhmasai Chuaungo
Chief Editor

A Scientometric Analysis of Education Research in the Global Context

Akhandanand Shukla*

Abstract

The study examines the performance of Education research on a global scale, with the top 20 countries studied out of 216 countries indexed for Education research. The research spanned a period of 21 years. The study reviewed and studied the scope of education research, as well as its citation metrics, h-index metrics, and RCI values. In every way, the United States has been identified as the leading contributor to education research, whereas India's contribution to education research is negligible.

Keywords: Research Productivity, Education Research, Citations, h-index, RCI, Scopus.

Introduction

“Education is the process of facilitating learning, or the acquisition of knowledge, skills, values, morals, beliefs, and habits. Educational methods include teaching, training, storytelling, discussion and directed research. Education frequently takes place under the guidance of educators, however learners can also educate themselves” (Wikipedia, n.d.).

Education is a subject that deals with lifelong learning, which we all know is a never-ending process. Every human being learns something new throughout his or her lifetime. Though there are some fundamental differences between lifelong learning and school/college/university learning. Education and learning are always changing to keep up with the times. Along with the traditional system of education, new techniques of educating pupils include online learning, virtual learning, mobile learning, and so on. To improve learning directions, pedagogy, learning styles, delivery patterns, and so on, several sorts of research are undertaken and practiced. Since a long time, the Scopus database has covered the bulk of the materials published in the form of journal articles, conference proceedings, books, and book chapters. The study used scientometric indicators to track the development of the subject “Education” around the world using the Scopus database.

*Dr. Akhandanand Shukla, Associate Professor, Department of Library & Information Science, Central University of Tamil Nadu, Thiruvavur, Email: akhandanandshukla@gmail.com <http://orcid.org/0000-0001-7157-5600>

Literature Review

Shukla (2019) conducts a global scientometric examination of scholarly communications on “urban studies” using the Scopus database. The study focuses on the top 20 most productive countries on the planet. According to a scientometric analysis of the top 20 countries, the United States and the United Kingdom are the leading researchers in the field of “urban studies” in the worldwide scenario. Barrot (2017) examined the research production and influence of Southeast Asian countries in Language and Linguistics using the Scopus database and discovered that the number of publications has increased over time and that the majority of publications are shared by a few elite universities. Using the Scopus database, Naheem et al. (2017) looked at the research production of SAARC countries in Chronic Liver Disease from 1996 to 2015. They discovered a total of 2312 documents, accounting for only 3.49 percent of worldwide output; nonetheless, productivity has improved, and India now leads the world in terms of publication share, institutional share, and the number of authors. Zarei et al. (2017) used the Scopus database to examine “Breast Cancer” research output in Iran from 1991 to 2015 and discovered a growing trend of publishing and citation in breast cancer research papers. They found a total of 2399 publications, averaging 95.96 papers per year, and 15574 citations, averaging 6.49 citations per year. They ranked Iran as the 27th most important country among the top 30 countries, and the top 20 publishing journals on breast cancer published 744 (31%) papers from Iran, with 15 journals published from Iran. Dhawan et al. (2017) looked at 34641 global publications on mobile computing from 2007 to 2016 and found a 9.35 percent annual growth rate in publishing with 3.39 citations per piece. They listed the top most prolific countries, as well as their world share and publication collaboration share. Also recognized were the topmost cited papers and publications. Djalalinia et al. (2017) used the Scopus database to scientometrically examine health-related research output in Iran from 2000 to 2014. Their research looks at the top authors, journals, and collaborative research centres in the field of health research, as well as trends in scientific publication, citation, and collaborative research publication. Using SCImago data, Afshari (2014) evaluated “Toxicology” research in the Asia Pacific region from 1996 to 2013 and compared it to research in the Northern American region. Furthermore, while there has been an increase in research over the years, there has been a low level of citations when compared to North American countries. There have been a lot of scientometric studies employing Scopus (Shukla & Maurya, 2018; Tripathi & Garg, 2016; Meho & Sugimoto, 2007) and Web of Science to analyze scholarly communications (Hodhodinezhad et al., 2013; Costas & Bordons, 2007).

Scope and Limitations of the Study

The study spans a period of 21 years, from 1996 to 2016, and includes global research data on “Education.” Using the Scopus database’s SCImago service, the analysis was limited to the top 20 nations in the world in terms of research performance on “Education” during the time.

Objectives of the Study

The objectives of the study are to:

- a) Assess the quantitative research performance on Education in a global context.
- b) Evaluate citation-related performance for Education research at a global level.
- c) Evaluate Education research's *h*-index and RCI performance in the global context.

Research Methodology

The study was confined to assess the Education research at the world level by applying scientometric indicators. There are 216 countries identified for contributing Education research in the world. The data collected for 216 countries from the data source (SCImago of Scopus) but the study was made limited to analyze the top 20 countries of the world based on their significant research performance in Education research. The required data has been collected for the period from 1996 to 2016 i.e. 21 years. The collected data were tabulated and processed using MS-Excel.

Results and Discussion

a) *Quantitative Research Performance in Education*

There are total 216 countries identified for Education research under Scopus database during 1996-2016. A total of 588693 research documents have been indexed in Scopus database during the study period from all around the world i.e. 216 countries. From Table 1, we can see that the top 20 countries (9.26% of 216 countries) share is 493503 documents that are 83.83% of the world total. The result shows that major (83.83%) research documents in the field of Education are contributed by 9.26% countries whereas the rest (16.17%) of research documents are contributed by 90.74% countries of the world. From the observation of Table 1, it is evident that the United States is the highest contributor of research documents with 231578 documents that are 39.33% share of world countries, and so got the first rank in world level. The United Kingdom has contributed 58710 research documents that are 9.97% share of world countries, and so placed in the second rank amongst world countries. Similarly Australia has contributed 30152 (5.12%) research documents with third rank followed by Canada (24296, 4.12%, 4th rank), China (19042, 3.23%, 5th rank), Spain (16059, 2.72%, 6th rank), Germany (15815, 2.68%, 7th rank), Netherlands (10681, 1.81%, 8th rank), Brazil (10059, 1.70%, 9th rank), Turkey (10015, 1.70%, 10th rank), and Hong Kong (5425, 0.92%, 20th rank). India has been placed in 16th rank amongst the top 20 countries in Education research.

Table 1: Quantitative & Qualitative Research Performance of Countries in Education (1996-2016)

Rank	Country	Docs.	Citable docs.	Citations	Self-citations	Cit. per docs.	H index	% Cit.	% Docs.	RCI
1	United States	231578	217961	2927551	1719002	12.64	363	48.08	39.33	1.222
2	United Kingdom	58710	54561	735160	253610	12.52	199	12.07	9.97	1.211
3	Australia	30152	28822	337691	97241	11.2	150	5.54	5.12	1.083
4	Canada	24296	23030	343137	65223	14.12	178	5.63	4.12	1.366
5	China	19042	18792	67648	26295	3.55	73	1.11	3.23	0.343
6	Spain	16059	15674	101997	40094	6.35	94	1.67	2.72	0.614
7	Germany	15815	15063	141674	42077	8.96	122	2.32	2.68	0.866
8	Netherlands	10681	10235	189573	40829	17.75	149	3.11	1.81	1.716
9	Brazil	10059	9776	26341	11307	2.62	51	0.43	1.7	0.253
10	Turkey	10015	9899	50143	18078	5.01	71	0.82	1.7	0.484
11	France	9629	9292	58401	14044	6.07	86	0.95	1.63	0.586
12	Taiwan	8503	8341	81446	23842	9.58	101	1.33	1.44	0.926
13	Japan	7235	7086	37067	9814	5.12	66	0.6	1.22	0.495
14	Italy	6699	6465	57355	14525	8.56	82	0.94	1.13	0.828
15	New Zealand	6316	5995	66504	9835	10.53	89	1.09	1.07	1.018
16	India	5936	5733	20443	6262	3.44	46	0.33	1	0.333
17	Sweden	5878	5723	60806	14522	10.34	79	0.99	0.99	1
18	Israel	5846	5704	79149	15705	13.54	97	1.29	0.99	1.309
19	South Africa	5629	5484	40739	12581	7.24	69	0.66	0.95	0.7
20	Hong Kong	5425	5214	70527	12492	13	100	1.15	0.92	1.257
Total		493503	468850	5493352	2447378	11.13	---	90.22	83.83	1.076
World Total		588693	561253	6088733	2559390	10.34	---	---	---	---

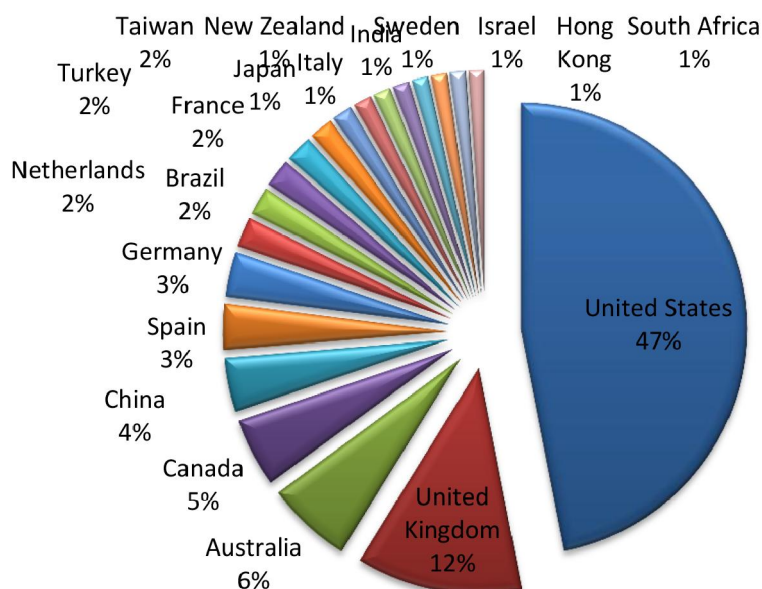


Fig 1: Documents Share of Countries in Education Research

From the observation of Table 1, it has been found that there are a total of 561253 citable research documents all over the world in Education as indexed in Scopus during 1996-2016; and top 20 countries total citable contribution is 468850 documents that are 83.54% of the world total. It shows again in the case of citable research documents that major (83.54%) citable research documents in the field of Education is contributed by 9.26% countries whereas 16.46% citable research documents are contributed by 90.74% countries of the world. As per observation from Table 1, it has been found that except Brazil and Turkey, there is no change in the ranking of countries in terms of citable research documents. Brazil and Turkey have exchanged their rankings with each other. In the case of citable research documents, the United States has 217961 citable documents (38.83% of total citable documents) with the first rank followed by the United Kingdom (54561, 9.72%, 2nd rank), Australia (28822, 5.13%, 3rd rank), Canada (23030, 4.1%, 4th rank), China (18792, 3.34%, 5th rank), India (5733, 1.02%, 16th rank), Hong Kong (5214, 20th rank) and so on.

b) Citation Metrics in Education Research

Table 1 displays the citations received to the research documents during the study period. It has been observed that the world's (216 countries) total citations to research documents in the field of Education are 6088733 during 1996-2016 while the top 20 countries share is 5493352 that is about 90.22% of the world total. Citations data, from Table 1, show that major (90.22%) citations to research documents in the field of Education are obtained by 9.26% countries (top 20 countries) while 9.78% citations to research documents are obtained

by 90.74% countries of the world. As per citation data observed from Table 1, it has been found that the United States is the highest citation receiving country with 2927551 citations to documents that are 48.08% share of world countries, and so placed in the first rank followed by the United Kingdom (2nd rank, 735160 citations, 12.07%), Canada (3rd rank, 343137 citations, 5.63%), Australia (4th rank, 337691 citations), Netherlands (5th rank, 189573 citations), Germany (6th rank, 141674 citations), Spain (7th rank, 101997 citations), Taiwan (8th rank, 81446 citations), Israel (9th rank, 79149 citations), Hong Kong (10th rank, 70527 citations), and India (20th rank, 20443 citations, 0.33%). India has received comparatively fewer citations and placed in 20th position while achieved 16th position as per research document production. Contrary to this, Hong Kong placed at 10th position in citations while 20th rank in document production. Further, citations per document have been calculated for each country. The average citations per document for world countries in Education is 10.34 while the top 20 countries' average citations per document is 11.13 which is higher than the world average. The citation per document ratio of India (3.44) is very lower than the world average. Due to the lower citations per document ratio, India placed at 19th position in terms of citations per document ratio. In terms of citations per document, the Netherlands has the highest citations per document (17.75) followed by Canada (114.12), Israel (13.54), Hong Kong (13), United States (12.64), United Kingdom (12.52), Australia (11.2), New Zealand (10.53), and Sweden (10.34) are the countries having equal to or higher citations per document than the world average. Brazil (2.62) is in the 20th position amongst the top 20 countries of the world.

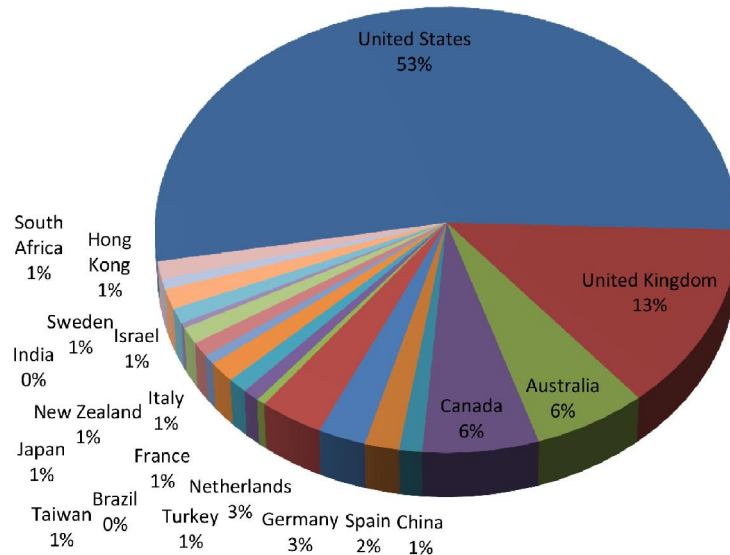


Fig. 2: Citation Share of Countries in Education Research

Table 1 displays the world's (216 countries) total self-citations to research documents in the field of Education with 2559390 self-citations during 1996-2016, and top 20 countries share is 2447378 that is about 95.62% of the world total. The majority (95.62%) of self-

citations in the field of Education were obtained by 9.26% countries (top 20 countries) while 4.38% self-citations were obtained by 90.74% countries of the world. In the category of self-citations, the United States is on the top with 1719002 self-citations (67.16% of world total) followed by the United Kingdom (2nd rank, 253610 self-citations), Australia (3rd rank, 97241 self-citations), Canada (4th rank, 65223 self-citations), Germany (5th rank, 42077 self-citations), and India (20th rank, 6262 self-citations). In the case of Education research, India has been ranked at 20th position which is comparatively lower than its 16th position for research documents but is at par with citation's ranking.

c) *H-index & RCI Metrics*

Table 1 displays the *h-index* metrics for the top 20 countries of the world as recorded by Scopus during 1996-2016 in the field of Education. The United States has the highest *h-index* (363) amongst all countries of the world as well as amongst the top 20 countries. The United Kingdom is in 2nd position with (199 *h-index*) followed by Canada (3rd position, 178 *h-index*), Australia (4th position, 150 *h-index*), Netherlands (5th position, 149 *h-index*), Germany (6th position, 122 *h-index*), Taiwan (7th position, 101 *h-index*), Hong Kong (8th position, 100 *h-index*), Israel (9th position, 97 *h-index*), and Spain (10th position, 94 *h-index*). India has 46 *h-index* value and ranked at 20th position while Brazil ranked 19th position with 51 *h-index*. Hong Kong ranked at 8th position in *h-index* calculations while ranked 20th position in document production. There are eight countries that equal to or have more than 100 *h-index* values i.e. United States, United Kingdom, Australia, Canada, Germany, Netherlands, Taiwan, and Hong Kong.

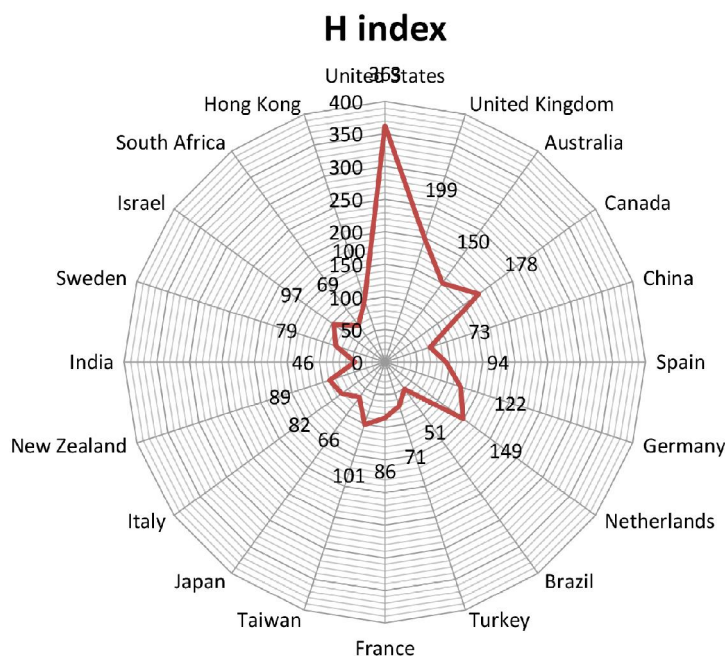


Fig. 3: H-Index Performance of Countries in Education Research

Table 1 displays calculated RCI values for each country included in the study. The calculated $RCI > 1$ is found the highest for the Netherlands (1.716) amongst the top 20 countries of the world followed by Canada (1.366), Israel (1.309), Hong Kong (1.257), United States (1.222), United Kingdom (1.211), Australia (1.083), and New Zealand (1.018). Sweden ($RCI = 1.0$) has citation rate equal to the average citation rate. Rests of the countries are having $RCI < 1$. India has $RCI = 0.333$ which is comparatively lower than other countries and ranked to 19th position which is just before Brazil (20th position, $RCI = 0.253$). It makes clear that India's citation rate is very low than the average citation rate while the country is doing good research efforts in terms of Education research.

Conclusions

This research comprises 21 years of education research data from 216 countries throughout the world, with the top 20 countries' data being studied for the purpose. The top 20 countries have made the most significant contribution to research (83.83 percent). With 39.33 percent of all research documents, the United States leads the globe in education research, followed by the United Kingdom. India's contribution to education research is appalling, despite the fact that it is one of the world's largest education sectors, with a 1% stake. In terms of document output, the top 20 countries' citation performance in Education research is determined to be better. The citation share of the top 20 countries is 90.22 percent, which is higher than the document share. The United States, which is ranked first, has 48.08 percent of all citations from countries throughout the world. The performance of Indian research in terms of citations is significantly lower than that of research document production. The average number of citations per document for world countries in Education is 10.34, which is lower than the average number of citations per document for the top 20 countries, which is 11.13. The Netherlands has the highest rate of citations per document (17.75), while Indian research has the lowest levels. Similarly to citations, self-citations perform similarly, with 95.62 percent of self-citations coming from the top 20 nations. The United States has the largest share of self-citations, followed by the United Kingdom. The larger the number of citations, the higher the h-index value. The United States has the highest h-index (363) because of its high citation share, followed by the United Kingdom. Because India has the lowest citation share among the top 20 countries, it will inevitably rank last in the h-index (46 h-index). Relative Citation Impact (RCI) is representing the citation impact in line with the number of publications. The Netherlands, Canada, Israel, Hong Kong, the United States, the United Kingdom, Australia, and New Zealand have exhibited higher research impact than the rest of the world, with more average citations per document for each country than the rest of the world. The study shows that the United States makes a considerable contribution to education research, while the rest of the world lags far behind. India's contribution to education research is negligible, and there is much to be done to improve it.

Acknowledgement

This research study is the result of a project funded by the Indian Council of Social Science Research, New Delhi under Award No. 02/352/GEN/2017-18/RP/Minor dt. 17.01.2018.

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A Study on Awareness of Teachers regarding Bloom's Taxonomy of Educational Objectives

Lalchhuanmawii*
R.P Vadhera**

Abstract

This study was conducted to find out the awareness of teachers regarding Bloom's Taxonomy of Educational Objectives and its implications in teaching and learning, with particular emphasis on question-paper setting. Bloom's Taxonomy is a valuable tool which has been extensively used by curriculum planners, administrators, researchers and classroom teachers worldwide at all levels of education. Bloom's Taxonomy clarifies the fit of each lesson plan's purpose, essential questions, goals or objectives. If a teacher ignores the Taxonomy when planning their lessons and activities, they increase the chance that what they produce will not challenge students' abilities and thereby fail to promote and develop the higher cognitive skills of students. Therefore, it is imperative that all teachers be made aware of the implications of Bloom's Taxonomy for the success of education.

Key Words: Awareness, Implications, Question-paper setting, Bloom's Taxonomy

Introduction

Education is a process that attempts to change an individual's behaviour. Knowledge, as an outcome of education, is no longer believed to be sufficient to create the kind of citizens needed to effectively cope with the social, economical and technological changes in the world. Educational institutions worldwide are recognizing that teaching core courses in the curriculum alone is not sufficient to equip students for the knowledge economy. To be prepared for the demands of the knowledge economy, students need to know how to use their knowledge and skills - by thinking critically, applying knowledge to new situations, analyzing information, comprehending new ideas, communicating, collaborating, solving problems and making decisions. These skills are termed as higher order cognitive skills and their development and promotion is considered an important goal of the educational process.

*Dr. Lalchhuanmawii, Assistant Professor, Department of Education, Pachhunga University College, Aizawl, Mizoram. Email: machhuaniralte@gmail.com

**Prof. R.P Vadhera, Vice Chancellor, ICFAI University, Aizawl, Mizoram.
Email: rpvadhera55@gmail.com

Teaching is a very important activity, but evaluation of the effectiveness or results of teaching is an equally important task. Everyone knows that when something is done, it is to be judged or evaluated as to whether it has been done properly and how far it has achieved set objectives. Planning, teaching, and assessment stages are used to achieve educational aims, where assessment aims to make judgements and decisions about students' learning outcomes and teachers' teaching effectiveness. Since assessment has such an important and significant part in the future of students, there is little doubt that any assessment system will determine what and how students learn, and what and how we teach (Hawks, 2010).

Higher-order thinking is an instructional strategy supported by research. Often referred to as critical thinking skills, it is more than simple recall of facts or information retrieval but rather a function of the interaction between cognitive strategies, meta-cognition, and nonstrategic knowledge during problem solving. Higher-order thinking is based on the concepts in the Cognitive domain of Bloom's Taxonomy and suggests that some types of learning require more cognitive processing than others. Bloom's Taxonomy suggests that skills involving analysis, synthesis and evaluation are of a higher order, requiring different instructional practices. It also suggests that higher-order thinking involves the learning of complex judgmental skills such as critical thinking and problem solving (Burton, 2010).

The Cognitive domain within Bloom's Taxonomy which is set to confirm a student's cognitive level is the core of classifying statements according to what is expected from students to learn at the end of the instructional activities (Gocer, 2011). As an assessment practice, the employment of Bloom's Taxonomy yields important information for teachers and instructors. The Taxonomy causes instructors to be more conscious of the content and the process which they teach and assess, as well as indicating disparities between what is taught and what is assessed. Further, it can perform as a guide to evolve and expand the learning and assessment activities by supplying a concrete consciousness of the content and process which an instructor defines as essential in the development of learners' cognition (Gierl, 1997). Bloom's Taxonomy is a method of classifying educational goals for student performance evaluation. Bloom created this taxonomy for categorizing level of abstraction of questions that commonly occur in educational settings. This taxonomy of learning behaviors can be thought of as '*the goals of the learning process*.' Bloom's Taxonomy provides a clear, concise representation of the alignment between standards and educational goals, objectives, products and activities. It provides an excellent framework for teaching, learning and assessment. We can use the taxonomy to help us achieve a wider aim of maximising progress in education.

Rationale

One of the most important aims of education is to produce useful graduates who are productive, useful, highly intelligent and can contribute to the knowledge-based global economy. This means producing graduates who are intuitive and creative, and who are able

to use their cognitive skills when faced with critical problem solving tasks. The ability to reason effectively and to solve problems creatively are higher order cognitive skills which must be acquired through appropriate instruction and training. Teachers can provide this type of instruction and training to students by using a blend of higher, middle and lower order cognitive questions given in Bloom's Taxonomy.

Bloom's Taxonomy was intended as a method of classifying educational objectives, educational experiences, learning processes and evaluation of questions and problems. These led to a natural linkage of specific verbs and products with each level of the taxonomy. Thus, when designing effective lesson plans, teachers often look to it for guidance. In almost all circumstances when an instructor desires to move a group of students through a learning process utilizing an organized framework, it can prove very helpful. We can use the taxonomy to plan lessons or schemes of work. This means lessons and assessments using the Taxonomy can be quickly and easily made challenging for all learners. It can be applied across the curriculum and across all age-groups by simply altering the content towards more challenging tasks and altering the extent of what we are asking students to do and learn (Forehand, 2005).

Today's teachers must make tough decisions about how to spend their classroom time. Clear alignment of educational objectives with local, state and national standards is a necessity. Like pieces of a huge puzzle, everything must fit properly. Bloom's Taxonomy table clarifies the fit of each lesson plan's purpose, essential questions, goals or objectives (Krumme, 2005). If a teacher ignores the Taxonomy when planning their lessons and activities, they make life much harder for themselves. They increase the chance that what they produce will not challenge students' abilities and thereby fail to promote and develop the higher cognitive skills of students. Therefore, it is imperative that all teachers be made aware of the implications of Bloom's Taxonomy for the success of education.

Objectives of the Study

The study was conducted with the objective to study teachers' awareness of Bloom's Taxonomy of Educational Objectives and its implications in teaching-learning, with special emphasis on question paper setting.

Population

All Higher Secondary, College and University teachers teaching Education subject in different Higher Secondary Schools, Colleges and Universities in Mizoram constituted the population of the teachers for this study.

Sample

The sample for the study relating to teachers' understanding of Bloom's Taxonomy of Educational Objectives and its implications in question paper setting consisted of 163 teachers teaching Education subject in different Higher Secondary schools, Colleges and Universities in Mizoram. Out of these, 76 teachers were from Higher Secondary schools, 70 from Colleges and 17 teachers from Universities. 37 of the respondents were male and 126 were female.

Tools Used

Opinionnaire to study teachers' understanding of Bloom's Taxonomy and its implications in question-paper setting was constructed which consisted of 22 statements or questions with 3 choices for each question to be simply ticked by the respondent. The Opinionnaire was divided into three sections namely:-

- 1) Awareness of teachers regarding Bloom's Taxonomy
- 2) Application of Bloom's Taxonomy in teaching-learning and evaluation
- 3) Attitude of teachers towards Bloom's Taxonomy.

Data Collection

The investigator collected data from three sets of Education teachers from all over Mizoram (Higher Secondary, College and University). The investigator personally visited as many of the teachers as possible and distributed the questionnaire to them. The teachers working outside Aizawl were contacted through phone and email.

Results and Major Findings

1. Findings on Awareness of teachers regarding Bloom's Taxonomy of Educational Objectives

The section relating to Awareness of teachers about Bloom's Taxonomy of Educational Objectives had eight statements or questions and the findings are presented in the form of a table given below:

Table 1: Findings on Awareness of teachers regarding Bloom's Taxonomy

Sl. No	Statement	Response Categories	HSS Teachers	College Teachers	University Teachers
1	Have you heard of 'Bloom's Taxonomy of Educational Objectives'?	Yes	70 (92.11%)	67 (95.71%)	17 (100%)
		No	Nil	Nil	Nil
		Not Sure	6 (7.89%)	3 (4.29%)	Nil
2	Are you aware that Bloom's Taxonomy classifies human thinking into different domains ?	Yes	70 (92.11%)	67 (95.71%)	17 (100%)
		No	Nil	Nil	Nil
		Not Sure	6 (7.89%)	3 (4.29%)	Nil
3	Do you know that Bloom classified the Cognitive domain into different levels?	Yes	57 (75%)	54 (77.14%)	17 (100%)
		No	6 (7.89%)	7 (10%)	Nil
		Not Sure	13 (17.11%)	9 (12.86%)	Nil
4	Are you aware that Bloom's Taxonomy provides objectives to be achieved in each level of the cognitive domain with expected learning outcomes?	Yes	55 (72.37%)	52 (74.29%)	16 (94.12%)
		No	6 (7.89%)	7 (10%)	Nil
		Not Sure	15 (19.74%)	11(15.71%)	1 (5.88%)

5	Are you aware that Bloom's Taxonomy can be used for designing/developing curriculum and learning activities?	Yes	36 (47.37%)	40 (57.14%)	16 (94.12%)
		No	10 (13.16%)	3 (4.29%)	Nil
		Not Sure	30 (39.47%)	27 (38.57%)	1 (5.88%)
6	Do you know that Bloom's Taxonomy can be used for conducting research?	Yes	35 (46.05%)	45 (64.29%)	15 (88.24%)
		No	10 (13.16%)	12 (17.14%)	Nil
		Not Sure	31 (40.79%)	13 (18.57%)	2 (11.76%)
7	Are you aware of the relevance of Bloom's Taxonomy in question paper setting and evaluation?	Yes	30 (39.47%)	40 (57.14%)	15 (88.24%)
		No	10 (13.16%)	12 (17.14%)	Nil
		Not Sure	36 (47.37%)	18 (25.72%)	2 (11.76%)
8	Do you know that Bloom developed key verbs for framing questions?	Yes	18 (23.68%)	28 (40%)	15 (88.24%)
		No	28 (36.84%)	20 (28.57%)	1 (5.88%)
		Not Sure	30 (39.48%)	22 (31.43%)	1 (5.88%)

In the section relating to Awareness of Bloom's Taxonomy of Educational Objectives, it was found that the Education teachers of Higher Secondary, College and University levels were aware of the basic concepts of Bloom's Taxonomy and its implications in education. Regarding the relevance of Bloom's Taxonomy in question paper setting and evaluation and key verbs given by Bloom for framing questions, it was found that most of the University teachers had good knowledge, more than half of the College teachers also had good awareness but the awareness level of Higher Secondary teachers was low.

2. Findings on Application of Bloom's Taxonomy in Teaching-learning and Evaluation

The section relating to Application of Bloom's Taxonomy in teaching-learning and evaluation had seven statements or questions and the findings are presented as follows:

Table 2: Findings on Application of Bloom's Taxonomy in Teaching-learning and Evaluation

Sl. No	Statement	Response Categories	HSS Teachers	College Teachers	University Teachers
1	Have you applied the cognitive objectives given by Bloom in your teaching and evaluation work?	Yes	36 (47.37%)	38 (54.29%)	16 (94.12%)
		No	29 (38.16%)	22 (31.43%)	Nil
		Not Sure	11 (14.47%)	10 (14.28%)	1 (5.88%)
2	Have you applied Bloom's Taxonomy for planning teaching or instructional objectives?	Yes	34 (44.74%)	32 (45.72%)	15 (88.24%)
		No	26 (34.21%)	20 (28.57%)	Nil
		Not Sure	16 (21.05%)	18 (25.71%)	2 (11.76%)

3	Have you applied Bloom's Taxonomy in planning student learning or learning activities?	Yes	30 (39.48%)	30 (42.86%)	16 (94.12%)
		No	18 (23.68%)	13 (18.57%)	Nil
		Not Sure	28 (36.84%)	27 (38.57%)	1 (5.88%)
4	Have you applied Bloom's Taxonomy for assessing students' abilities?	Yes	32 (42.11%)	30 (42.86%)	16 (94.12%)
		No	20 (26.31%)	17 (24.28%)	Nil
		Not Sure	24 (31.58%)	23 (32.86%)	1 (5.88%)
5	When you set exam questions, do you include questions to test the higher cognitive skills of students?	Yes	64 (84.21%)	53 (75.71%)	17 (100%)
		No	5 (6.58%)	6 (8.57%)	Nil
		Not Sure	7 (9.21%)	11 (15.72%)	Nil
6	How many questions from the higher cognitive objectives do you usually include ?	Yes	12 (15.79%)	17 (24.29%)	Nil
		No	38 (50%)	35 (50%)	7 (41.18%)
		Not Sure	26 (34.21%)	18 (25.71%)	10 (58.82%)
7	Have you applied the key verbs for framing questions given by Bloom when setting question papers?	Yes	18 (23.68%)	28 (40%)	15 (88.24%)
		No	28 (36.84%)	20 (28.57%)	Nil
		Not Sure	30 (39.48%)	22 (31.43%)	2 (11.76%)

In the section relating to Application of Bloom's Taxonomy in teaching-learning and evaluation, it was revealed that the Education teachers of Higher Secondary, College and University levels have applied Bloom's Taxonomy of Educational Objectives to their teaching-learning and evaluation work to some degree. Majority of the University teachers had applied it in their work to a large degree, and around half of the College and Higher Secondary teachers had also applied it in their teaching and evaluation work but not extensively. A significant number of the respondents gave negative or hesitant answers to the questions which reveals that many of them were not too familiar with the implications of Bloom's Taxonomy in teaching – learning and evaluation.

3. Findings on Attitude of teachers towards Bloom's Taxonomy

The section relating to Attitude of teachers towards Bloom's Taxonomy in teaching-learning and evaluation had seven statements or questions and the findings are presented under:

Table 3: Findings on Attitude of teachers regarding Bloom's Taxonomy

Sl. No	Statement	Response Categories	HSS Teachers	College Teachers	University Teachers
1	How would you rate the current standard of question paper setting prevailing in your school/college/university?	Poor	12 (15.79%)	14 (20%)	3 (17.65%)
		Satisfactory	39 (51.32%)	38 (54.29%)	14 (82.35%)
		Good	25 (32.89%)	18 (25.71%)	Nil

2	Do you think majority of exam questions test only the lower cognitive abilities of students?	Yes	18 (23.68%)	15 (21.43%)	2 (11.76%)
		No	50 (65.79%)	38 (54.29%)	15 (88.24%)
		Not Sure	8 (10.53%)	17 (24.28%)	Nil
3	Do you think more higher cognitive questions testing the critical and abstract skills of students should be included?	Yes	55 (72.37%)	53 (75.71%)	15 (88.24%)
		No	4 (5.26%)	4 (5.72%)	1 (5.88%)
		Not Sure	17 (22.37%)	13 (18.57%)	1 (5.88%)
4	Do you think teachers need a better training program in teaching and evaluation techniques than currently available?	Yes	72 (94.74%)	69 (98.57%)	16 (94.12%)
		No	Nil	Nil	Nil
		Not Sure	4 (5.26%)	1 (1.43%)	1 (5.88%)
5	Do you think setting questions in accordance with the Cognitive levels of Bloom's Taxonomy will enhance the quality of education?	Yes	70 (94.73%)	66 (94.28%)	17 (100%)
		No	Nil	Nil	Nil
		Not Sure	6 (5.27%)	4 (5.72%)	Nil
6	Do you think knowledge of Bloom's Taxonomy will optimize the teaching and evaluation skills of teachers?	Yes	12 (15.79%)	14 (20%)	3 (17.65%)
		No	39 (51.32%)	38 (54.29%)	14 (82.35%)
		Not Sure	25 (32.89%)	18 (25.71%)	Nil
7	Do you think applying Bloom's Taxonomy in all aspects of education will improve our educational system?	Yes	18 (23.68%)	15 (21.43%)	2 (11.76%)
		No	50 (65.79%)	38 (54.29%)	15 (88.24%)
		Not Sure	8 (10.53%)	17 (24.28%)	Nil

In the section relating to Attitude towards Bloom's Taxonomy, it was found that majority of Higher Secondary, College and University teachers of Education have a good attitude towards Bloom's Taxonomy of Educational Objectives and thought that setting questions in accordance with the key verbs given by Bloom for each cognitive level will go a long way in enhancing the teaching and evaluation skills of teachers and thereby improving the quality of different aspects of education to a great extent.

Suggestions and Recommendations

- 1) Teachers need to be made more aware of Bloom's Taxonomy and its relevance in the field of education, particularly in question paper setting. They need to be informed of the importance of maintaining the correct balance between lower and higher order cognitive questions. Teachers cannot set an examination paper comprising of numerous Lower Order Cognitive Questions. Effective questions that include problem solving and complex thinking skills should be adequately included to stimulate students' mental activities.
- 2) Teacher Training Programmes/Workshops/Seminars on Question Paper Setting should be periodically conducted by the concerned authorities.
- 3) Teachers selected for setting of question papers should be given short training (one day) on Bloom's Taxonomy. If this is not possible, they should be provided with information regarding Bloom's Taxonomy Coding Scheme and be instructed to set questions accordingly.
- 4) Teachers should be made aware of clear/specific weightage of questions to be set from each cognitive level when setting examination question papers.
- 5) Due to pressure to produce good examination results with high scoring students among educational institutions, teachers tend to feel hesitant and fearful of setting too many questions from the higher cognitive levels which result in majority of questions belonging to the lower cognitive levels. This has done more harm than good and it is high time to remove this fear and hesitation among teachers and more questions from the higher cognitive levels need to be included in future.

Conclusion and Discussion

The study found that the Education teachers of Higher Secondary, College and University levels were aware of the basic concepts of Bloom's Taxonomy of Educational Objectives and its implications in education. Regarding the relevance of Bloom's Taxonomy in question paper setting and evaluation and key verbs given by Bloom for framing questions, it was found that most of the university teachers had good knowledge, more than half of the college teachers also had good awareness but the awareness level of higher secondary teachers was low. It was found that the sampled teachers have applied Bloom's Taxonomy of Educational Objectives to their teaching-learning and evaluation work to some degree, but not extensively. They also have a good attitude towards Bloom's Taxonomy of Educational Objectives and thought that setting questions in accordance with the key verbs given by Bloom for each cognitive level will go a long way in enhancing the teaching and evaluation skills of teachers.

Teachers need to design their instructional objectives and teaching-learning activities in such a way as to promote and develop the reasoning, constructive and problem solving skills of students. They need to be made aware of the importance of developing and functioning at the higher cognitive levels, how to plan teaching objectives and learning activities to promote higher cognitive thinking, what innovative pedagogical techniques to apply in the classroom,

how to frame questions to test and challenge the higher thinking skills of students, how to engage and nurture these higher cognitive abilities and so on. Rote memorization and bookish knowledge should be done away with as much as possible. Less dependence on Lecture method and more emphasis on interactive methods like discussions, feedback, debates, etc will surely improve the teaching – learning process. If we can gradually adjust our way of teaching and questioning towards higher order cognitive skills according to Bloom's Taxonomy and use it to help design examinations and analyze the results, it will greatly improve the quality of assessment in education and thereby improving the quality of different aspects of education to a great extent.

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Investigation of Scientific Creativity among Higher Secondary School Students

C. Lalhmunsiamas*
Nitu Kaur**

Abstract

The present study was undertaken to study the scientific creativity among the science students of government higher secondary schools of Aizawl city. The prime objectives were to study students' scientific creativity and compare it on the basis of students' choice of science groups (PCM & PCB) and their gender. Sample of the study consists of 60 students (31 boys, 29 girls) selected from class XII science students of higher secondary government schools affiliated to MBSE (Mizoram Board of School Education) in the Aizawl city. The findings revealed that students possessed a desirable level of scientific creativity and scored highest mean score in fluency factor followed by flexibility and originality factors of scientific creativity. The students' scientific creativity level did not show any significant difference between PCM & PCB groups. However, girls scored significantly higher in fluency and flexibility factors of scientific creativity but in the originality factor, no significant difference between the means was found with respect to gender. Findings revealed that students of both the science groups were equally scientifically creative and girls were more fluent and flexible in comparison to boys.

Keywords: Scientific creativity, Fluency, Flexibility, Originality

Introduction

Scientific creativity has become one of the most special concerns in research. It is more of a complex form of creativity than general creativity. It is distinguished from artistic and linguistic creativity as it depends on scientific knowledge & process skills and is concerned with creative scientific experiments and problem-finding (Hu & Adey, 2002; Lin et al., 2003). It requires a person's intelligence, cognitive ability and her/his creative potential to focus on a specific problem to produce a certain result or product which has value in the field of science. It is the ability to reason and process scientifically in a divergent manner and at the same time it comes out as a product of new ideas convergently leading to problem solving.

*C. Lalhmunsiamas, TGT, Eklavya Model Residential School, Ngopa - 796290, Mizoram.
Email:siamtea93@gmail.com

**Dr. Nitu Kaur, Assistant Professor, Department of Education, Mizoram University, Aizawl.
Email: nitukaurmzu@mzu.edu.in

Scientific creativity has been interpreted either as an interaction of scientific knowledge, science process skills, and divergent thinking (Hu & Adey, 2002), or as a way to address challenges with core elements of domain specific and general knowledge, and science process skills (Klahr, 2000). It depends on intrinsic motivation (Torrance, 1965), and also on demand of the users for the new products (Gonzalez, 2013) leading to innovation. Sawyer (2006) reveals in her book that decades of researches on the scope of creativity showed that a person's creativity can be easily ruined and damaged by the flow of external rewards.

Rationale of the Study

There are enough evidences suggesting that school education is promoting students who can rather conform to normal and avoid thinking outside the box, who can memorize large amount of information and who can follow formulas to realize predetermined answers in response to what we need in the world as informed academia. However a scientifically creative person is open-minded and sensitive towards the problems, pushing the limits of one's cognitive, psychomotor and affective skills and establishing a new relationship to a particular problem as well as exploring new areas of knowledge which has effective contributions towards solving the problem. Hence the investigators want to explore the trait of scientific creativity among Mizo higher secondary science students who are an unexamined population in the country. It would be interesting to compare their scientific creativity on the basis of their gender and major subjects (PCM & PCB) out of their differential inclination of subjects within the discipline.

Objectives of the Study

In accordance with proposed rationale of the study following are the objectives of the study:

1. To analyze overall scientific creativity and fluency, flexibility and originality factors in scientific creativity of students in government higher secondary school.
2. To compare the scientific creativity level of PCM and PCB group students of government higher secondary school.
3. To compare the scientific creativity level of government higher secondary school with respect to their gender.

Population and Sample of the Study

To find out the scientific creativity of higher secondary science students of Aizawl city, the investigators have employed the purposive sampling technique. All students of class XII science for academic year 2019-2020 from Govt. Mizo Higher Secondary School, Zarkawt, Aizawl were selected as the sample. Although the sampling technique is of non-probability type, sample may be regarded as a good representation of the class XII students of Aizawl city as it is the biggest and oldest secondary school in the city and many students from different places in and outside the city come to study here. The final sample consists of sixty students; 31 boys and 29 girls.

Tool of Data Collection

To investigate the scientific creativity of the students, Verbal Test of Scientific Creativity (VTSC) developed by Sharma & Shukla (1971) has been used. Torrance (1966) considered three components as the main features of creativity - fluency, flexibility, and original thinking which are inbuilt in the test. The co-efficient of stability as an index of reliability on fluency, flexibility, originality factors of scientific creativity as well as on the whole test has been estimated by test-retest method, viz. 0.729, 0.648, 0.774 & 0.730 respectively. This test has been validated against B. Mehadi's Verbal Test of Creative Thinking.

Major Findings of the Study

Objective 1: To analysis overall scientific creativity and fluency, flexibility and originality factors in scientific creativity of students in government higher secondary school

The sample comprised of 60 students (31 boys, 29 girls), out of which 37 students belonged to PCM group and 23 belonged to PCM group. The students were found to obtain a raw mean score of 118.78 on overall Scientific Creativity (SC) with a maximum and minimum score of 226 and 26 with a very high standard deviation (SD) of 45.73 and SEM of 5.90. An attempt was further made to obtain student's mean scores on all the three dimensions of SC in order to find out in which of the dimensions students are found to be more creative and vice versa. Table 1 provides the descriptive statistics of the students' over all SC scores along with scores obtained on each of the three dimensions.

Table 1

Descriptive Statistics on the Higher Secondary School Students' Scientific Creativity (SC) Scores

SC Scores	Mean	SD	SEM	Minimum	Maximum
Fluency	56.2	18.58	2.39	14	98
Flexibility	36.77	10.38	1.34	12	64
Originality	25.82	22.34	2.88	0	92
Total SC Scores	118.78	45.73	5.9	26	226

Source: Field Data

Table 1 shows that higher secondary science students scored highest mean score in Fluency factor followed by Flexibility and Originality factor (Fluency_{56.20} > Flexibility_{36.77} > Originality_{25.82}) and standard deviation is least in the Flexibility factor followed by Fluency and Originality (Flexibility_{10.38} < Fluency_{18.58} < Originality_{22.34}). The minimum score of 0 was obtained for dimension originality and maximum score of 98 was obtained for dimension fluency. It shows that originality factor is not as good as compared to other factors but nevertheless due to highest amount of standard deviation in this factor it may be concluded that it is highly variable in the given sample. However, a high score of 92 was obtained as maximum score on the dimension originality, suggesting some students could display higher

potential in this trait which is comparatively a higher order trait of scientific creativity. The results suggest that students possess a desirable level of scientific creativity which is favorable for their higher secondary stream. However, a huge standard deviation (45.73) in the overall SC scores suggests that there is a wide variation among the SC scores of the students.

Further Table 2 provides the description on students' SC scores for each of the dimension and the total scores on the basis of their choice of science group i.e. PCM and PCB group.

Table 2
Descriptive Statistics on the Higher Secondary School Students' Scientific Creativity (SC) Scores on the basis of their Choice of Science Group

Science Stream Group	SC Scores	Mean	SD	SEM	Minimum	Maximum
PCM (23)	Fluency	58.17	16.66	3.47	32	91
	Flexibility	36.52	8.86	1.85	23	59
	Originality	28.73	19.78	4.13	0	74
	Total SC Scores	123.43	35.4	7.38	69	209
PCB (37)	Fluency	54.97	19.8	3.25	14	98
	Flexibility	36.91	11.34	1.86	12	64
	Originality	24	23.88	3.92	0	92
	Total SC Scores	115.89	51.36	8.44	26	226

Source: Field Data

With reference to Table 2, it is found that PCM group students are found to score higher means on scientific creativity in comparison to PCB students (Mean Score PCM_{123.43} > Mean Score PCB_{115.89}). Also, the PCM group exhibits lesser standard deviation than the PCB group (SD PCM_{35.40} < SD PCB_{51.36}), suggesting that there is lesser variation across the group with a standard error of mean also lesser the PCB group (SEM PCM_{7.38} < SEM PCB_{8.44}). Further, the PCM group students scored higher than PCB group students on each of the factors of Fluency (Mean Fluency PCM_{58.17} > Mean Fluency PCB_{54.97}), Originality (Mean Originality PCM_{28.73} > Mean Originality PCB₂₄) and almost at par with PCB group for the factor Flexibility (Mean Flexibility PCM_{36.52} > Mean Flexibility PCB_{36.91}).

Similarly, for the expansion of descriptive analysis further, Table 3 provides the description on students' SC scores for each of the dimension and the total scores on the basis of their gender.

Table 3**Descriptive Statistics on the Higher Secondary School Students' Scientific Creativity (SC) Scores on the basis of their Gender**

Gender	SC Scores	Mean	SD	SEM	Minimum	Maximum
Boys (31)	Fluency	50.64	16.59	2.98	14	98
	Flexibility	33.83	9.05	1.62	12	56
	Originality	24.87	20.47	3.67	0	89
	Total SC Scores	109.4	40.46	7.27	26	212
Girls (29)	Fluency	62.13	19.02	3.53	33	96
	Flexibility	39.89	10.94	2.03	26	64
	Originality	26.82	24.52	4.55	0	92
	Total SC Scores	128.9	49.47	9.18	59	226

Source: Field Data

Further, with reference to Table 3, it is found that girls are found to score higher mean scores on scientific creativity in comparison to boys (Mean Score Girls $_{128.86} >$ Mean Score Boys $_{109.35}$). However, girls exhibit higher standard deviation than the boys (SD Girls $_{49.47} >$ SD Boys $_{40.46}$), suggesting that there is higher variation across the girls' group in comparison to their counterparts and also have a higher standard error of mean than their counter parts (SEM Girls $_{9.18} >$ SEM Boys $_{7.27}$). Further the girls scored higher than boys on each of the factors of Fluency (Mean Fluency Girls $_{62.13} >$ Mean Fluency Boys $_{50.64}$), Flexibility (Mean Flexibility Girls $_{39.89} >$ Mean Flexibility Boys $_{33.83}$) and Originality (Mean Originality Girls $_{26.82} >$ Mean Originality Boys $_{24.87}$), however their standard deviation for each factor was found to be higher than the boys.

In the scoring procedure of the used tool, Verbal Test of Scientific Creativity (VTSC), no norms have been provided to categorize the Scientific Creativity (SC) scores into high, average and low Scientific Creativity. Hence for the sake of convenience, the norms for interpretation of obtained scores were calculated. By using rule of thumb in statistics, those students who scored 1 SD above the mean are treated as students with High Scientific Creativity (HSC), those who scored between ± 1 SD are regarded with Average Scientific Creativity (ASC) and those scoring 1 SD below the mean are treated as students with Low Scientific Creativity (LSC). Table 4 classifies the students into the given categories.

Table 4**Categorization of Students on the basis of Scientific Creativity Scores**

Scientific Creativity Scores (N=60, Mean=118.78, SD=45.7)	Student Categories	Percentage
1 SD above the Mean (> 164.51)	HSC (11)	18.33%
$\pm 1SD$ (164.51-73.05)	ASC (39)	65%
1 SD below the Mean (<73.05)	LSC (10)	16.67%

Source: Field Data

With reference to Table 4, it is observed that maximum students (65%) possess an average level of scientific creativity followed by comparatively a lower percentage of students who possess a high (18.33%) and a low (16.67%) level of scientific creativity.

Objective 2: To compare the scientific creativity level of PCM and PCB group students of government higher secondary school

In order to compare the scientific creativity (SC) of higher secondary science students with regard to their study group statistical test of students' 't' test for unpaired sample assuming equal variances was performed by calculating the F-ratio between the higher (PCB group) and lower variance (PCM group) of the two samples as the F statistics (2.10) < F critical (2.21, $\alpha=0.025$ for 2-tailed test) for df (36,22). The research objective guided to propose the following null hypotheses:

H₀:-There is no significant difference in scientific creativity of higher secondary school students

with respect to their science stream group

$H_0: \mu_1 = \mu_2$ where μ_1 = Mean score on SC of PCM group & μ_2 = Mean score on SC of PCB group. Table 5 depicts the t-test analysis.

Table 5**Significance of Difference between Scientific Creativity (SC) of Higher Secondary School Students with respect to their Science Stream Group**

Group	Number	Mean	S.D.	SEM	t value	df	P value	Significance of Difference	Decision on Null Hypothesis
PCM	23	123.43	35.4	7.38	0.618	58	0.54	NS	Not Rejected
PCB	37	115.89	51.36	8.44					

NS: The test suggests that the difference between the two means is not significant at 0.05 level.

Source: Field Data

Interpretation: A reference to Table 5 reveals that the obtained t value (0.618) was not found significant at 0.05 level with degrees of freedom 58, 't' critical value (2.00) for 2 tailed analysis being > obtained 't' value. It means that students do not differ significantly on the trait of scientific creativity with respect to their science stream group. Hence the null hypothesis is not rejected.

It was further attempted to compare the PCM & PCB group students on all the factors of Fluency, Flexibility and Originality separately. Table 6 summarizes the differential statistics of t-test on all the factors.

Table 6

Significance of Difference between Scientific Creativity (SC) of Higher Secondary School Students with respect to their Science Stream Group on the Factors Fluency, Flexibility & Originality

Factors	Group	Number	Mean	S.D.	SEM	t value	Df	P value	Significance of Difference	Decision on Null Hypothesis
Fluency	PCM	23	58.17	16.661	3.474	0.6454	58	0.5212	NS	Not Rejected
	PCB	37	54.97	19.809	3.257					
Flexibility	PCM	23	36.52	8.862	1.848	0.1428	58	0.8869	NS	Not Rejected
	PCB	37	36.92	11.344	1.865					
Originality	PCM	23	28.74	19.78	4.125	0.7961	58	0.4292	NS	Not Rejected
	PCB	37	24	23.88	3.927					

NS: The test suggests that the difference between the two means is not significant at 0.05 level.

Source: Field Data

Interpretation: A reference to Table 6 further suggests students of PCM & PCB group do not significantly differ on each of the scientific creativity factor of Fluency, Flexibility and Originality.

Objective 3: To compare the scientific creativity level of government higher secondary school with respect to their gender

In order to compare the scientific creativity of higher secondary science students with regard to their gender, statistical test of students 't' test for unpaired sample assuming equal variances was performed by calculating the F-ratio between the higher (girls) and lower variance (boys) of the two samples as the F statistics (0.66) < F critical(2.11, $\alpha=0.025$ for 2-tailed test) for df (28,30). The research objective guided to propose the following null hypotheses:

Ho:-There is no significant difference in the scientific creativity of higher secondary school students

with respect to their gender

$H_0: \mu_1 = \mu_2$ where μ_1 = Mean score on SC of boys & μ_2 = Mean score on SC of girls. Table 7 depicts the t-test analysis.

Table 7

Significance of Difference between Scientific Creativity (SC) of Higher Secondary School Students with respect to their Gender

Group	Number	Mean	S.D.	SEM	t value	Df	P value	Significance of Difference	Decision on Null Hypothesis
Boys	31	109.35	40.46	7.26	1.676	58	0.099	NS	Not Rejected
Girls	29	128.86	49.47	9.18					

NS: The test suggests that the difference between the two means is not significant at 0.05 level.

Source: Field Data

Interpretation: A reference to Table 8 reveals that the obtained t value (1.676) was not found significant at 0.05 level with degrees of freedom 58, 't' critical value(2.00) for 2 tailed analysis being > obtained 't' value. It means that students do not differ significantly on the trait of scientific creativity with respect to their gender. Hence the null hypothesis is not rejected.

It was further attempted to compare the boys & girls on all the factors of Fluency, Flexibility and Originality separately. Table 8 summarizes the differential statistics of t-test on all the factors.

Table 8

Significance of Difference between Scientific Creativity (SC) of Higher Secondary School Students with respect to their Gender on the Factors Fluency, Flexibility & Originality

Factors	Group	Number	Mean	S.D.	SEM	t value	Df	P value	Significance of Difference	Decision on Null Hypothesis
Fluency	Boys	31	50.65	16.596	2.981	2.498	58	0.0154	S*	Rejected
	Girls	29	62.13	19.028	3.533					
Flexibility	Boys	31	33.84	9.052	1.626	2.342	58	0.0226	S*	Rejected
	Girls	29	39.89	10.946	2.033					
Originality	Boys	31	24.87	20.476	3.678	0.3363	58	0.7378	NS	Not Rejected
	Girls	29	26.83	24.52	4.553					

S The test suggests that the difference between the two means is significant at 0.05 level.*

NS: The test suggests that the difference between the two means is not significant at 0.05 level.

Source: Field Data

Interpretation: A reference to Table 8 further suggests that students differ significantly on the factors of Fluency and Flexibility with regard to their gender. Girls were found to be scoring significantly higher mean on both these factors in comparison to boys. However, girls and boys do not differ significantly on the scientific creativity factor of Originality.

Discussion

First of all, the overall scientific creativity score obtained from science students of government higher secondary school was found to be average since most of the scores fall between the 1SD above and below the mean value of scientific creativity. Few students (18.33%) have high level and 16.67 % of the students have low level of creativity in scientific domain. However, the high standard deviation obtained indicates that the values obtained are spread out in a large range, which suggested that there is a wide variation in the level of scientific creativity among the students. This finding suggests that if favourable learning environment is provided students can be more creative in scientific endeavors. Scientific creativity is the tendency of an individual to generate unique and original ideas to form a product which are relevant to the field of scientific community, and this can be enhanced if teachers encourage it through classroom teaching learning processes. It is revealed that along with divergent thinking, convergent thinking is equally important to explain the construct of scientific creativity (Mukhopadhyay & Sen; 2013; Kuay-Keng Yang et al., 2016) which needs to be encouraged in classrooms. Ndeke et al., 2016 revealed that most of the biology teachers have a correct perception of general creativity while only a small percentage of them have a correct perception of scientific creativity. In light of this it can be said there is an urgent need to find out teachers' perception regarding scientific creativity from both the streams of science.

In the present study students have highest mean values on fluency dimension followed by flexibility and originality dimension. Meanwhile, the standard deviation was highest in originality followed by fluency and flexibility. This reveals that originality score can be highly variable than other two domains also seen earlier at elementary and secondary levels (Usta & Akkanat, 2015; Cevher et al., 2014; Karademir, 2016) however opposite results are also seen exceptionally (Gangadharrao & Marathwada, 2012) showing high scores in originality dimension.

The analysis of biological group (PCB) and mathematical group (PCM) on three dimensions of scientific creativity further revealed, that the PCM group was found to score higher mean score on scientific creativity in comparison to PCB students, suggesting the mathematical aptitude of students favors the trait of scientific creativity or vice versa. However when being compared on all the three dimensions, PCM group has slightly higher mean value on fluency and originality, and almost similar mean score on flexibility dimension. Further on comparing these two groups, it was found that there was no statistically significant difference on any of the scientific creativity dimensions. The findings are in agreement with previous studies (Sak & Ayas, 2013) where it was found that students with mathematical ability possess higher scientific creativity.

The comparative study of the scientific creativity on the basis of gender revealed that there was no significant difference between boys and girls. However, girls are found to score significantly higher means in both fluency and flexibility indicating that girls may have higher ability of cognitive processes of analysis and selection of information when generating responses and solving a problem. However, boys and girls do not significantly differ on originality factor. The present finding is similar to some previous findings (Runco & Okuda, 1988; Baer & Kaufman, 2008; Gangadharrao & Marathwada, 2012; Kapri, 2017 & Ramadhan et al., 2019) where girls were comparatively found to better than boys, but it is also seen the difference does not persists at elementary level (Karademir, 2016; Genek & Kucuk, 2020) and collegiate level (Fadllan et al., 2018). So this conclusion cannot be generalized as more studies need to be conducted. However it is found that higher scientific creativity leads to higher mathematical ability (Sak & Ayas, 2013), high achievement in science (Sharma, 2015), scientific temper (Kapri, 2017) and problem solving & science process skills (Aktamus et al., 2005; Dhir, 2014; Karademir, 2016) and overall school achievement (Gajda, 2016) in both genders.

Conclusion

It is a common agreement in the academia that scientific creativity is a trait to be fostered from elementary and middle school years. It is now proven that fostering scientific creativity will strengthen science education. Present study has revealed that Mizo higher secondary students of both the science groups are equally scientifically creative with girls being more fluent and flexible in this trait. However in Mizoram it is found that rote memorization even in secondary science is persistent in most of the schools and creative science is highly compromised (Kaur, 2018). The students are given very less exposure to practical skills, scientific laboratory culture until secondary level of schooling that results in lesser enrollment in higher secondary science (Zohmingliani, 2011). Science education therefore should undergo change providing various opportunities for the students to trigger their scientific creativity and ground for experiences. Influential and creative teachers should foster scientific creativity right from elementary to secondary levels of schooling. Schools have to provide practical learning environment and find ways to organize science exhibitions for showcasing the students' scientific understanding, giving opportunities to implement their scientific knowledge. The variety in students' cognitive abilities must also be considered while planning science education so as to intensify each student's creativity. Pedagogical practices in classrooms should be planned by teachers in such a way that it awakens the student's curiosity. Education should be formulated so as to produce creative and knowledgeable students instead of book learners.

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Developing the Higher Order Thinking Skills: An Analysis of the Exercises in the Secondary School English Textbooks

Sian Lalchhandami*

H.Malsawmi**

Abstract

Higher-Order Thinking Skill or 'HOTS' is the essential learning outcome that any discipline aims to achieve in its educational endeavour. It is the critical thinking ability that is characterized in terms of 'analysis', 'evaluation' and 'creation' levels in the cognitive process dimension of the Revised Bloom's Taxonomy. The present study analyses 874 end-of-chapter exercises from the Secondary School English textbooks in an attempt to evaluate the higher order thinking skills represented in the textbooks and their contribution towards the development of the cognitive skills and abilities of the learners. To codify the cognitive processes involved, a coding scheme was developed based on the Cognitive Process Dimension of the Revised Bloom's Taxonomy. The exercises of the textbooks were codified and the frequencies and percentages of occurrences of different thinking processes were calculated. The dominant category in both the exercises of Class IX and X textbooks was found in 'Understand Level'. Class IX textbooks was found with a higher percentage of exercises at the Remember, Apply, Analyse and Evaluate Levels compared to Class X textbooks. The most important finding emerging from this study is that the middle-order thinking skills were more frequently targeted and represented than higher-order ones which implies that the exercises in Class IX and X English textbooks are mostly concentrated on developing the ability to comprehend and apply learnt information and does not provide sufficient exercise for the development of more complex thinking skills. Based on the findings it is recommended that more exercises to improve the higher order thinking skills of the learners be included in both the textbooks.

Keywords: Higher-order thinking skill, Exercises, MBSE, Secondary school, English textbooks, Cognitive process dimension, Revised Bloom's Taxonomy

*Sian Lalchhandami, Assistant Professor, Department of Education, Mizoram University, Aizawl - 796 004. Email: sianfanail@gmail.com

** Prof. H.Malsawmi, Professor & Head, Department of Education, Mizoram University, Aizawl - 796 004. Email: drmalsawmi@yahoo.co.in

Introduction

The importance of developing the Higher Order Thinking Skill (HOTS) has now gained a lot of emphasis in the objectives of teaching and learning within the school curriculum. Apart from the development of the four fundamental skills (listening, speaking, reading, and writing), the National Focus Group on Teaching of English (NCF 2005) also extends its objectives to the development of the thinking skills of the students. One of the most useful strategies for the development of the higher order thinking skill of students is posing questions and exercises in the classrooms to encourage them to use their HOTS. This can be done by directly asking HOTS questions to the students by teachers or through the tasks or activities from textbooks which provide HOTS questions.

Textbooks therefore play a very important role in the development of the HOTS which makes it imperative to examine the content of the textbooks and analyse the types and level of difficulty of the questions provided in the textbooks to see how much they contribute towards the development of the critical thinking ability of the students. Among the different taxonomies and models, the Revised Bloom's Taxonomy (RBT) may be considered as one of the most effective tools to evaluate the quality of the exercises and activities found in school textbooks. The RBT was proposed by Anderson & Krathwohl in 2001 as a revised version of the taxonomy that was designed by Benjamin S. Bloom in 1956. It identifies both the kind of knowledge to be learned (knowledge dimension) and the kind of learning expected from students (cognitive processes). The Knowledge Dimension was classified into four levels, namely Factual, Conceptual, Procedural, and Meta-Cognitive. The Cognitive Process Dimension was categorized as Remembering, Understanding, Applying, Analyzing, Evaluating and Creating.

These six levels in the cognitive process dimension can be further categorised into three parts: lower Order Thinking Skill (LOTS) which includes remembering, Middle Order Thinking Skill (MOTS) which includes understanding and application, and Higher Order Thinking Skill (HOTS) which includes analysis, evaluating and creating. According to Anderson & Krathwohl (2001), Analyse Level is defined as the ability of learners to separate material or concepts into component parts so that its organizational structure may be understood; Evaluate Level refers to the ability of learners to make judgments about the value of ideas or materials based on the criteria and standards; and Create Level can be explained as the ability of learners to build a structure or pattern from diverse elements and to create something new by using a combination of ideas from different sources to form a new whole. HOTS thus involves the cognitive ability to analyse and break down complex information into parts and explain their relationships, whose understanding of the parts enables the learner to arrive at a reasoned judgment and then combine the parts together to create a new structure or pattern.

Rationale for the Study

Questions come in many forms which are presented in students' coursebooks and workbooks. Furthermore, the questions can be classified into higher, middle or the lower levels of thinking. While lower thinking requires the students to recall, and middle level requires students to comprehend and apply the learnt information in new contexts, the higher level requires the students to use their critical thinking abilities to perform more complicated process. According to Meyer (2002), HOTS give a broader vision of learning that includes not only retention of knowledge but also the ability to use knowledge in a variety of new situations, actively engage learners in the process of constructing meaning and results in the promotion and realization of meaningful learning. This importance of developing the higher order thinking skills through textbook exercises therefore cannot be ignored. Unfortunately, many research studies show that textbook writers fail to understand the importance of including questions that challenge students to think critically and are found to stress mostly on questions that require the use of the lower-order thinking skills only. (Razmjoo & Kazempourfard, 2012; Abdelrahman 2014; Alfaki (2014); Askaripour (2014).

This study was therefore taken up to analyse the Secondary School English Textbooks published by MBSE to find out the type and level of exercises based on the cognitive process dimension of the Revised Bloom's Taxonomy. The study also attempted to evaluate the higher order thinking skills represented in the textbooks and their contribution towards the development of the cognitive skills and abilities of the learners. Findings of this study are expected to fill up the research gap in this area and also provide curriculum designers and textbook writers with suggestions in preparation of textbooks to ensure the realization of meaningful learning through the textbooks.

Objectives

- i. To study the distribution of exercises in Secondary School English Textbooks published by MBSE based on the Cognitive Process Domain of Revised Bloom's Taxonomy.
- ii. To examine the distribution of the exercises into Lower, Middle and Higher Order Thinking Skills.

Methodology

i. Research design

This study mainly employed a document or content analysis method. In this type of research method, written or visual materials are analyzed for the purpose of identifying specified characteristics of the material (Ary, Jacobs, Razavieh & Serensen, 2006). Further, Revised Bloom's Taxonomy was used as a benchmark to analyse the data.

ii. Materials

This study covered all the exercises in Class IX and Class X English textbooks published by MBSE listed below:

- Essential English: a multi-skill language course – Coursebook 9
- Essential English: a multi-skill language course – Workbook 9
- Essential English: a multi-skill language course – Literature reader 9
- Essential English: a multi-skill language course – Coursebook 10
- Essential English: a multi-skill language course – Workbook 10
- Essential English: a multi-skill language course – Literature reader 10

iii. Data collection and analysis procedures

All the 874 exercises in the selected textbooks were taken up for the purpose of this study. The data were analysed qualitatively through content analysis in which the exercises and activities were identified and categorized using a coding scheme based on the different levels in the cognitive domain of the RBT. Further, quantitative analysis was done in which the frequency and percentage of occurrence at each level of the cognitive domain was calculated.

Findings and Discussion

The findings of the study are presented as follows in accordance with the objectives of the study as follows:

Objective No. 1 To study the distribution of exercises in Secondary School English Textbooks published by MBSE based on the Cognitive Process Domain of Revised Bloom's Taxonomy.

The distribution of exercises in the Cognitive Domain in terms of frequency and percentage in Secondary School English textbooks published by MBSE is shown below:

Table No. 1

Distribution of exercises in Secondary School English Textbooks in the Cognitive Process Domain of Revised Bloom's Taxonomy

Level	Class IX		Class X		Total	
	N	%	N	%	N	%
Remember	62	15.9	103	21.3	165	18.9
Understand	166	42.5	176	36.4	342	39.1
Apply	108	27.6	135	28	243	27.8
Analyse	20	5.11	29	6	49	5.6
Evaluate	19	4.86	31	6.42	50	5.72
Create	16	4.1	9	1.86	25	2.86
Total	391	100	483	100	874	100

Table No. 1 displays the result of the analysis of 874 exercises in the Secondary School English Textbooks in Mizoram. Out of 391 exercises in Class IX English Textbooks, 15.86% were in the Remember Level, 42.45% in Understand Level, 27.62% in Apply Level, 5.11% in Analyse Level, 4.86% in Evaluate Level and 4.10% in Create Level of the Cognitive Process Dimension. The highest percentage of exercises was found in the Understand Level followed by Apply, Remember, Analyse, Evaluate and Create Levels.

Out of 483 exercises in Class X English textbooks, it was found that 21.33% were in the Remember Level, 36.44% in Understand Level, 27.95% in Apply Level, 6.00% in Analyse level, 6.42% in Evaluate Level and 1.86% in Create Level of the Cognitive Process Dimension. Further observation showed that majority of the exercises was found in Understand Level, followed by Apply, Remember, Evaluate, Analyse and Create Levels.

A look into the distribution of the total of 874 exercises in the secondary school textbooks (Class IX and X) found majority of the exercises in the Understand Level (39.13%), followed by Apply Level (27.80%), Remember Level (18.88%), Evaluate Level (5.72%), Analyse Level (5.60%) and Create Level (2.86%).

Discussion

The result of the study which found the highest percentage of the exercises of the Secondary School textbooks in the Understand level may be addressed. Although reasonable number of exercises may be included for testing the learners' understanding of the content, it may be advisable to shift the focus to the higher levels i.e. Analyse, Evaluate and Create in the exercises of textbooks for higher classes i.e. Class IX and X. As students reach the secondary level of schooling, they are also expected to have higher cognitive abilities. Textbook exercises may therefore be framed in such a way that it has higher percentage of exercises that test the students ability to perform tasks that are beyond the Understand Level in the Cognitive Process Dimension.

Objective No.2 To examine the distribution of the exercises into Lower, Middle and Higher Order Thinking Skills

The six levels in the Cognitive Process Dimension of the Revised Bloom's Taxonomy were categorised into three parts - the Lower, Middle and Higher-Order thinking Skills, based on their level of difficulty and complexity. The Lower – Order Cognitive Skill (LOTS) exercises i.e. Remember level exercises, are those exercises that tests the ability to retain and retrieve information from memory. The Middle – Order Thinking Skill (MOTS) exercises, which include the *Understand and Apply Levels*, are those exercises that tests the ability to make inferences and apply them in new situations and the Higher – Order Thinking Skill (HOTS) exercises, i.e. *Analyse, Evaluate and Create Levels*, are exercises that call for the ability to transfer and use of prior knowledge to solve problems and form new knowledge.

Exercises in Secondary School English Textbooks were analysed to find out their distribution in the Lower-Order Thinking Skills (LOTS), Middle-Order Thinking Skills (MOTS) and the Higher-Order Thinking Skills (HOTS).

Table No. 2**Distribution of the exercises into Lower, Middle and Higher Order Thinking Skills**

Categories	Levels	N	%
LOTS	Remember (18.88%)	165	18.88
MOTS	Understand (39.13%)	585	66.93
	Apply (27.80%)		
HOTS	Analyse (5.60%)	124	14.19%
	Evaluate (5.72%)		
	Create (2.86%)		

A study of the distribution of exercises in Lower, Middle and Higher-Order Thinking Skills in the Secondary School English Textbooks found that the highest percentage in MOTS with 66.93%, followed by LOTS with 18.88% and HOTS with 14.19%.

Looking into the HOTS category, the highest percentage was found in Evaluate level with 5.72%, closely followed by Analyse level with 5.60% and Create level with the least percentage of 2.86%.

Discussion

Findings revealed that majority of the exercises in the secondary school textbooks were found in MOTS category. This implies that the exercises in the textbooks mainly focused on the development of the ability to comprehend and apply learnt items. HOTS exercises were the least focused category in the selected textbooks. Looking into HOTS exercises, a close distribution was found between Evaluate and Analyse level exercises while very few Create level exercises were given in the textbooks. This lack of HOTS exercises, particularly Create level exercises may be addressed. As students advance to higher classes, they must be provided with more complex and challenging tasks that would provide them with the opportunity to develop their ability to critically deal with situations and procedures and also explore and develop their creative abilities. Therefore, the Secondary school level textbooks should shift their focus by decreasing the number of MOTS exercises and increasing the number of HOTS exercises.

Conclusion

The study revealed that HOTS levels were not the dominant level the exercises in the Secondary School English textbooks published by MBSE and that more emphasis has been given to MOTS and LOTS exercises. Based on the results of this study, it can be concluded that the main objectives of textbooks were aimed towards the development of middle and lower-order thinking skills only. Since these textbooks are meant for students of Class IX and X, it is important that the exercises in their textbooks be made more challenging in terms of cognitive abilities as they are already capable of performing such tasks and also need to be

better equipped with skills of critical thinking and creativity for a successful academic life as they progress to higher studies in the future.

Hence, it is recommended that a revision of the exercises Secondary school textbooks by MBSE may be made, taking into account that exercises may include more HOTS exercises. In sum, the results of the current study implies that in order to ensure meaningful learning, curriculum planners, textbook writers and teachers should be concerned about selecting appropriate and challenging English textbooks which could establish students' critical thinking skills and engage students more in higher-order thinking skills through the exercises and tasks given in the textbooks.

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Access and Perception of Web-based Learning among Undergraduate Students of Aizawl City

V. Vanlalruati*
Sweta Dvivedi**

Abstract

New and emerging technologies can be influential allies in efforts to improve education system. Technologies that are well designed and well-integrated into education can help bring about and prolong these kinds of changes in the classroom environment. Web-based learning holds out much promise – lower expenses, wider access, and more accurate delivery of the right course at the right level and the right time. Web-based learning is a means of making the education process accessible, easy, and enjoyable for all. It is an attempt to make learning in the classroom scientific and psychological using technology that allows students to use multiple senses to orient them towards learning based on their pace and understanding and make our classrooms inclusive. Pertaining to the pandemic crisis all over the world, it assures that web-based learning becomes inevitable in many institutions. So, the paper has focused on the access and perception of such technology among undergraduate students. For this, the study was conducted among the undergraduate students in Aizawl City. Purposive and incidental sampling technique and a self-constructed questionnaire was used for conducting this study. The study reveals that the students have uncertain perception on Web-based learning. Likewise, many respondents were not familiar with various academic sites, application software and system software. Even though, the students have faced many problems in handling web-based learning technologies, they somehow manage to cope with the online classes during Covid 19 pandemic calamity.

Keywords: Access, Perception, Web-based learning, Undergraduate students

Introduction

The advent of technology alters the educational system in many parts of the world. Traditional systems of education like delivering a message to the students have been lessening since then. In the last few years, the use of technology in education is greater than ever. The first use of teaching machine has come to smart classes in almost 100 years, starting in the

*V. Vanlalruati, Research Scholar, Department of Education, Mizoram University, Aizawl - 796-004. Email: vanlalruativuite@gmail.com

**Dr. Sweta Dvivedi, Assistant Professor, Department of Education, Mizoram University, Aizawl - 796-004. Email: dvisweta@gmail.com

year 1920s. One word that is gaining the biggest importance in the era of technology is ‘web-based learning’. By the word, web-based learning is a process of learning that is based on the web. Like other subjects/disciplines of education, the role of ICT and web-based learning is increasing day by day. Web-based learning can build motivation and make everything more learner-oriented. The technology, which has emerged and dwells with everyone, must be something which is extremely useful. At the same time, it can bring a great catastrophe for those who are not aware enough in handling such innovations. Each new technology aims to address questions of improving information delivery, quality of teaching and learning outcome in relation to precise problems and circumstances. Enormous developments have been made as the growth and development of science and technology has emerged from time to time. These innovations have influenced and changed the education system in different manners. An internet empowered technology has become more readily available and accessible, in formal and informal contexts.

Need of the Study

The use of technology in education is increasing day by day and it also runs through every aspect of society. This technology has changed the scenario of the classroom. It is obvious that web-based learning has helped students in many ways, especially during the pandemic/Covid 19 crisis. The use of web-based technology is time-consuming, smoother, and easier to consult for more information or lesson. By using web-based learning technology, the teaching-learning process can become effective. The need of the internet nowadays is undeniable. Therefore, the introduction and integration of Web-based learning among the students is essential and something that needs to be ahead. So, the present study has great need and significance because this study shows the access and perceptions of web-based learning among the students.

Operational Definitions of Key Terms

• **Web-based Learning:** Web-based learning refers to the usage of computers and the internet, along with various other means of technology including mobile phones, etc. for imparting education around the world. Discussion forums via email, video-conferencing and live lectures (video streaming) are all possible through the web.

Objectives of the Study

1. To find out the access of Web-based learning among undergraduate students of Aizawl City.
2. To find out the perception of Web-based learning among undergraduate students of Aizawl City.

Methods of the Study

Descriptive survey method was followed for the conduct of the study. Since the main objectives of the study were to find out access and the perception of Web-based learning, a questionnaire was developed by the researchers.

Population and Sample

The population of the study includes all the undergraduate students of Aizawl City. Purposive and incidental sampling technique was followed for selection of the sample. Two colleges namely Government Aizawl College and Government Johnson College were purposively selected. 56 undergraduate students of arts and commerce were selected included in the study.

Tools and Techniques

A structured questionnaire was developed and administered by the researchers. The statistical technique of percentage was employed for analysis of data.

Delimitations

- The study was delimited to Aizawl City.
- The study is confined only to undergraduate students.
- The study was confined to the use of the questionnaire developed by the researchers.

Analysis and Interpretation of the Data

The data were analyzed with reference to the two major objectives of the study and are presented in table 1 and table 2 relating to access and perceptions of Web-based learning by the undergraduate students of Aizawl City respectively followed by major findings objective wise.

Objective 1: To find out the access of Web-based learning among undergraduate students of Aizawl City

The data relating to access of Web-based learning converted into percentages are given in Table 1.

Table 1: Web-based learning resources accessed by the undergraduate students of Aizawl City

Accessing of Web-Based Learning			
Sl. No	Statements / Items	Label	Responses (in percentage)
1	I have been using computer/laptop for	1-5 years	32%
		6-10 years	27%
		More than 10 years	20%
2	I have been using a smartphone for	>1 year	5%
		1-5 years	41%
		> 5 years	50%
3	I am using the Internet for	Recreational	55%
		Preparing class lectures	30%
		Updating knowledge	68%
		Research work	27%
	Others (specify)		

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10	Does your institution organize Orientation Programme on Web-based or ICT?	Yes	48%	
		No	46%	
11	How good are you in computer basic?	Excellent	4%	
		Good	16%	
		Average	48%	
		Poor	27%	
12	Ability in handling Web-based facility or ICT in teaching / learning	High	2%	
		Medium	61%	
		Low	32%	
13	Preference type of teaching	Conventional / Traditional	68%	
		Modern / Contemporary (Use of ICT or Web-based)	25%	
14	Application software familiar with and used	How often do you use?		
		Always	Sometimes	Never
	i. MS Office	18%	54%	16%
	ii. VLC Player	7%	27%	66%
	iii. Tally	4%	29%	68%
	iv. Adobe connects	5%	41%	54%
	v. Avast	0%	16%	84%
	vi. Maya / AutoCAD	0%	5%	95%
	vii. FL Studio	2%	11%	88%
	Others (specify)			
15	Application software familiar with and used	Rate your proficiency		
		Excellent	Good	Poor
	i. MS Office	18%	50%	32%
	ii. VLC Player	5%	30%	64%
	iii. Tally	4%	25%	71%
	iv. Adobe connects	7%	32%	61%
	v. Avast	2%	16%	82%
	vi. Maya / AutoCAD	2%	7%	91%
	vii. FL Studio	7%	5%	88%
	Others (specify)			

16	Types of system software familiar and used	<i>How often do you use?</i>		
		<i>Always</i>	<i>Sometimes</i>	<i>Never</i>
	i. Windows	27%	23%	50%
	ii. Linux	0%	2%	98%
	iii. IOS	11%	9%	80%
	iv. Ubuntu	2%	5%	93%
	v. Android	70%	25%	5%
	vi. Macintosh	0%	2%	98%
17	Others (specify)			
	Types of system software familiar and used	<i>Rate your proficiency</i>		
		<i>Excellent</i>	<i>Good</i>	<i>Poor</i>
	i. Windows	25%	30%	45%
	ii. Linux	0%	9%	91%
	iii. IOS	11%	14%	75%
	iv. Ubuntu	0%	11%	89%
	v. Android	46%	41%	13%
18	Do you attend Educational Online Programmes / Live lectures in your institution?	Yes	82%	
		No	14%	
19	Rate the Web-based facilities in your institution	Adequate	7%	
		Moderate	64%	
		Inadequate	18%	
20	What problems do you face during online classes?	Lack of motivation	36%	
		Tracking of work or assignment	13%	
		Time management	39%	
		Lack of computer literacy skills	7%	
		Network or internet connection failure	68%	
		Problems in handling the online interface	23%	
	Others (specify)			
21	How do you like to submit your assignment?	Softcopy	43%	
		Hardcopy	55%	

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22	Percentage of classes attended during Covid 19 pandemic.	25%	2%
		50%	14%
		75%	57%
		100%	25%
23	Satisfaction of class attended during Covid 19 pandemic.	25%	16%
		50%	36%
		75%	32%
		100%	16%
24	Percentage of course covered during Covid 19 pandemic.	25%	13%
		50%	38%
		75%	34%
		100%	16%

Objectives 2: To identify the perception of Web-based learning among undergraduate students of Aizawl City.

The data relating to perception of Web-based learning converted into percentages are given in Table 2.

Table 2: Perception of Web-based learning among undergraduate students in Aizawl City

Perception of Web-Based Learning				
Sl. No.	Statements / Items	Responses		
1	The use of Web-based learning increases my understanding.	Always – 14%	Sometimes – 73%	Never – 13%
2	The quality of Web-based learning improves the quality of my assignment.	Always – 25%	Sometimes – 63%	Never – 13%
3	The use of Web-based learning improves the quality of my assessment (test / exam).	Always – 16%	Sometimes – 63%	Never – 21%
4	The use of Web-based learning helps me to complete my work more quickly than usual.	Always – 45%	Sometimes – 50%	Never – 5%
5	The use of Web-based learning helps me to complete my work more smoothly than usual.	Always – 28%	Sometimes – 68%	Never – 4%
6	I find Web-based teaching - learning interesting.	Always – 23%	Sometimes - 68%	Never – 9%
7	I find Web-based teaching -learning useful.	Always – 23%	Sometimes - 66%	Never – 11%

8	I can work according to my own pace using Web-based learning.	Always – 14%	Sometimes – 64%	Never – 21%
9	The classroom management is out of control of Web-based facilities are used in learning.	Always – 13%	Sometimes – 70%	Never – 18%
10	I can have an effective learning without Web-based facilities.	Always – 16%	Sometimes – 61%	Never - 23%
11	Web-based training should be provided to all students.	Agree – 39%	Undecided – 36%	Disagree – 25%
12	Web-based learning is difficult to handle.	Agree – 39%	Undecided- 36%	Disagree – 25%
13	Web-based learning is a waste of time.	Agree – 25%	Undecided – 41%	Disagree – 34%
14	I find Web-based learning is cost effective.	Agree – 38%	Undecided – 39%	Disagree – 23%
15	Online classes can replace offline classes.	Agree – 25%	Undecided – 25%	Disagree – 50%

Major Findings

Objective 1: Access of Web-based learning among undergraduate students of Aizawl City.

Table 1 reveals that for accessing the Internet, most of the respondents used Computer or Laptop for 1-5 years. Half (50%) of the participants responded that they had used their Smart Phones for more than 5 years and there were a few who had used it for 1-5 years. Witnessing the current situation, if smart phones are utilized optimally and wisely it can be proved as an essential academic instrument and many students and institutions are already utilizing this resource. The study revealed that several respondents used the Internet for updating knowledge and recreational purposes. There were a few who used it for preparing their class lessons. Most of the respondents were accessing the Internet from their homes. Most students used to access the internet daily. The most common social sites among the students were WhatsApp, Facebook, Instagram, and YouTube. Sadly, the students were not familiar with various academic sites or network. Though, due to the pandemic, the Government of Mizoram has directed the institutions to take online classes, only some students have come to know about some of the academic networks or sites like Google classroom; Zoom and Google Meet which were used for online classes. Google is the most common search engine used by the students and UC Browser comes second. Majority of the students did not have online personal space other than social network account. Students were mostly introduced to online sources by their friends; here, the role of the institutions have been found to be less than expected, some respondents came to know of online sources from the media. Less than half of the respondents (48%) declared of having orientation programme on Web-based learning or Information and Communication Technology (ICT) from their institutions. Many students stated themselves to have an “average proficiency” in computer basic and they also

remarked that they had a medium ability in handling Web-based facility or ICT in learning. Numerous respondents preferred to have conventional or traditional type of teaching. Most of the application softwares highlighted in the tools were not familiar among the respondents. MS Office application software was moderately common among the respondents and was sometimes (54%) used. At the same time, half of the respondents stated to have good proficiency in using MS Office. Among the different types of system software listed Android was always used by many (70%) respondents. But many respondents did not rate themselves to have excellent proficiency in handling it. Majority of the respondents attended educational online programmes or live lectures from their institutions. Many respondents rated the Web-based facilities of their institutions as moderate (64%). Network or internet connection failure was the most widespread problem faced during online classes. There were also other problems faced during online classes such as lack of motivation from the teachers, time management, handling the online interface, etc. Many students liked to submit their assignment in hardcopy. During Covid 19 pandemic, 57% of the respondents attended 75% online classes and only 25% of the respondents attended 100% online classes. Quite a few (36%) respondents were 25% satisfied with the online classes and only 16% of the respondents were 100% satisfied. 13% of the participants responded that the course covered during the pandemic was 25% and again, only 16% of the participants stated that the course covered during pandemic was 100%.

Objective 2: Perception of Web-based learning among undergraduate students of Aizawl City.

Table 2 reveals that most of the respondents were ambiguous in their response. Several participants had reported that the use of Web-based learning sometimes increased their understanding. A lot of participants had reported that the use of Web-based learning sometimes improved the quality of their assignment as well as their performance in tests and examinations. They also stated that the use of Web-based learning occasionally helped them to complete their work much quicker and smoother than usual. A number of participants sometimes found Web-based learning interesting and useful. Many participants responded that the classroom management was sometimes out of control if Web-based facilities were used and they sometimes believed that they could have an effective learning without Web-based facilities. Many respondents agreed that Web-based learning was difficult to handle and also agreed that Web-based training should be provided to all the students. Some participants were not sure of whether Web-based learning is a waste of time or not. Many respondents were doubtful whether Web-based learning is cost effective. Half of the respondents disagreed that offline classes can be replaced by online classes.

Conclusion

It is true that offline classes can not be replaced by online classes. But, no one knows how long the Covid 19 pandemic situation will continue and when normal teaching learning process in the offline mode will be restored. Our nation is apprehending the third wave of Corona which may have more fatal consequences. Online mode of teaching, learning and

evaluation is the only alternative available. In the study many respondents were found not to be familiar with various application softwares and system softwares. Even though the students faced many problems in handling web-based learning technologies, they somehow managed to cope with the online classes during Covid 19 pandemic. It was sad to learn that students were unfamiliar with certain academic sites or networks while they were actively participating on social networking sites. It is obvious that the students had uncertain perceptions about Web-based learning. The study highlights that certain remedial measures are needed in every institution to make online classes more effective. To make the students Web friendly, it is suggested that Web-based learning be included in their curriculum. Many more things need to be discussed, planning has to be done and executed in order to safeguard the future of our students.

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A Study of Depression during Pandemic among Secondary School Students in Aizawl City in Relation to their Gender and Age

Christina Lalchhanchhuahi*

Khawpuisangi Ralte**

Lallianzuali Fanai***

Abstract

The global emergence of Covid-19 with its high transmission and mortality rate has made the world agonized in fear. Public gatherings are restricted due to the fear of community transmission. In order to continue educational learning, concerning bodies and authorities introduced the utilization of online networking sites so as not to hamper the learning of the students. Although this form of radical changes liberates the Educational process, yet many problems are detected, such as teacher's strenuous efforts of delivering quality education being impeded by the students lack of appropriate gadgets, inaccessible internet connection, financial problems, shortage of power supplies and-the-like. In addition to these factors, the ongoing pandemic deeply affect the mental health of an individual, especially the adolescents who are in their period of 'Stress and Strain'. Changes in their livelihood and their responsibility as a student to continue their regular studies, competitions, burdens and speculations for their future endeavor amidst all this chaos ultimately creates helplessness, tension, frustration and anxiety upon them. These eventually cumulate to the development of depression which adversely affect their mental health. The study is conducted to understand the depression level of Secondary School Students in Aizawl City during the pandemic.

Keywords: Depression, Pandemic, Male, Female, Students, Adolescents, Age.

Introduction

Depression is one of the most common mental illnesses. According to the World Health Organisation (WHO), more than 264 million people of varying ages were affected by this illness. Since the last decade the term has become more widespread among teenagers/ adolescents who are mainly secondary school students (WHO, 2020). Research has suggested that depression is the result of genetic, biological, psychological and environmental factors. Among these factors, environmental cause is the main reason behind the spurge of this illness

*Christina Lalchhanchhuahi, Research Scholar, Institute of Advanced Studies in Education, Aizawl, Mizoram. Ph: 8729946610 Email: lalchhanchhuahichristina@gmail.com

**Khawpuisangi Ralte, Research Scholar, Institute of Advanced Studies in Education, Aizawl, Mizoram. Ph: 8414012035 Email: khawpui3@gmail.com

***Prof. Lallianzuali Fanai, Professor, Institute of Advanced Studies in Education, Aizawl, Mizoram. Ph: 9436141866 Email: dr.zuali@gmail.com

among adolescents. As adolescence is a period of heightened stress accompanied by rapid changes of emotional development, behaviour, feelings and relationships, the adolescents are vulnerable, insecure and have trouble in adaptation to unfamiliar situations (Spear 2000). The ongoing pandemic influences the emotional turmoil experienced by secondary school students at present (Hasan & Bao, 2020). Changes in their daily routine such as the introduction of online teaching and learning (Kapasias et al., 2020), lack of socialization, lack of outdoor activity, lack of real-life interactions with their peers have deeply made an impact on their mental health (Cao, et al., 2020). The rapid changes in their bodily functions, physical maturation, anticipation for their future endeavor, desire for social and peer interactions, yearning for relationships, rapid intellectual development all intensifies their emotional capacity which had the probability of creating a negative impact such as increasing the rate of mental disorder, become suicidal and increasing death rate during this period of life (Eaton et al., 2008), although, we must keep in mind that there are some who emerge from this period with a minimal turbulence. However, with the ongoing pandemic, where every individual had to adapt and make adjustment in their daily norms, the adolescents required utmost care and support (Lee, 2020). The present study is focused on the prevalence of depression among secondary school students in Aizawl city during the pandemic. It also aims to study whether the degree of their depression have any significant connections with varying factors such as their age and gender.

Need and Importance of the Study

Depression affects an individual who experienced adverse events in their life. According to the World Health Organization (2021), depression is the most common form of mental health problems causing illness and disability, in some cases it even leads to suicide. It was reported that 50% of mental health disorders started from the age of 14 years of age, marking the adolescence to be at the highest risk for mental health disorders. However, the degree of its severity is different for every individual (Iyer & Khan, 2012). While it can be extremely painful and detrimental for some individuals, others may not experience severe problems. This, however does not lighten its negative consequences on the mental health of an individual, especially those of secondary school students who are only at the start of their life long journey. They require appropriate care and guidance to go through life's various stages of trials and errors (Chaturvedi, et al., 2020). They need to surpass the various problems and crisis which they have and will encounter in order to attain their goals in life. As such, it becomes important to understand the prevalence of depression and its negative impact and association with varying elements that could affect the mental health of secondary school students so that the concerning bodies or authorities can devise measures to help them heal from such illness. Hence, the present study is taken up.

Review of Literature

Some studies related to the present study are briefly reviewed as follow:

Casey, et al., (2010) in their study of the storm and stress of adolescence concluded that environmental and genetic backgrounds greatly influence the emotional imbalance of the

adolescence which in turn lead to greater emotional problems. Iyer and Khan (2012) conducted a study on depression and stated that not everyone undergoing this state of depression shows symptoms, its severity differs from person to person. They also stated that in addition to many other factors environmental and genetic components are the major causes of this disorder. Chaturvedi, et al., (2020) conducted a study on Covid-19 and its impact on the life of students in India and have concluded that online learning imposes a big challenge for both the students and teachers. They also stated that the students do not utilize lockdown period by studying rather have problem in their daily routines which affect their health conditions. Islam, et al., (2020) found that 15% of the students reportedly had moderately severe depression, whereas 18.1% were severely suffering from anxiety. The finding also revealed that older students have greater depression (OR = 2.886, 95% CI = 0.961–8.669). It is also evident that students who were provided private tuition in the pre-pandemic period had depression (OR = 1.199, 95% CI = 0.736–1.952). It is expected that both the government and universities could work together to fix the academic delays and financial problems to reduce depression and anxiety among university students. Rodrigo et al., (2020) in their study on the level of depression among selected senior high school students in State University in Manila found that among the 1,020 respondents only 27.35% were normal, 24.41% were within mild mood disturbance, 18.72% were with moderate depression, 16.27% were with borderline, 8.98.% were with severe to extreme depression in which medical and psychological attention are needed. In addition to these, the study of Jingyi, et al., (2021) reflected that there was an association between number of study problems and depressive symptom was stronger in adolescents with a poor parent-child relationship (regression coefficient 4.34 [95% CI 2.97, 5.72]) than those with a good or normal relationship (2.55 [2.35, 2.75]), p for interaction 0.002, on multivariable adjustment.

Objectives of the Study

The objectives of the study are –

1. To find out the depression level of secondary school students in Aizawl city.
2. To compare the level of depression among secondary school students in Aizawl city in relation to their gender.
3. To compare the level of depression among secondary school students in Aizawl city in relation to their age.

Hypotheses of the Study

The hypotheses of the study are given below –

1. There is no significant difference in the level of depression among secondary school students in Aizawl city in relation to their gender.
2. There is no significant difference in the level of depression among secondary school students in Aizawl city in relation to their age.

Methodology and Procedure

Method of the Study

The present study employed descriptive survey method.

Population and Sample

The population for the present study comprises of secondary school students in Aizawl city. The investigator selected 200 (two hundred) secondary school students in Aizawl city using random sampling method.

Tools Used

The investigator used the “Anxiety, Depression and Stress Scale” (ADSS-BSPSA) developed by Pallavi Bhatnagar, Megha Singh, Manoj Pandey, Sandhya and Amitabh for the present study. The scale consists of 48 items, which were again divided into three sections.

Procedure of Data Analysis

The investigator utilized internet connection for distributing questionnaires, and the obtained raw data were tabulated, analyzed and interpreted carefully. For analyzing data, statistical technique i.e., mean, standard deviation and percentage were tabulated to find the accurate results, ‘t’-test was employed for comparison and lastly, descriptive interpretations were made to draw conclusion.

Analysis and Interpretation of Data

Table 1: Analysis of depression among Secondary School Student

Depression	Mean	Standard Deviation	Mean Score
Normal	76	38%	4.5
Mild	43	21.50%	
Moderate	57	28.50%	
Severe	24	12%	

Analysis of data from Table 1 shows the depression level of secondary school students in Aizawl city. It indicates that out of the 200 respondents, 38% of students fall within the normal range of depression, 21.5% fall under mild, 28.5% fall under moderate level and the remaining 12% fall under severe level of depression. The calculated mean score of the sample is 4.5.

Table 2: Comparison of depression level of secondary school students in relation to their gender

Gender	No. of students	Mean score	Standard deviation	Standard error of difference	t-value	Level of significance
Male	100	3.22	3.04	0.48	5.33	Significant
Female	100	5.78	3.78			

Comparative analysis from Table 2 shows that female students have higher level of depression as compared to male students. The calculated 't'-value in relation to the level of depression found to be 5.33 was greater than the critical table value at 0.01 level of confidence. Hence, the hypothesis stating that there is no significant difference in the level of depression among secondary school students in relation to their gender is thereby rejected.

Table 3: Comparison of depression level of secondary school students in relation to their age

Age	No. of Students	Mean	Standard Deviation	Standard error of difference	t-value	Level of significance
15 years	146	4.67	3.77	0.53	1.17	Not significant
16 years	54	4.05	3.35			

Comparative analysis from Table 3 shows that students of 15 years of age have more depression than 16 years of age students. It was found that calculated 't'-value for the comparison of students in relation to their age was 1.17 which was not-significant at 0.05 level of confidence. Hence, the hypothesis stating that there is no significant difference in the depression level of secondary school students in Aizawl city in relation to their age is accepted.

Major Findings

The major findings of the study are listed below –

1. It is evident from the above analysis that secondary school students of Aizawl city have a normal depression level.
2. Comparative analysis of depression level based on their gender shows that female students of secondary schools in Aizawl city have relatively higher level of depression as compared to the male students.
3. Comparative analysis of depression level based on age shows that there is no correlation between depression and the age of the secondary school students in Aizawl city.

Limitations

Due to the ongoing pandemic, the State Government have imposed lockdown within Aizawl city, public gatherings are restricted and public places such as educational institutions, religious institutions, public hall and-the-like were all closed. So, the investigators collected the necessary data using social networking sites such as mail, messages and WhatsApp applications from the target population.

Discussions

Mental health problem has become the leading topic of psychological welfare. One such illness/disorder is depression. It has affected individuals from all stages of life; however, the most vulnerable group are the adolescents (WHO, 2021). Many research studies have been conducted during the pandemic to study whether the various changes the pandemic

bring forth have any impact on the life of the students. Majority of the research study conducted have concluded that the pandemic has definitely made a negative impact on the life of the students. It tremendously affects the education, social, physical and mental health of the students (Kamble & Minchekar, 2018). Aucejo et.al., (2020) conducted a survey in France regarding the impact of Covid-19 on students experiences and expectations where they concluded that students having lesser privileged, coming from the poorer section of the society experienced larger negative impacts on their education during the pandemic. Due to their lower financial status, limited access to digital resources, unfavorable electronic gadgets, unstable electricity have delimited their educational opportunities and rights. They are unable to receive their regular teachings and have a significant problem in accessing their home assignments and its submissions through the use of internet connection. These various factors create educational problems which ultimately manifested the development of mental health problem thereby creating a state of depression and other various mental health problems in the students.

Since every corner of the world is in a difficult situation due to the pandemic, it is likely that Secondary school students in Aizawl city will also experience certain problems in regards to their education. As such it is felt that the present study needs to be conducted, which will explore the prevalence of depression during pandemic among secondary school students in Aizawl city.

The overall study concludes that out of all the respondents, 38% show no sign of depression, 21.5% show mild level of depression, 28.5% show moderate level of depression and 12% were found to have severe level of depression, which are presented in Table 1.

Finding from comparison between male and female students in relation to the level of their depression suggests that female students have higher level of depression as compared to their male counterpart. However, another finding shows that there is no significant correlation between depression and their age. The calculated 't'-value i.e., 1.17 was smaller than the critical table value at 0.05 level.

Suggestions

The objective of this study is to analyze the prevalence of depression among students during covid 19 pandemic. The above table clearly indicates the occurrence of depression among the students. It may be unfair to blame the pandemic for this problem, however, it is true that students face many challenges in the sudden transition to online learning. They require careful monitoring and guidance to benefit from these changes in their educational process. In order to do so, it will be very effective if proper training is given to the educators and teachers in the utilization of electronic gadgets and improvement for their digital skills. Even if the pandemic comes to an ends, it will be desirable that the concerned authorities will make the best use of digital infrastructure to a great extent knowing that we are living in the world of digital literacy. In this manner, the students will become more acquaint with the transition so as not to affect their mental health. However, necessary measures should be taken to cater to all students coming from varying backgrounds.

Another factor that the teachers and educators must keep in mind is that they must be aware of their students' hardships, and must limit their workload to a reasonable amount. Teachers tend to bury students with endless home assignments taking the pandemic as an advantage. They often assume that the lockdown would make students give more attention to their studies but this rather is preposterous. Changes in their daily routines, lack of social interactions and outdoor activities all added to their emotional frustration, while the more they need to keep balance of all their changing elements in order to thrive. Thus, endless assignments are the least they require. It would be very favorable if the teachers or educators would make their learning appealing rather than a burden for the students especially the secondary school students. Lastly, the teachers or educators must act as guardians who give helping hands to those students in need especially during this global crisis.

Conclusion

Secondary school stage is a period of heightened stress and anxiety. Students experience a wave of emotional, psychological and physical changes. According to the present study, during the pandemic the overall prevalence of depression among secondary school going adolescents in Aizawl city was moderate. It also concludes the variations of depression level in relation to their gender, as female students are having higher level of depression as compared to male students. The definite reason as to why female students have higher level of depression compared to the male students is unclear. However, global crisis, on-going pandemic, regular academic work load, speculation for their future endeavor, internal and external bodily changes can be the reasons behind their depression. Thus, they require utmost care and attention. The parents need to be aware of their mental status, they must be given appropriate guidance and advice on how to solve their various hardships and problems. They require constant encouragement and motivation not only for their academic work but for their social and physical changes. Lastly, they require companionship to support them in their varying periods of life.

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Integrated Blind School at Kolasib: A Case Study

R. Lalthankhumi*

Lalbuatsaiha**

Abstract

Education is one of the most important and indispensable part of human development. It can empower an individual to stand on their own, tap their potential and capabilities. Through formal, informal and non-formal methods, education can systematically provide several opportunities even for persons with blindness. A challenge faced by the blind students in their studies is very different when compared to normal students. The present study found that the academic achievement of blind students is highly appreciated and they are as good as sighted students. However, the blind students have to go through an overcome many difficulties.

Keywords: Academic achievement, blind students, integrated school for the blind

Introduction

Since all human beings are all created equal, we should all have the privilege and opportunities to lead a good life. There are people who are born with physical disabilities, visually deprived, hearing impairment and mentally retarded etc. this conditions should not come in the way to have equal opportunities in the field of education. All should have equal upbringing in order to be successful in life (Article 24 of the UNCRPD. 2006). No person shall be deprived of his life or personal liberty except according to procedure established by law, nor shall any person be denied equality before the law (Article 21 of the Indian Constitution, n.d.).

Being a signatory country, the Indian Parliament also passed an important legislation which is called the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, in 1995 which is popularly known as PWD Act, 1995. Later, the Parliament of India passed the Rights of Persons with Disabilities Act in December, 2016 which is known as R.P.W.D. Act, 2016 (Ministry of Law, Justice and Company Affairs, n.d.).

*Dr. R. Lalthankhumi, Asso. Professor, Department of Education, Government Aizawl College.

Email: khumteiralte@gmail.com

**Lalbuatsaiha, Asst. Prof, Department of Political Science, Government J.Thankima College, Aizawl.

Email:buatapcl@gmail.com

A part from that, in order to supplement the mandatory system of these legislations the Government of India passed other special legislations like, Rehabilitation Council of India Act in 1992, which is known as R.C.I. Act, 1992, National Trust For Welfare of Persons With Autism, Cerebral Palsy, Mental Retardation And Multiple Disability Act, 1999, National Mental Health Act 2007, National Policy For Persons With Disabilities 2006 and the Rights Of Persons With Disabilities Act, 2016 Rules 2017 (Ministry of Social Justice and Empowerment, 2017).

The first blind school in India was established in 1887 at Amritsar Punjab by English Christian Missionary. By 1944, when the report on blindness in India was submitted, there were 32 schools in undivided India. Most of these schools were being managed by private agencies, with grants from some state governments (Kumar, Kumar & Rawat, 2017).

Academic achievement of blind students in elementary and secondary is very challenging part of education in the present day society. The United Nations initiated the protection and promotion of rights of persons with various categories of persons with disabilities in international level by adopting Universal Declaration of Human Rights [UDHR] 1948. Later, the International Covenant on Civil and Political Rights [ICCPR] 1966 and International Covenant On Economic, Social And Cultural Rights [ICESCR] 1966 adopted by United Nations also incorporated the rights and dignities of persons with disabilities (James, 2007).

In the past, the conditions of blind people in Mizo Society were not favourable as they were marginalised by the general public (K.Lalhminganga, President Mizoram Blind Society, personal interview, May 26, 2021). However with the passage of time the conditions of the blind people improved and the government took several steps for their upliftment. One notable decision of the government for the welfare of the blind people is the introduction of Integrated Education (Central Scheme) under Special Education Cell (SCERT, Mizoram) in the year 1985 (Special Education Cell, SCERT, Mizoram, 2014).

The blind school was established on 15th April 1977. The school is run by the Salvation Army. It is situated in the Southern part of the town in Kolasib at the locality called Vengthar, Kolasib. Initially the school was open only for the blind students. However due to substantial growth and development in the year 1981 the blind school was rechristen as Integrated School for the Blind whereby students without any physical disabilities can get admission. This institution provided special full free education like, free school admission, uniform and study materials as well as hostel accommodation including food and lodging for blind students. From that time onwards, blind and sighted students learnt together in the same class following similar syllabus without discrimination especially in terms of giving daily school teaching and evaluation of answer paper of examinations. This institution also provided not only elementary and secondary level of studies but also even higher level of studies for the blind through integrated education system. The successful running of first blind institution by the Salvation Army had automatically removed educational barriers between blind and other normal students both elementary and secondary school (Capt. KH. David Lalnunsanga, personal interview, May 26, 2021).

Objectives of the study

1. To analyse the facilities provided to the blind students.
2. To study the academic achievement of blind students in Integrated School for the Blind, Kolasib.
3. To study the problems faced by blind students in Integrated School for the Blind, Kolasib.

Methodology

Method of the study

For the present study, case study method was adopted and the findings are presented mainly in a descriptive manner.

Population and sample

During 2010-2020 the numbers of blind students studying in the school on an average are 7 students. At present there are 9 students residing in the hostel. Out of 9 students 7 students were contacted and sample were collected from these students.

Tools used

Interview was conducted and used for collection of data. A descriptive statistical tool - percentage was used for analysis of the academic achievement.

Collection of data

In order to have information about the school and to have proper analysis of the study it was found necessary to personally contact the officer incharge of the school and the blind students. Due to Covid-19 pandemic we could not visit the school to meet the teachers and interact with the students. Hence telephonic interviewed was conducted with officer incharge and the blind students who are presently residing in the hostel.

Findings and Discussion

Findings and discussions is presented as per points given below:

Facilities Provided to the Blind Students

1. Braille materials like braille writing slate and stylus, braille papers, brailler, mathematical board and abacus.
2. Braille expert teachers.
3. Readers and scribes.
4. Computer facilities like screen reading software.
5. Provisions of musical instruments like guitar, keyboard, drums etc. and sports goods like football.
6. Educations on moral and spiritual topics are also taught in the school apart from their academic syllabus.

7. Accommodation: The blind student mostly belongs to poor family background and they come from different district of the state so it is not possible for them to attend school as day scholars. What they need is a hostel with proper facilities for accommodation. The school is able to provide almost all requirements needed by the blind students who are admitted in the hostel. The hostel has good facilities with warden and staff to help them whenever they needed help. The school and the hostel are fully funded by The Salvation Army with no fees/ charges from the students and the hosteller. Currently there are 15 seats available in the hostel. In addition, the school authority provides students with free hostel accommodation including food and lodging to blind students while sighted students could study only as day's scholar and hostel accommodation are not provided to them. Since the blind students are not many in numbers all the applicants willing to stay in the hostel can be accommodated.
8. Criteria for hostel admission: The students need to have disability certificate, recommended by the Local Council/village council concerned and also recommendation letter from the Church authority. This application has to be submitted to the incharge officer of the school who in turn will examine the application for acceptance or rejection.
9. Facilities in the hostel: One hostel room can accommodate two students which has attached toilet and bathrooms. Free beddings/mattress, soap, towels etc. are freely provided to the hostellers. At the end of the school calendar the students are provided free school uniform and other requirements by The Salvation Army. The students can stay in the hostel as long as Territorial Headquarters (The Salvation Army) at Aizawl gives permission to them to stay in the hostel. There is age limit as to how long they can stay in the hostel, the period of their stay in the hostel depends on the permission given by THQ.
10. Assistance given after passing out: The school authority provides free education to blind students from class I to Class X. Even after passing out from the institutions the students can continue to stay in the Hostel with free accommodation to pursue higher studies at other institutions. Even for this the school authority are still open to the blind students by giving them financial assistance that have got admissions in other institutions like Higher Secondary School and Colleges.
11. Teaching technique applied: Normal classroom teachings are being imparted to the students. Teaching aids are used whenever it is required. Students are given fixed learning period which is usually 40 minutes. They followed syllabus which is prescribed by Mizoram Board of School Education. The blind students are not shown any leniency by the teaching faculty and the same treatment are given to them like other normal students. The blind students also take part in extracurricular activities like sports, games, singing competition. In fact some of the blind students perform better in examinations than the students who have no physical disabilities. Some blind students are very gifted and they sing really well.

12. Composition of teachers: There are 11 teachers who are employed in the Integrated Blind School comprising of 8 female teachers and 3 male teachers. Among these teachers there is 1 who is matriculate, 4 teachers who are class 12 passed and 8 teachers who are graduates. Among these teachers 2 are B.Ed. and 3 are D.El.Ed.

The uniqueness of Integrated School for the Blind Kolasib in comparison with other blind schools in different parts of India is that though the teacher monthly salary is low they are very satisfied with their job as they regard their profession as social service for the education of the students who are born deprived. The teachers worked hard to educate the blind students but they do not have complains in their job.

Academic Achievement of the Blind Students

Academic Achievement of Blind School (Class I –VIII)

Year	No of students	Pass percentage
2010	9	100
2011	10	100
2012	8	100
2013	9	100
2014	6	100
2015	3	100
2016	5	100
2017	3	100
2018	3	100
2019	6	100
2020	7	100
	69	100

Number of blind students studying in Integrated Blind School year wise is indicated on the above table. During the year 2010 -2020, on an average the school has a yearly enrolment of 7 blind students and the pass percentage of blind students is 100% which is very impressive. This result shows that the blind students in spite of their disabilities can perform equally well in the examinations when compared to sighted students.

It is understandable that when the blind students get admission in the school and the hostel, they would naturally have inferiority complex as they attend classes and interact with sighted students. However, in this regard the teachers play a great role in encouraging them and giving them support whenever they need. This way they gain self-confidence and they learn to live and study comfortably with sighted students and others. The help and support given by the teaching faculty to the blind students is highly commendable. This self-confidence acquired by the blind students has helped them to excel in studies and achieve higher academically.

Education provides equal opportunities both for the blind and the sighted students right from the elementary education to higher studies. The Salvation Army Blind School also follows the same policy of equal opportunity. It has been providing inclusive education in elementary and secondary level of studies for the blind students since 1980.

Problems Faced by the Blind Students

1. The state of Mizoram is located in one of the corner most part of North East India. It is one of the smallest states. Its educational system for the visually impaired students is not up to the mark. More steps are required to be taken to improve the quality of education for the blind students. One major shortfall for them is that the blind students do not have expert mathematical teachers. Due to this, most of the blind students are weak in mathematics which created a hurdle for them even if they want to pursue higher studies or when they look for a job.
2. Since the blind students have no good mathematics teachers they have to take up commercial studies. Even in this subject they do not have a qualified teacher hence they have to study on their own which is really difficult for them. Moreover no new editions of textbooks are published.
3. In the HSLC and HSSLC Board exams there are quite a number of questions on maps and diagrams which pose a big problem for the blind students to answer questions on maps and diagrams. Therefore in order to remove the difficulties faced by the blind students, the number of questions on maps and diagrams has to be reduced.
4. Besides these, the blind students have serious problems in studying Hindi subject. They have to study Hindi subject from class 5 to class 8 along with sighted students. Due to the absence of Hindi Braille expert among the teachers the blind students cannot study Hindi subject using the corrected format of Hindi Braille. This is the reason why they have to study Hindi subject using Roman Braille script.
5. The school gives equal treatment to blind students with sighted students in terms of home assignment, imposition and evaluation of examinations of answer paper etc. Fortunately the school authority now provides efficient readers with computer facilities to the blind students since 2010. This has greatly facilitated the progress of their learning system. But lack of school textbook in Braille is still the major problems even in the post 2010.

Suggestions

1. Teachers of the blind students should be given proper training to enable them to adopt new ways of learning in order to improve the teaching system.
2. The School Education Department, Government of Mizoram should come forward and give more grant and other forms of assistance to the Integrated Blind School.

3. Since the school are very much in need of teachers who are expert on Mathematics braille and Hindi braille, the school authority should find a way to engage teachers qualified on this.

Conclusion

The Integrated Blind School is run by the church i.e The Salvation Army. The institution never receive grant either from the Central or State Government. The only monetary assistance the school receive is from some government officials, visitors and other well-wishers. However the school is fortunate as it receives lots of literature on English Braille with free of cost from different parts of the country and abroad.

The blind students receive scholarship, reader allowance and transport allowance from Mizoram Scholarship Board. In addition, Samagra Shiksha Abhiyan provides stipend, free textbooks and school uniform allowances to the blind students. Mizoram Board of School Education (MBSE) also give scribe allowances to blind students during H.S.L.C. and H.S.S.L.C final examinations.

The Salvation Army Integrated School for the Blind, Kolasib plays an important role for the future of blind students in Mizoram. Knowing the problems and challenges faced by the blind students due to lack of school textbooks in Braille, the Social Welfare and Tribal Affairs Department, Government of Mizoram is taking initiative to set up Braille press for the blind which is expected to function shortly.

Integrated School for the Blind has created larger public awareness among the public and also the educated section of the society in accepting the abilities of the blind students. Moreover, the successful functioning of the Salvation Army Integrated School for the Blind enables the government officials, social workers and the general public to recognize the ability and hidden talents of various categories of persons with disabilities in Mizoram. This has resulted in the establishment of various Schools and Rehabilitation Centres for other category of persons with disabilities in Mizoram.

It may be appropriate to highlight the successful students who have passed out from the Integrated Blind School and now who are employed at various Government departments as mentioned below:-

1. Eight (8) are employed as telephone operator in the PHE Department.
2. One each of telephone operators in the department of PWD, SAD and P&E
3. One 4th grade employee in the H&FW Department.
4. One teacher in the Middle School under School Education Department.
5. One Assistant Professor in a College under Higher and Technical Education Department.

The establishment of various Blind and other Disabled Organizations in Mizoram after 2010 can be regarded as the positive outcome. With the increase in the population year by

year the numbers of people who are born unfortunate or become disabled due to accidents also increases. Thus it has become imperative to open more schools and rehabilitation centres for the benefit of the disabled people. The contributions of Integrated School for the Blind at Kolasib is praised by the people as it is a pioneer and the first school to be established to look after the welfare of the blind students within Mizoram by giving them better opportunities in education so that they can live a better life.

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Attitude towards Teaching Profession of Secondary School Teachers in Aizawl

Mary L. Renthlei*
H. Malsawmi**

Abstract

Teachers are the facilitators of teaching learning process going on in the classroom. They are responsible for the effective transaction of knowledge and information to the students. However sound a curriculum may be developed, its success greatly depends on the effectiveness of the teacher who directly transacts that new curriculum to the students. Teachers therefore need to be dedicated and devoted to their profession if they are to be effective. One way of finding out the effectiveness and dedication of teachers to their profession is through attitudinal study towards the teaching profession. This study therefore tries to bring out the effectiveness of teachers through their attitude towards teaching profession. The tool used for the study is "Attitude Scale towards Teaching Profession (ASTTP)" developed by Dr. Umme Kulsum. Out of the 100 teachers in the sample, findings show that there are more teachers in the sample who have positive attitude towards teaching profession than those who do not.

Keywords: Attitude, Teaching profession, Secondary school teachers

Introduction

The dictionary meaning of attitude is a [feeling](#) or [opinion](#) about something or someone, or a way of [behaving](#) that is [caused](#) by this. The individual responds with enthusiasm and aversion not only towards activities but also to social groups, social institutions and other aspects of his world. These reactions with their various ramifications constitute the individual's constellation of attitudes. (Thorndike & Hagen, 1969). If views are not merely thoughts, but have emotional and action components, then these views are more than opinions, they are examples of attitudes.

An attitude is a state of the mind, a set of views or thoughts, regarding some topic called the attitude object, which have an evaluative feature such as positive, negative or neutral quality. It is accompanied by an emotional component and a tendency to act in a particular way with regard to the attitude object.

*Dr. Mary L Renthlei, Associate Professor, Dept. of Education, Govt. Aizawl College
Contact: 9436156356, Email: maryrenthei@gmail.com

**Prof. H. Malsawmi, Professor & Head, Dept. of Education, Mizoram University.
Contact: 9436360683, Email: drmalsawmi@yahoo.co.in

Factors that influence attitude formation

1. Family and school environment: Learning of attitudes within the family and school usually takes place by association, through rewards and punishments, and through modelling.
2. Reference groups: Reference groups indicate to an individual the norms regarding acceptable behaviour and ways of thinking. Attitudes towards various topics, such as political, religious and social groups, occupations, national and other issues are often developed through reference groups.
3. Personal experiences: Many attitudes are formed, through direct personal experiences which bring about drastic change in the attitude towards people and one's own life.
4. Media related influences: Technological advances in recent times have made audio-visual media and the internet very powerful sources of information that lead to attitude formation and change. Media can create both positive and negative influences on attitudes.

Teaching profession

A profession is a specialized occupation that involves specific orientation and training. It can be defined as an occupation based upon specialized intellectual study and training, the purpose of which is to supply skilled service and to advise others for a definite fee or salary (Saunders 2003).

According to Bhargava and Saikia (2006), "A profession is an occupation based on specific theories of knowledge and skill development having provision for systematic training and a type of licensing system. Profession is defined in terms of knowledge expertise and performance competence in a given field of human service, delivery of high-quality service within the framework of an ethical and moral code, autonomy for decision-making and commitment to personal professional growth".

Fenstermacher (1990) as quoted in Sharma and Sharma (2011), discusses three characteristics that could be observed in order not to simplify the parallels drawn between teaching and other professions.

1. Difference between physicians and teachers as regards mystification of knowledge. While teachers reduce the gap in competence in relation to pupils, physicians do not offer their knowledge to the patients.
2. Teachers cannot maintain a social distance to pupils as other professionals can do with their clients. A teacher has to come close to the pupils in order to understand the circumstances in which they are living.
3. Reciprocity of effort. In learning, it is essential that both pupil and teacher make an effort in order to be successful. In other professions, it is possible for clients to commit themselves to the care of the professional.

The subject whether teaching is a profession or not has long been debated upon. One opinion is that teaching can be categorized as a profession but that the teaching community is not a unified one as compared to other professions because teachers at different levels vary to a great extent from one another in terms of qualification, experience, and the overall functions and areas of specialization and so on, which makes teaching a second-degree profession compared to other professions which are very much unified groups. However, the question is not on whether a teacher is a professional or not, the basic question being raised is whether the teachers are performing their duties as professionals or not.

Secondary school in Mizoram

The first secondary school, named Mizo High School was opened in 1944 at Zarkawt, Aizawl which was placed under the management and control of the Mission in Aizawl. The first Government High School was established in 1950 by taking over the school managed by the mission. There has been rapid expansion qualitatively and quantitatively in the field of education in Mizoram. High schools or secondary schools at present cover classes 9 and 10 only. Aizawl the capital of Mizoram is where majority of educational institutions are situated. Table 1 shows the total number of secondary schools in Aizawl.

Table – 1

Secondary schools in Aizawl with total number of students and teachers as on 30th September 2017

Sl. No.	Management	No. of schools	Total enrolment			No. of teachers		
			Boys	Girls	Total	Male	Female	Total
1	Central	1	71	77	148	3	2	5
2	State	65	2461	2856	5317	358	200	558
3	RMSA	18	211	251	462	74	45	119
4	Deficit	5	695	992	1687	43	35	78
5	Adhoc Aided	35	687	827	1514	163	86	249
6	Lumpsum Aided	4	118	150	268	15	7	22
7	Private Unaided	95	2848	2678	5526	372	218	590
	Total	223	7091	7831	14922	1028	593	1621

Source: Government of Mizoram, Department of School Education, Annual Publication 2017-18

The above table shows that there are as many as 223 secondary schools in Aizawl, out of which there are 1621 teachers, who teach 14922 students.

Rationale of the study

If a person is asked how many teachers they can remember who have had positive effects on their lives, they will be able to name only a very few. What qualities do these teachers have that we remember fondly even after so many years? Surely, they must have possessed certain qualities in them that separate them from the rest. It can be safely said that many teachers enter into the teaching profession as a last resort, some take the profession for monetary gain only, and some have true devotion and dedication to the profession. The status of teachers has drastically gone down compared to the status of teachers in the ancient times when the teachers were given the highest status not because they demanded it but because of the service they rendered upon the people, which they deserved.

Teachers are the kingpins in any educational activities, they are the ones to directly transact teaching to the pupils. If teachers are not dedicated and devoted to their profession they cannot perform their duties as required and expected of them.

Teachers at the secondary level teach adolescents who are going through the roughest time of their lives. Hence there is greater expectation from the teachers which makes the profession even more demanding. It should also be noted that the working condition of teachers is not the same for all. Not all teachers can expect a sound environment to perform their work with sound mental health. Mizoram is a young state with the first secondary school having been opened in 1944 only and therefore has very little history in terms of teaching at this level.

It is therefore needed to study what attitudes the teachers have towards their profession so that the status of teachers can be improved and suggestions may be provided so improvements can be expected in their attitudes towards teaching profession. A teacher can never be an effective, efficient, dedicated teacher if he or she does not have a positive attitude towards his or her profession.

It is with this rationale that the investigator has chosen to study about the attitude of secondary school teachers in Aizawl, the capital of Mizoram since majority of teachers, students and administrators belong here.

Objectives of the study

1. To find out the attitude of secondary school teachers towards teaching profession in Aizawl, Mizoram
2. To analyse the responses of secondary school teachers on each item of the attitude scale towards teaching profession

Methodology

The present study belongs to Descriptive Research

Population and sample:

The population in the present study consists of all secondary school teachers in Aizawl. In order to have a representative sample, 100 teachers are randomly selected from different secondary schools within Aizawl city.

Tool:

Attitude Scale towards Teaching Profession (ASTTP) consisting of 55 statements prepared by Dr. (Mrs.) Umme Kulsum, Senior Lecturer, Department of Education, Bangalore University.

Collection and tabulation of data:

The data was collected by the investigator by personally handing over the scale to the teachers which were later on collected. The data collected was scrutinized and scored according to the scoring procedures. Each respondent was assigned a serial number and the scores were entered in the tabulation sheet which was analyzed.

Analysis and Interpretation

The present study is analyzed in accordance with the objectives as follows:

Objective No. 1: To find out the attitude of secondary school teachers towards teaching profession in Aizawl, Mizoram

In order to find out the attitude of teachers towards teaching profession, the mean scores of all the teachers is determined and is found to be 158.14. Therefore those teachers scoring less than the mean were classified as having negative attitude towards teaching profession and those teachers scoring more than the mean were categorised as having positive towards teaching profession. The following table – 2 shows the number and percentage of teachers with positive attitude and negative attitude teaching profession

Table – 2**Teachers' attitude towards teaching profession**

Attitude	Positive	Negative
Number and Percentage	57 (57%)	43 (43%)

The above table -2 shows that there were 57% of teacher who had positive attitude and there were 43% of teachers who had negative attitude towards teaching profession

Objective No. 2: To analyse the responses of secondary school teachers on each item of the attitude scale towards teaching profession

The scale has in total, 55 statements. There are 25 favourable statements and 30 unfavourable statements. Each statement is analysed on how many teachers agree with the statement and how many disagree with the statements. Both favourable and unfavourable statements are analysed separately as follows:

Favourable statements:

Statement 1: Teaching never gets monotonous

Agree: 67% Disagree: 33%

Statement 2: Administrative work of the school is also one of the duties of a teacher

Agree: 89% Disagree: 11%

Statement 3: One of the responsibilities of a teacher is to cultivate in the students an interest in the co-curricular activities

Agree: 90% Disagree: 10 %

Statement 9: Teachers should encourage their sons/daughters to enter teaching profession

Agree: 51% Disagree: 49%

Statement 12: Teacher is an integral part of school management

Agree: 94% Disagree: 6%

Statement 16: Teaching develops personality and character

Agree: 98% Disagree: 2%

Statement 17: A teacher should be more interested in his pupils than his pay

Agree: 97 % Disagree: 3%

Statement 19: Teachers are to be preferred as members of school management committees

Agree: 86% Disagree: 14 %

Statement 20: Teacher's participation in the co-curricular activities makes him to learn more about students' abilities.

Agree: 95 % Disagree: 5%

Statement 22: Teachers derive more joy and happiness in the company of children

Agree: 97 % Disagree: 3%

Statement 26: A good teacher makes his professional life one of continuous growth

Agree: 96% Disagree: 4%

Statement 27: Teachers should be consulted in all the administrative reforms that are proposed for the schools

Agree: 72% Disagree: 28%

Statement 30: There are many benefits in teaching profession other than money

Agree: 88% Disagree: 12%

Statement 31: If a teacher had to live his life again, he should prefer to teach

Agree: 77 % Disagree: 23%

Statement 35: Teaching profession has a bright future

Agree: 83 % Disagree: 17%

Statement 38: Teaching profession is a good medium of serving humanity

Agree: 97% Disagree: 3%

Statement 40: The eager faces of the students inspire teachers to do their best

Agree: 93% Disagree: 7%

Statement 43: A teacher can influence many generations

Agree: 98% Disagree: 2%

Statement 45: Teaching is the best means of self-expression

Agree: 84 % Disagree: 16%

Statement 46: Teaching is the noblest of all professions

Agree: 83% Disagree: 17%

Statement 49: One should be proud of being a teacher

Agree: 94% Disagree: 6%

Statement 51: Teaching offers a wide variety of social contacts

Agree: 96% Disagree: 4%

Statement 52: Teaching is one of the greatest stimulants to mental health

Agree: 99% Disagree: 1%

Statement 54: Teaching keeps one young

Agree: 74% Disagree: 26 %

Statement 55: Teachers' contribution to national development is stupendous (extra-ordinary)

Agree: 80% Disagree: 20%

Unfavourable statements:

Statement 4: A teacher should not sacrifice an evening of recreation in order to visit a student's home

Disagree: 80% Agree: 20%

Statement 5: Teachers do not determine the moral standards of a nation

Disagree: 80% Agree: 20%

Statement 6: A teacher should not be expected to do more work than he is paid for

Disagree: 70% Agree: 30%

Statement 7: A teacher is not expected to burden himself with problems

Disagree: 68% Agree: 32%

Statement 8: The work of a teacher need not be supervised

Disagree: 66% Agree: 34%

Statement 10: Teaching profession offers meagre monetary benefits

Disagree: 38% Agree: 62%

Statement 11: There is a scope for idling away one's time in the teaching profession

Disagree: 55 % Agree: 45%

Statement 13: Teachers need not be entrusted with the arrangements for excursions and matches.

Disagree: 82% Agree: 18%

Statement 14: Teachers should not expect students to like them

Disagree: 55% Agree: 45 %

Statement 15: Teachers do not prefer their close friends to be from the teaching profession

Disagree: 47% Agree: 53%

Statement 18: Teaching makes teachers tired

Disagree: 45% Agree: 55%

Statement 21: Those who fail in other fields of work usually become teachers

Disagree: 91% Agree: 9 %

Statement 23: Teachers are seriously considering changing their profession

Disagree: 64% Agree: 36%

Statement 24: Teachers should not have a say in the curriculum prepared for the school

Disagree: 83% Agree: 17%

Statement 25: An ideal teacher can exist only in imagination

Disagree: 79% Agree: 21%

Statement 28: Inferior teachers try to cover their defects by actively participating in co-curricular activities

Disagree: 56% Agree: 44%

Statement 29: If teaching profession is not honoured, our nation will not progress

Disagree: 12% Agree: 88%

Statement 32: Correction work is the worst part of a teacher's job

Disagree: 65% Agree: 35%

Statement 33: School administrators should not be considerate to the demands of teachers

Disagree: 75% Agree: 25%

Statement 34: Teachers lose their grip in teaching by participating in co – curricular activities

Disagree: 68% Agree: 32%

Statement 36: Teachers take to teaching only because their parents wished them to do so

Disagree: 91% Agree: 9%

Statement 37: Teaching profession should not be recommended to any intelligent student

Disagree: 77% Agree: 23%

Statement 39: Teachers should try to supplement their income even by overlooking professional ethics

Disagree: 67% Agree: 33%

Statement 41: It is difficult to lead a luxurious life in teaching profession

Disagree: 32% Agree: 68%

Statement 42: The community neither appreciates teacher nor recognizes their work

Disagree: 63% Agree: 37%

Statement 44: The salaries paid to teachers are a national waste

Disagree: 94% Agree: 6%

Statement 47: Men of high status do not take up teaching

Disagree: 71% Agree: 29%

Statement 48: Teachers do not have leadership quality

Disagree: 98% Agree: 2%

Statement 50: Teaching is an occupation requiring mediocre ability

Disagree: 44% Agree: 56%

Statement 53: Teaching profession suppresses ambitions

Disagree: 63% Agree: 37%

Discussion of results

It is seen that majority of the teachers agree with the favourable statements which shows that majority of teachers have positive attitude towards teaching profession.

It can also be seen that majority of the teachers disagree with the unfavourable statements which implies that majority of the teachers have positive attitude towards teaching profession. However, in some unfavourable statements, it is found that more teachers agree with the unfavourable statements.

For example in statement 10 '*Teaching profession offers meagre monetary benefits*', majority of teachers agree to this statement which implies that they have negative attitude towards their pay. It means that although they have a general positive attitude towards teaching profession, they are not satisfied with their pay.

In statement 15 '*Teachers do not prefer their close friends to be from the teaching profession*' more teachers agree to this statement. This also shows that although they have a general positive attitude towards teaching profession, they do not want their close friends to take up the teaching profession which implies that they have a negative attitude towards this particular statement.

In Statement 18 '*Teaching makes teachers tired*', again more teachers agree to this statement implying that they have negative attitude towards this statement. It means that although they have general positive attitude towards teaching profession, they felt that teaching is an exhaustive profession.

In Statement 29 '*If teaching profession is not honoured, our nation will not progress*' majority of teachers agree to this statement, indicating that even if teachers are not honoured, this will not stop the nation from progressing. The researcher felt that this statement does not really suggest unfavourable statement.

In Statement 41 '*It is difficult to lead a luxurious life in teaching profession*' again majority of teachers agree to this statement. This could indicate that they have a negative attitude towards teaching profession from this one statement. But it could also indicate that teaching as a profession should not be a life which is slothful and idle.

In Statement 50 '*Teaching is an occupation requiring mediocre ability*' more teachers agree to this statement signifying that they have negative attitude toward teaching. But on closer examination, it could also mean that teaching is not for those who have low intelligence, rather in order to be a teacher, teachers should possess at least mediocre ability.

Conclusion

One of the most important roles of the teacher is that they are the ones who are directly transacting the learning material to the students. The success of any educational function therefore greatly depends upon the effectiveness of the teacher. A teacher without positive attitude towards his or her profession can never be expected to contribute greatly to the development of the children under their care. It is important that teachers be encouraged to become more effective as the future of the nation greatly depends upon their efficiency. In this regard, the authorities are responsible for making provisions towards better working conditions, and giving recognition to deserving teachers, among others, so that more teachers may have more positive attitude towards teaching profession, as many other aspects of development in the country are based on this factor.

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Gilead Special School and Ashadeep: A Comparative Study

V. Vanlalruati*
Lalmangaihzuai**

Abstract

Government of India has taken many initiative steps in implementing and promoting various policies and legislations for educating children with special needs. It is the responsibility and duty of every citizen to discover and identify children who need special care and treatment. The objective of the paper is to study the status of Gilead Special School, Aizawl and Ashadeep, Guwahati and to make comparison between the two institutions. It was found that Gilead Special School, Aizawl and Ashadeep, Guwahati both have greatly contributed and participated for the welfare of the disabled under both their coverage. There is no limit in giving awareness among the people.

Keywords: *Special School, Comparative study, Children with disabilities*

Introduction

In order to meet the necessary care, protection and challenges of life, education is the right of every child. The children with disabilities (CWD) need all the extra guidance they can get, to supplement their differential talents so that they can prepare themselves for a happy, prolific and fruitful life. An attempt has been made to examine the policies and legislations for educating the children with disabilities.

The Government of India, under the Ministry of Social Justice and Empowerment has established six National Institutes with the objectives of: generating human resources, conducting research in the area of disability rehabilitation, developing service models, carrying out extension and outreach services, documenting and disseminating information in the respective areas (Narayan, 2004). Under Rehabilitation Council of India (RCI) 1992, every rehabilitation practitioner includes special educators, occupational therapists, physiotherapists, speech pathologists, orthotic and prosthetic engineers, social workers, psychologists. The RCI Act is a major move by the Government of India (GOI) for quality assurance in the education, training and management of persons with disabilities.

*V. Vanlalruati, Research Scholar, Department of Education, Mizoram University, Aizawl
Mobile No: 9862369187. Email: vanlalruativuite@gmail.com

**Lalmangaihzuai, Research Scholar, Department of Education, Mizoram University, Aizawl
Mobile No: 9862124904. Email: lalmangaihzuailichhangte@gmail.com

After the Independence, one important turning point was the National Policy on Education (1986) included a section on disabilities (Section 4.9):

- (i) Education of children with mild disabilities will be in regular schools.
- (ii) Children with severe disabilities will be in special school with hostel facilities in district headquarters.
- (iii) Vocationalization of education will be initiated.
- (iv) Teachers training programmes will be re-oriented to include education of disabled children.
- (v) All voluntary efforts will be encouraged.

Following the implementation of the policy by the Department of Education, Ministry of Human Resource Development, Integrated Education of the Disabled Persons (IEDP) gained momentum. Financial support, free aids and appliances, transport allowances and such other facilities were provided by the Central Government for children studying in integrated schools (NPE, 1986).

Education is the beginning of empowerment. Special attention is, therefore, given to the education of persons with disabilities. The policy of the Government of India is to put mildly disabled children in normal schools and the children with severe disabilities in special schools. The Ministry of Human Resources Development, Department of Education has formulated a scheme known as Integrated Education for Disabled Children (IEDC) which purports to provide educational opportunities for disabled children in common schools. The objective is to integrate the disabled with the general community at all levels as equal partners to prepare them for normal growth and to enable them to face life with courage and confidence (Baquer & Sharma, 2021).

In Mizoram, disabled people were not given good attention in the past. They were rather treated as nuisance and were looked down by the family members and the society as a whole and were an object of ridicule and cruel jokes. However, with the passage of time and as more people became educated, the community became more aware of the need to take care of the disabled and institutions were developed for that purpose. Although a number of people with special needs received care and education, awareness regarding the need to educate and train the disabled has to be disseminated among the masses so as to become a more developed society.

Review of Related Literature

McKinney (2021) conducted a non-experimental, one-group, pretest-posttest design to compare the scale scores on the 2017–2018 and 2018–2019 Mathematics sections of the New Jersey Student Learning Assessment (NJSLA). This investigation compared the 2018 New Jersey Student Learning Assessment in Mathematics (NJSLA-M) scale score means for sampled special education students in Grades 4 – 8 to the 2019 NJSLA-M scale score means for the same group. A Paired-samples t-Test was used to determine what statistical differences exist, if any, between the scores 2017–2018 results of the students prior to receiving instruction

based on learning progressions and the 2018–2019 results after receiving instruction in learning progressions. Results show that there was no significant difference in the pretest and posttest mean scale scores suggesting that there was no significant impact of the learning progressions model of student performance after one year of exposure.

Barrow (2017) employed a phenomenological framework to investigate the lived experiences of parents of a young child with autism receiving early special education services. Unstructured interviews and photo elicitation were used to generate rich, detailed descriptions of the phenomenon. Data analysis from photographic images and narrative dialogues illuminated six essential themes across participants:

- (a) parents as pioneers: forging the way for future families;
- (b) making the journey as a family;
- (c) navigating uncharted service systems;
- (d) overcoming challenges and obstacles;
- (e) resilience, ingenuity and hope; and
- (f) reflecting on the first three years and looking forward.

Participants expressed that they felt this study gave them a “voice” in the research literature. This study is one of the first to investigate the lived experiences of parents as they seek and secure autism services for their child under five with autism.

Cameron et al. (2018) conducted a study to explore similarities and differences between special educator preparation in Norway and in Sweden. Graduates of special education programmes at two Norwegian (n = 320) and two Swedish universities (n = 425) who completed their training between 2001 and 2012 responded to surveys. Findings indicate that both Swedish and Norwegian graduates felt prepared for their current work and that teaching approaches employed in the different programmes were similar. However, there appears to be a stronger focus on pupils’ social goals in Sweden, as well as on advising teachers, school development and promoting inclusive environments. In contrast, Norwegian participants reported a greater focus on preparation to work with specific types of learning and behavioural difficulties. Findings are discussed in relation to differing political and social structures, such as national regulations for steering special educator preparation in Sweden, which are absent in the Norwegian context.

Need of the Study

As per census 2011 in India, out of the 121 crore population, about 2.68 crore persons were ‘disabled’ which is 2.21% of the total population. In an era where inclusive development is being emphasized as the right path towards sustainable development, focused initiatives for the welfare of disabled persons essential. This emphasizes the need for strengthening disabilities statistics in the country. The census data showed that there are a number of persons who need special care and help. There are no limitations to giving awareness among the people. Guidance and counseling can take place if the need of the child / person is discovered early.

Therefore, in the light of the above discussion, the investigators felt that it would be interesting and informative to study the status of institutions for the disabled of two different states of India in order to find out the type of management they have and to make comparisons in order to find out their effectiveness in the society.

Statement of the Problem

The problem of the present study is stated as ‘Gilead Special School and Ashadeep: A Comparative study’.

Objectives of the Study

The objectives of the study are:-

1. To identify the status of Gilead Special School.
2. To identify the status of Ashadeep.
3. To compare Gilead Special School and Ashadeep.

Operational Definition of Key Words

In the present study the words which are used in the title and text have the following operational meaning-

Special School: Special schools are those that provide an education for children with a special educational need or disability.

Disabled: A person having a physical or mental condition that limits their movements, senses, or activities.

Methods of the Study

The study was descriptive survey type. A semi-structured interview was conducted. Secondary data were used for collecting necessary information.

Analysis and Interpretation:

Analysis of collected data was done in accordance with the objectives and presented accordingly:-

Objective No. 1: To identify the status of Gilead Special School

The Gilead Special School for Multi-Handicapped Children is run by the Spastic Society of Mizoram. It was started on the 10th April 1990 with the four children of the founder members and went on to provide formal special education for special needs children in the area.

Gilead Special School and Spastic Society provides education and training to children with mental challenges, autism, ADHD, cerebral palsy, multiple disabilities, etc. There are 48 teaching and non-teaching staff in Gilead Special School, Aizawl.

Vision: The quality of life of every person with Mental Retardation is equal to other citizens in the country so that they can live independently to the maximum extent possible.

Mission: Through constant professional endeavors, empowering the persons with disability to live independently and live a life with dignity.

Objective No. 2: To identify the status of Ashadeep

Ashadeep was formed in 1996 to fill a vacuum in the area of psychiatric rehabilitation in the state of Assam. It is the fruitful outcome of an endeavor of a few family care-givers, mental health professionals and other like-minded citizens. What started off as a small organization for day care and rehabilitation for persons with mental disorders, has today blossomed into a full-fledged institution providing mental health care, bringing into its realm a wide range of services that cater to a population beyond the borders of Assam. In the past twenty four year, Ashadeep has directly intervened in more than 6000 persons with mental disorders covering ten districts of Assam. Ashadeep has also partnered with organizations from its neighboring states viz. Meghalaya, Nagaland and Tripura. Ashadeep has played a pivotal role in creating more players in the mental health arena by incorporating mental health into the agenda of quite a few organizations in the North Eastern states. The strength of Ashadeep has been the dedicated staff comprising of Health Workers, Special Educators, Vocational Trainers, Social Workers, Psychologist, Psychiatric Nurse and other support staff. Majority of the staff members have served the organization for more than ten years.

Vision: To achieve a life of better quality for persons with mental disorders and their families.

Mission: To initiate and strengthen Mental Health Interventions in North East states. Moving beyond the clinical model of treatment for persons with mental disorders, Ashadeep strives to intervene with the psychosocial aspects of issue.

Aim: To mainstream this long neglected issue and thereby work towards ensuring the rights of persons with mental disorders.

ObjectiveNo. 3: To compare Gilead Special School and Ashadeep

A comparison between Gilead Special School and Ashadeep were done on the basis of infrastructure, curriculum, counseling, staff pattern, service provided and funding.

1. Infrastructure: Gilead Special School, Aizawl has two buildings situated in Brigade, Bawngkawn, Aizawl, Mizoram in which different rooms are detailed for – Adult Rehabilitation Centre, Autism cell, Cerebral Palsy, Hearing impaired, intellectually Disabled / Mentally Retarded, Therapy, Vocational Training Centre, administrative building, Teacher's Room and Principal's room. Hostel accommodation is also provided.

Ashadeep, Gauhati on the other hand, has different buildings situated in different places in accordance with their project. **Day Rehabilitation centre** is the main centre where Intellectually Disabled are taken care of. This Centre has occupied 5 rooms Office, Autism Cell, Computer Classroom, Therapy room, Kitchen and Dining room, Navenchetana' Rehabilitation Homes for Homeless Women with Mental Illness and The Udayan

Rehabilitation Home for Homeless Men with mental Illness. There are two places for homeless women transit and rehab centre. The number of residence at transit camp is 19 and number of residence at rehab is 25. The numbers of women who had done admissions in the home are 588 and number of discharged are 544. In the Udayan Rehabilitation Home for Homeless Men with mental Illness, the number of residence are 33. The numbers of men who had done admissions in the home are 96 and number of discharged are 63.

“The Day Rehabilitation Centre” caters to *Individuals with Intellectual Disability and Associated Disorders and Persons Recovering from Mental Illness*.

For the individuals with intellectual disability, focus is given on Activities of Daily Living, Functional academics, prevocational activities, sports and music along with conventional academics. Every student has an individualized intervention plan along with a six monthly goal based on their level of retardation. Specialized inputs like drama, speech, movement and yoga therapies are provided as part of the rehabilitation process. Learning through role plays, one to one and peer training are followed here.

2. Curriculum: The curriculum of Gilead Special School varied from MBSE syllabus to Vocational training like folding papers, envelop making, scissors using, needle using, martial arts (taekwondo) tailoring for mild intellectually disabled. They also participate at Special Olympic Bharat in athletics, shot-put and football and have even gone as far as to the United States to participate in football. Field trips and picnics are also part of the curriculum. Classes are classified hierarchically into –

- (i) Early Intervention (Cerebral palsy)
- (ii) Pre-school (Cerebral palsy)
- (iii) Functional Academic
- (iv) Pre-school (Intellectually Disabled)
- (v) Special education: Based on age, mental ability and type of disability the children in the school are grouped into reception, junior functional, senior functional, hearing impaired and academic group. The students based on the categorization are educated and trained in activities of daily life such as toileting, grooming, dressing, eating, communication skills, social skills etc, further they are taught to read and write. Students who are capable of taking up regular courses are encouraged to join schools in class 1 to 10.

Ashadeep, Guwahati has started **The Community based Mental Health Programme** on January 2014. They have 10 workers who work permanently from the locality. They work with the Govt. Department and Hospital.

Psychiatric Outdoor Clinic (OPD): Psychiatric Outdoor Clinic (OPD) in Community Health Centre is open in every second and fourth Saturday. They sometimes refer the Outdoor patients to the Hospital for further investigations regarding their health.

Resource Centre: Established in 2009, the prime activities under this particular endeavor are Sensitization; Orientation & Training; Research & Documentation and Advocacy on issues of mental health.

Recently an intensive job oriented computer data entry training program as a part of vocational therapy was initiated in collaboration with Amba, a Bangalore based NGO working for empowerment of intellectually disabled adults. 40 students of Ashadeep are undergoing this training programme and 20 students are ready to be inducted as professional data entry operator within couple of months.

3. Counseling: Gilead Special School provides Counseling to the parents of disabled children to empower them regarding the therapies and teaching methods that can be adapted in a home setting. Counseling also helps to overcome emotional problems of parent related to their children. In Ashadeep, Face to face and Telephonic counseling was established in 2011 for providing emotional First-Aid in time of distress.

4. Staff patterns: In Gilead Special School there are 20 teaching staffs and 16 non-teaching staffs, Principal, 7 vocational training teachers whose salary are provided by society, 1 taekwondo instructor, 1 physiotherapist and 2 occupational therapist while in Ashadeep, there are 50 workers as to deal with their different projects.

5. Service Provided: Vocational class of Gilead Special School trains special children in silk screen printing, embroidery, tailoring, drawing or painting, envelop, candle, paper plate, doormat and paper bag making. They also provide education for Intellectually Disabled, Autism, Cerebral Palsy and therapy for those who require them. They already have OBE recognition under NIOS. At present, there are 25 students in tailoring unit who receives stipend every month. On the other hand, the Vocational unit of Ashadeep provides skill development training to the intellectually disabled adults and persons recovering from mental illnesses which forms a part of therapy as well as a source of facilitating income generation. Here training in block printing, candle making, jute products making, food processing and products made with waste clothes are given.

6. Funding: Gilead Special School, Aizawl receives funding from the Spastic Society of Mizoram. Five teachers and one student were sponsored by the government. They have 3 vehicles – 2 vans which were gifted by the Honorable Chief Minister while Ashadeep was funded by The Tata Trust, GiveIndia.org, The Hans Foundation and Social Welfare Department, Government of Assam.

Conclusion

Gilead Special School, Aizawl and Ashadeep, Guwahati both have greatly contributed and participated for the welfare of the disabled within both their coverage. The services they are offering for the past years till today is remarkable for the society. The interventions programs of both the institutions have helped individuals with special needs achieve higher levels of personal self-sufficiency and success in school and in their community which may not have been possible if the students were only given access to a typical classroom education.

Gilead Special School offers services only to those seeking admission in their organization while Ashadeep not only provides services to those who seek admission but also pick homeless men and women having mental illnesses from along the streets, railway stations, etc. and look after them in their organization. Therefore the service provided by Ashadeep is wider than Gilead Special School. Gilead Special School is not approached by the community at large, due to lack of awareness on the part of the people having persons with disability in their families.

From this study, it can be seen that even though the service provided by Gilead Special School seems less resourceful in comparison to Ashadeep, considering the population of the States they are located and their social structures, the former is as much beneficial for the society as the later. This is quite similar to the process of the study done by Cameron and others where they made a comparison between special educator preparation in Norway and in Sweden and they discussed findings in relation to differing political and social structures. From an informal interview, faculties from Gilead Special School mentioned that they stopped receiving funding for about three years ago. Therefore, in order to function smoothly in the coming future, these two institutions will need improvement in different areas. Funding agencies and the concerned governments have to give adequate attention to the institutions so that they will be able to offer a more specialised and effective programs.

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A Study on Academic Anxiety among Secondary School Students in Kolasib District

Lallawmkima*
MS Dawngliani**
Lallianzuali Fanai***

Abstract

The aim of this research is to study academic anxiety among secondary school students in Kolasib district. For this purpose, the sample was selected from different secondary schools within Kolasib district. The sample consisted of 135 students out of which 70 were male and 65 were female students. The sample also comprised of 65 students from class 9 and 70 from class 10. Academic Anxiety Scale (AAS-Samrua) developed by Dr. Mohd. Abid Siddiqui and Dr. Atieq UI Rehman was used as a tool for data collection. Mean and t-test were used to analyse the data. The findings of the study reveal that no significant difference was found in relation to class, and there was a significant difference in relation to gender in which the level of academic anxiety was higher in boys than girls.

Keywords: Academic anxiety, gender, class.

Introduction

Anxiety is your body's natural response to stress. It is a feeling of fear or apprehension about what is to come. The first day of school, going to a job interview, or giving a speech may cause most people to feel fearful and nervous (Holland, 2020). Extreme anxiety lasting for more than 6 months can interfere with life and may become an anxiety disorder while ordinary anxiety is a feeling that comes and goes, but does not interfere with everyday life. This type of anxiety is unkind, but it may be motivation to work harder and to do a better job. Anxiety is defined as apprehensive uneasiness or nervousness usually over an impending or anticipated ill (Merriam-Webster, 2021). Anxiety disorders are the most common form of emotional disorder and can affect anyone at any age, where women are more likely than men to be diagnosed with an anxiety disorder (American Psychiatric Association, 2021). Teenagers may have many reasons to be anxious. But teenagers who feel anxious or experience symptoms of anxiety frequently may have an anxiety disorder.

*Lallawmkima, Scholar, IGNOU Centre, Institute of Advanced Studies in Education (IASE), Aizawl, 796 005 Mizoram. Ph:8575190266, Email: lomkim08@gmail.com

**Prof. Lallianzuali Fanai, Professor, IASE, Aizawl, 796 005, Mizoram. Ph: 9436141866, Email: dr.zuali@gmail.com

***MSDawngliani, Scholar, IGNOU Centre, IASE, Aizawl, 796005, Mizoram. Ph:9612039832, Email: amami26ralte@gmail.com

Symptoms of anxiety in teenagers may include nervousness, shyness, isolationist behaviours, and avoidance. Similarly, anxiety in teens may result in strange behaviours. They may lead to poor performance in school and even engage in substance or alcohol use. In some cases, depression may go along with anxiety. Diagnosing the conditions together is important. The most common treatments for anxiety in teenagers are talk therapy and medication. These treatments also help depression symptoms

Academic anxiety refers to disruptive thought patterns and physiological responses and behaviours that follow from concern about the possibility of an unacceptably poor performance on an academic task (Ottens, 1991). Academic anxiety is a sort of state anxiety which relates to the approaching danger from the environments of the academic institutions including teachers, certain subjects like Mathematics, English, etc. It can be from poor study habits, subjects, school environment, teachers and examination. It can be significant by influencing the learners' mind set in the form of motivation to the academic success of the students while can be a factor to lower the academic achievement of students, so there is a need to manage academic anxiety to improve the academic performance. If a student has social anxiety, the student might not be able to complete group tasks or might not feel comfortable asking for help in class. Social anxiety can go along with or even lead to academic anxiety.

Rationale of the Study

Kolasib district is one of the eight districts of Mizoram state in India. The district is bounded on the north and northwest by Hailakandi district of Assam state, on the west by Mamit district, on the south and east by Aizawl district and on the northeast by Cachar district of Assam state. The district occupies an area of 1472.12 km². Kolasib town is the administrative headquarters of the district (NIC, 2021). In HSLC examination 2020 result, Kolasib district held 5th position in terms of pass percentage which is 66 %, in Mizoram. There were 34% percent who were not successful (MBSE, 2020). Kolasib district is mostly covered by rural area. Schools at secondary level are mostly Government established schools with no sufficient number of teachers particularly in villages. Students may face many problems related to the academic achievement. Besides that, students at secondary stage who are adolescents have much confusion in their personal life. They are confronted with anxiety relating to academic tasks and personal problems. There are many factors that increase anxiety among students that affect academic activities. At the same time, there are ways to reduce anxiety in students. So, the investigators felt the need of giving sincere effort to study the academic anxiety of secondary school students in Kolasib district.

Objectives of the Study

1. To find out the level of academic anxiety of secondary school students in Kolasib district.
2. To compare academic anxiety of secondary school students in relation to their gender.
3. To compare academic anxiety of secondary school students in relation to their class.

Hypotheses of the Study

1. There is no significant difference between academic anxiety of male and female students of secondary schools in Kolasib district.
2. There is no significant difference between academic anxiety of class IX and X students of secondary schools in Kolasib district.

Review of Related Literature

Mohato and Jangir (2012) made a comparative study of academic anxiety and effect of school environment on anxiety among adolescents of Minicoy Island. Results revealed that majority of the students experienced the taste of anxiety. Gender did not affect the anxiety. Types of school and the facilities in them did affect the anxiety. It was also reported that government school students were more anxious than private school students. Kumar (2013) found that anxiety amongst adolescent boys and girls was very common and natural. Be it about self, career, academics or any other issue, the youths underwent feelings of anxiety at some phase of their lives. A sample of 120 subjects was randomly selected for the present study, out of which 60 students were from urban area and 60 from rural area. The result revealed that the academic anxiety and home environment scores of adolescents correlated significantly. Neelam (2013) in his study on academic achievement of secondary school students having differential levels of academic anxiety reported that academic achievement was inversely related to academic anxiety i.e. those students who high level of anxiety showed poor academic achievement; moreover girls were better in academic achievement and showed high degree of anxiety than boys. Banga (2014) found that students belonging to different social categories i.e. scheduled caste, other backward categories and general category did not differ significantly in their academic anxiety.

Shakir (2014) made a correlational study between academic anxiety and academic achievement based on gender. Findings clearly showed a negative relationship between academic anxiety and achievement. Gender also affected the anxiety; females were more anxious than male. Mahajan (2015) revealed in their study that no significant difference existed in the academic anxiety of male and female secondary school students, moreover a significant difference was found in the academic anxiety of government and private secondary students. He also reported that academic stress was significantly and negatively correlated to parental encouragement. The study of Khemka and Rathod (2016) revealed that 18.5% of students had low academic anxiety, 75% of students had average academic anxiety and about 6.5% of students had high academic anxiety. Female students were more academic anxious than male students. Boys of government schools had more academic anxiety than boys of private schools. Girls of private schools had more academic anxiety than girls of government schools. Rao and Chaturvedi's (2017) study found that, there was no significant mean difference of academic anxiety among boys and girls class-ix students of secondary school. However, significant mean difference was found among class-IX students of secondary schools situated in rural and urban areas on their academic anxiety level.

Azeem (2018) reported that there was no significant difference in the academic anxiety and academic achievement of male and female students respectively. Similarly, no significant difference was found in the academic anxiety and academic achievement of muslim and non-muslim students respectively though, a significant and negative relationship was seen among the academic anxiety and the academic achievement. It is inferred from the findings that a moderate level of anxiety is desired in order to excel in the academics, and when anxiety crosses the limit, academic achievement decreases significantly. Sharma and Shakir (2019) revealed in their study a significant difference in the academic anxiety of senior secondary school students in relation to locale. Urban senior secondary school students had more academic anxiety in comparison to their counterparts. Similarly, significant difference was found in the academic anxiety of senior secondary school students in relation to type of school. Senior secondary students studying in private schools had more academic anxiety in comparison to government senior secondary school students. Shukla's (2021) study showed that there was a negative relationship between academic anxiety and academic achievement. He also found that there was a positive relationship between home environment and academic achievement of secondary school students.

Population and Sample

The population in the present study consists of secondary school students in Kolasib district. A sample of 135 students enrolled in the academic year 2020-2021 was selected for the present study through random sampling technique.

Table 1

Distribution of Sample of the Study: (N=135)

Variables		No. of students	Percentage
Sex	Male	70	51.85
	Female	65	48.15
Class	9	65	48.15
	10	70	51.85

Tool Used

In the present study the investigators used the Academic Anxiety Scale (AAA-Samrua) developed by Dr. Mohd. Abid Siddiqui and Dr. Atieq UI Rehman for collection of data. AAA-Samrua consists of 44 questions having three types of answers like Agree, Undecided, Disagree. The items in the questions have 6 dimensions such as Academic Anxiety symptoms, Anxiety from poor study habits, Anxiety from subjects, Anxiety from school environment, Anxiety from teachers, Anxiety from examinations.

The reliability of the scale was decided by the split-half method (odd-even). It was calculated on N=600 and was found to be $r = +0.85$ which is highly significant at 0.01 level of significance.

Data Collection

The investigators personally visited different Schools in Kolasib district. After taking permission from the selected headmasters the AAA-Samrua was administered among the secondary school students. The scores were noted and calculated by following the norm of scoring given in the manual of the standardized scale.

Data Analysis

Percentage was employed to find out the level of academic anxiety. To compare the gender difference t-test was used.

Analysis and Interpretation

Analysis and interpretation are done in accordance with the objectives of the study as follows:

1. *To investigate the level of Academic Anxiety of secondary school students in Kolasib.*

Table 2

Level of Academic Anxiety of Secondary School Students

Sl.no	Level of academic anxiety	No. Of students	Percentage
1	Extremely low	0	0%
2	Low	3	2.22%
3	Below average	13	9.63%
4	Average	19	14.07%
5	Above average	75	55.56%
6	High	24	17.78%
7	Extremely high	1	0.74%
	Total	135	

Analysis of the above table No.2 shows that there are no students who score extremely low academic anxiety and only 1 student who score extremely high level of academic anxiety. Among 135 students, 17.78 % of the students have High level of Academic Anxiety while 14.07 % of the students have Average level, 9.63% of the students score Below Average level and 2.22 % of the students score the level of Low Academic Anxiety. Majority of the students comprising of 55.56 % have Above Average level of Academic Anxiety.

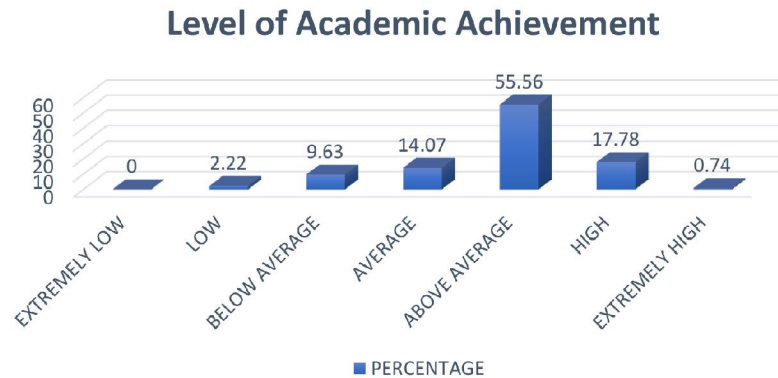


Figure 1: Percentage Scores of Academic Anxiety of the Students.

Table no. 3

Descriptive Statistics

Range	Highest score	Lowest score	Mean	Mode
44	102	58	85.04	85

Average score of 135 secondary school students is 85.04 which is the level of Above Average Academic Anxiety. The lowest score 58 is Grade F that is the Low Academic Anxiety Level while the highest score 102 is Grade A that is Extremely High level of academic anxiety.

2. To compare Academic Anxiety of secondary school students in relation to Gender

H₀₁: There is no significant difference between Academic Anxiety of male and female students of secondary school students in Kolasib district.

Table 4

Comparison of Academic Anxiety of Male and Female Students

Academic anxiety	N	Mean	t-value	Level of significant
Male	70	87.8	3.55	0.01
Female	65	82.1		

Analysis of data vide table No. 4 reflect the result for the test of significant differences between male and female students of secondary schools in relation to their level of Academic anxiety. The mean values for male and female students are 87.8 and 82.1 respectively. The table also reveals the t-value for the mean scores of male and female students towards Academic Anxiety level found to be 3.55 which is significant.

Therefore, the null hypothesis No.1, there is no significant difference in the level of Academic Anxiety between male and female students of secondary schools is rejected. This

finding implies that Academic Anxiety levels of male and female students are significantly different. Male and female students differ significantly in their Academic Anxiety.

3. To compare Academic Anxiety of secondary school students in relation to Class.

H_0 2: There is no significant difference between Academic Anxiety of class 9 and 10 students of secondary school students in Kolasib district.

Table 5

Comparison of Academic Anxiety of Class 9 and Class 10 Students

Academic anxiety	N	Mean	t-value	Level of significant
Class 9	65	85.26	0.25	N.S
Class 10	70	84.82		

Analysis of data vide table No. 5 reflect the result for the test of significant differences between class 9 and class 10 students of secondary schools in relation to their level of Academic anxiety. The mean value for class 9 and class 10 students is 85.26 and 84.82 respectively. The table also reveals the t-value for the mean scores of class 9 and class 10 students towards Academic Anxiety level found to be 0.25 which is not significant.

Therefore, the null hypothesis no.2, there is no significant differences in the level of Academic Anxiety between class 9 and class 10 students of secondary schools is retained. This finding implies that the Academic Anxiety level of class 9 and class 10 students are not significantly different. Class 9 and class 10 students do not differ significantly in their level of Academic Anxiety.

Major Findings

1. The Mean score of Academic Anxiety of Secondary school students in Kolasib District is 85.04 that is the level of Above Average Academic Anxiety.
2. It was found that there is a significant difference between Male and female students in Kolasib District. Boys are higher in academic anxiety than girls.
3. From the above analysis it was found that there is no significant difference between Class 9 & 10 secondary school students in Kolasib District.

Discussion

The result of the study on the level of academic anxiety among secondary students in Kolasib district is Above Average level. This is an unfavourable level and almost high based on the interpretation given in the tools -Academic Anxiety Scale (AAA-Samrua). That means Academic Anxiety is common among secondary school students in that district. A study on Academic anxiety in relation to academic anxiety can be taken up to find out how it affects

the academic, is there any relationship between academic anxiety and academic achievement. Mohato and Jangir (2012); Kumar (2013); Khemka and Rathod (2016) revealed that academic anxiety is common and natural among the students.

Gender wise analysis of the study results reveals that there is a significant difference between male and female students in their level of Academic anxiety. Boys are higher than girls in their mean score on academic achievement. Khemka and Rathod (2016) found the similar results but female is higher than male students in their level of academic anxiety. Contradictory result was found by Mohato and Jangir (2012), Mahajan (2015), Rao and Chaturvedi (2017).

There is no significant difference between class 9 and students in the level of academic anxiety, this result reveals that class 10 students are generally older than class 9 but they are not mature in the way of performing in their academic activities. While Class 10 is a board examination at the end of the academic year it may lead to more anxiety than class 9 students who face final board examination.

Conclusion

Academic anxiety interfered directly or indirectly with the level of academic achievement of the students. A study on Academic anxiety in relation to academic achievement, in relation to management of school, in relation to locale, co relational study with home environment, co relational study with parental encouragement. can be taken up among secondary and higher secondary levels also. An educational planner or administrator can frame some policies regarding management of anxiety in the secondary stage.

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Whole Brain Teaching: A World Leader in Brain Based Teaching

Lal Rem Siami*
Lalhmasai Chuaungo**

Abstract

Whole Brain Teaching is an instructional approach drawn from a neuro-linguistic picture that focuses on direct instruction and cooperative learning by activating the whole brain. In the early 90s, a movement began that attempted to link neuroscience and education known as 'brain-based learning' which later led to the establishment of the whole brain teaching method. Whole Brain Teaching attempts to break away from conventional norms and allow students to engage, involve, and activate the whole brain in learning. Based on the scientific brain research study, Chris Biffle puts forward a selection of powerful whole brain teaching techniques known as the 'Big Seven'. It is the seven key techniques or elements to effective teaching and learning that activate the brain. Advocates from different fields affirm that teachers can incorporate these techniques into their everyday classroom to enhance the students' academic achievement. Whole Brain Teaching is still a virgin area of research. Conducting researches on it and its effectiveness is an urgent matter of concern.

Keywords: Whole Brain Teaching (WBT), Brain Based Teaching (BBT), Techniques, Research

Introduction

Student academic performance has become the main focus of every teacher today. One of the biggest challenges faced by many teachers is to keep students actively engaged in class. While several researchers continue to search for ways to overcome the challenges, one phrase repeatedly rises to the surface is whole brain teaching that is regarded as the world leader in brain-based learning also known as 'power teaching'. Whole brain teaching is an instructional approach drawn from a neuro-linguistic picture that focuses on direct instruction and cooperative learning by activating the whole brain (Biffle, 2010). Educational neuroscience is an emerging scientific field, an empirical study of the brain for education reform (Zadina, 2015). During the past decade, numerous researches have connected the fields of neuroscience

*Lal Rem Siami, Ph.D. Scholar, Department of Education, Mizoram University, Aizawl.

Email: siamsiamib4@gmail.com

**Prof. Lalhmasai Chuaungo, Professor, Department of Education & Director, UGC-HRDC, Mizoram University, Aizawl. Email: lalhmasai.c@gmail.com

with education. Education focuses on the enhancement of learning while neuroscience is about understanding the mental processes involved in the teaching and learning process (Royal Society, 2011). Researches in this area may link to comprehensive findings in cognitive neuroscience along with educational technology to help in the curriculum implementation for different subjects. The main aim of educational neuroscience is to generate new trans-disciplinary accounts through applied research which is capable of developing a comprehensive pace in areas greatly relevant to education (Goswami, 2006). At present, teachers are at the receiving end of a brain-based teaching method that leads to research and development of teaching techniques that can activate the whole brain in the classroom setting. Brain-based education considers how the brain learns best. The human brain is plastic, organizes, and reorganizes by learning; in other words learning changes the physical structure of the brain (Dam, 2013). The brain does not learn on-demand by school's rigid, inflexible schedule (Jensen, 2000). If we want to maximize learning, we first need to understand the rhythms and structure of the brain. This singular realization alone has fueled an urgent movement to redesign learning.

Brain Based Learning (BBL)

In the early 90s, a movement began that attempted to link neuroscience and education known as 'brain based learning' (Zadina, 2015). The relationship between the brain and learning is established. BBL is best understood as a multidisciplinary approach that is built on the fundamental question: What is good for the brain? (Jensen, 2000). It focuses on accepting the set of rules on how the brain processes, and then arranges teaching techniques to achieve meaningful learning (Caine & Caine, 1994). Based on the findings of neuroscience, BBL functions based on the workings of the brain to develop the best method to enhance academic achievement, and provide equal opportunities for individual differences. Every teacher has to identify the working system of the brain for an effective and efficient teaching method (Dafford, 2004). Without knowing how the brain works, it is impossible to understand the nature of learning. According to Duman (2006), a teaching approach based on neuroscience increases the speed of learning and produces long-term learning. Brain based education improves the teaching and learning process, improves resiliency, and creates a better learning environment for the students (Swan, 2019). With such an extensive range of scientific findings, it is clear that the implications of Brain Based Learning are far-reaching. As a result, the Whole Brain Teaching method was established by Chris Biffle and his colleagues in the year 1999. It started with one teacher problem which led to comprehensive research and development of teaching techniques that could activate the whole brain.

Techniques of Whole Brain Teaching (WBT)

The first law of whole brain teaching is "the longer we talk the more students we lose". The founder Chris Biffle explains that students have the passion to learn more when they are emotionally engaged and are required to see, to say, to hear, and to move around. Supportively, a research finding by Jensen (2000) confirmed that there was a relationship between the brain and human emotions. In whole brain teaching, students are given inclusive freedom to

participate in all the classroom activities conducted. This creates a student-centered classroom environment, a flexible teaching method that is enjoyable for students and teachers as well as sound teaching pedagogy (Biffle, 2013). In most classrooms, teachings remain stand and deliver lecture method transferring knowledge leading to a test. However, WBT attempts to break away from these conventional norms and allow students to engage, involve, and activate the whole brain in learning. Hart (1999) rightly pointed out that developing a teaching and learning method without the knowledge of the brain is like designing a glove without the knowledge of the hand. The teacher must understand how the brain retrieves and retains information.

Based on the scientific brain research study, Biffle puts forward a selection of powerful techniques known as the 'Big Seven'. It is the seven key elements to effective teaching and learning that activate the brain (Biffle, 2013). Advocates from different fields affirm that teachers can incorporate into their everyday classroom to enhance the students' academic achievement (Biffle, 2010).

Technique 1: Class-Yes: 'Attention Grabber' – Class-Yes grabs the attention of students instantly. It is like a readiness switch that prepares the students for the daily lesson. It helps the teacher to achieve students' attention by using the saying 'Class' and the students respond 'Yes'. The attention-getter activates the Prefrontal cortex which is the brain boss (Biffle, 2013).

Technique 2: Classroom Rules: 'The Organizer' – Before beginning the actual informative lesson, the teacher goes over the five classroom rules. Each given rule corresponds to its gestures that activate the students' Motor cortex which is considered as one of the most powerful area of the brain; these gestures make learning fun which again helps in activating the Limbic system (Biffle, 2013). The five classroom rules and one diamond rule are given below:-

1. Follow directions quickly. (Make your hand shoot forward like a fish)
2. Raise your hand for permission to speak. (Raise one hand and bring down to head by making a talking motion)
3. Raise your hand for permission to leave your seat. (Raise one hand and make a walking motion with fingers).
4. Make smart choices – Glorious kindness, positive leadership, selfless courage, invincible grit, and brainy creativity. (Tap one finger to your temple as you say each word).
5. Make our dear team stronger. (Hold up each thumb and index finger out like an "L" framing your face; bob your head back and forth with each word)
- ❖ The Diamond rule: Keep your eyes on the target. (Pointing your eyes with your index finger).

Technique 3: Hands and Eyes: 'The Focuser' – This technique helps the teacher attain maximum attention from the students (Clark, 2016). When the main topic is needed to be

addressed to the students, the teacher said, 'Hands and eyes' and the students will immediately respond 'Hands and eyes'. It gives an instant focusing by eliminating all distractions in the class (Biffle, 2013). This technique can be utilized whenever the teacher wants the students to pay extra attention.

Technique 4: Teach-Okay: 'Whole Brain Activator' – In this technique, the teacher engages in direct verbal instruction using gesture. Research indicates that students learn best when they are active and involved in the teaching and learning process (Biffle, 2013). This technique is where students can form groups and the teacher addresses each group by using charts, poems, songs, and body movement. The student then mimics the teacher to teach the pupil sitting next to him or her. Five areas of the brain are activated as – the Visual cortex when the students look and follow, Motor cortex when the students mimic the teacher, Broca's area when the students start teaching and Wernicke's area when the students learn, and the Limbic system when the students exhibit their emotions to the lesson taught (Biffle, 2013).

Technique 5: Mirror Words: 'The class unifier' – This technique is the simplest yet most powerful as it helps the students in retaining the information, it keeps the student energized. It is used when the teacher wants the student to mimic exactly what they say or do. A mirror word is effective for explaining a procedure and process, giving instruction and steps, telling a story, mostly for capturing attention. The students mirror both the words and gestures of the teacher; their Motor cortex and Visual cortex which is the most reliable memory area are automatically engaged. Several research studies have proved that learning accompanied by gestures results in better memory (Jones, 2014).

Technique 6: Switch: 'The involver' – This technique Switch gets everyone involved in class, it allows each student to speak and listen, one teaches and the others listen, the teacher gives a cue to switch and the students' response 'okay' then the role is exchanged. They are using the gestures and words the teacher modeled, the class is being divided into two groups – Brocaians (speaker) and the Wernikites (listener), this improves listening and speaking skills (Biffle, 2013).

Technique 7: Scoreboard game: 'The Motivator' – To reinforce the students the teacher creates the scoreboard so that the students get to receive feedback on the performance. This technique is an important motivating force and involves the Limbic system in learning to perform better in the class. A simple t-chart is drawn on the board that makes the class interesting. The main focus is not to transform the students' behavior but to unify as many students as possible behind the teacher's leadership (Biffle, 2013).

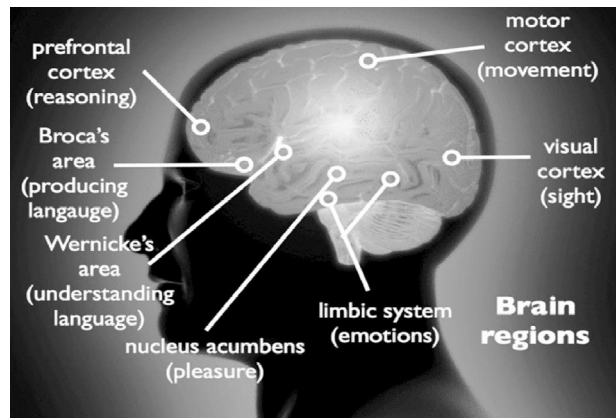


Figure 1: Image 1 Brain Regions retrieved from <https://wholebrainteaching.com/brain-course/>

Theoretical Framework

Albert Bandura's Social Learning Theory

In social learning theory, Bandura (1977) theorizes that learning cannot be maximized until and unless cognitive processes are activated. He strongly believes that mental factors intervene in the attainment of knowledge; individuals do not automatically imitate the given educational model if there is no meditation before imitation. He further states that students attain knowledge from each other with the help of observation, imitation, and modeling. Bandura's theory moves ahead of behavioral theories, which advocate that all behaviors are attained with the help of cognitive theories and conditioning which take into consideration the psychological influences such as memory and attention (Cherry, 2019). The social learning theory is often described as the 'bridge' between cognitive psychology and traditional learning theory (behaviorism) because it encompasses attention, memory, and motivation (McLeod, 2016). According to Bandura, satisfaction and pleasure (Nucleus acumbens) affect the learners' academic performance. Another important mechanism is the imitation by which a child develops and grows. Imitation follows principles such as skills, competency, and familiarity with the given information.

Hermann Whole Brain Theory

William Ned Hermann puts forward a brain based learning theory, a metaphorical model to illustrate that each individual has four quadrants that are characterized by different learning or thinking skills. Each of these quadrants can be significantly different depending on the level of learning and thinking processes (Inocian, 2015). Hermann (2000) describes that every individual brain has four quadrants in the process of thinking and learning. Each of these quadrants is distinguished by different learning and thinking styles. The four different styles are: A) Analytical (Upper or Cerebral left brain) B) Practical (Lower or Limbic left brain) C) Relational (Lower or Limbic right brain) D) Experimental (Upper or Cerebral right brain). Hermann's Whole Brain Theory focuses on optimizing the strengths and attending to

weaknesses by introducing all the four learning styles (A, B, C, and D) in a single class (Bawaneh, Md Zain & Saleh, 2011). By using varied teaching methods and techniques every four quadrants can be activated (Hermann, 2002) Whole Brain Teaching (WBT) is anchored on this brain based theory as it supports the theory that student attains optimal knowledge when his/her whole brain is activated. With the help of a whole-brain approach students' achievement improves and delivers memorable learning experiences.

Research on Whole Brain Teaching

In the modern age of technology, it is getting harder and harder to keep the students engaged in the classroom setting. It is a challenge to teach effectively. Teachers are expected to teach optimally by identifying the best teaching and learning methods. The best of teaching method is a brain based teaching method that activates the whole brain (Handayani & Corebima, 2017). Understanding the diversified spectrum of the brain will facilitate teachers in developing an effective and efficient teaching method. Therefore, it is imperative to execute a brain based learning and teaching method to enhance the academic achievement of students.

Whole Brain Teaching, a brain-based teaching approach is the most current teacher-researcher integrated educational reform. It has become the fastest-growing teaching technique around the nation. The model of WBT is learning with instructional approaches that are derived from neurolinguistic pictures based on the left and right brain (Lee & Hung, 2009). An action research study was carried out by Asmayant and Amalia (2014) on examining the effectiveness of the whole brain teaching method among 30 college students from SMP Negeri 1 Baraka. The main objective was to find out the level of improvement in speaking accuracy. The study concluded that the students' speaking skills improved with the help of the whole brain teaching method.

The problem for creating a learning environment in the class is not that the students lack the motivation to learn, it is simply that the teachers lack effective teaching strategies. Anthon and Zenaida (2016) researched whole brain teaching in the Philippines for examining students' motivation. The purpose of the study was to explore the effectiveness of the whole brain teaching method among tenth-grade students. The findings of the study confirmed a positive significant result.

The use of the whole brain teaching method to enhance students' skills was also investigated by Lockhart (2017) in research conducted among 48 primary school students. The findings revealed that whole brain teaching enhanced language acquisition and also motivated students to learn. In another research conducted by Falls (2016) among 12-grade students on the whole brain teaching method that focused on increasing the level of motivation, the result indicated that students who were taught based on the whole brain teaching method were more motivated to learn.

The review of the literature reveals that research in the area of Whole Brain Teaching is still at an embryonic stage, there are still several ongoing researches on the connection between education and neuroscience. Researchers conducted are less in number and narrow in scope

or coverage. Even though there is an extensive lack of research study but the idea of making learning active by direct instruction and cooperative learning by activating the whole brain is very remarkable. Conducting more researches on it and its effectiveness is an urgent matter of concern.

Conclusion

Research findings on the human brain have extensively contributed to our understanding of the brain. Insights gained from the research study led to the development of the whole brain teaching method which is based on how the brain learns. As described by Biffle (2010), the whole brain teaching method is a teaching technique where students' brain is activated and they are constantly engaged in seeing, hearing, doing, and speaking in the classroom. This is supported by Dales's (1969) 'Cone of experiences', where he describes that learning should be accompanied by memorable experiences where students have the opportunities to see, hear, touch, and try. At present, most students do not receive the chance to discover and think. Rather, they are conditioned to memorize based on the rigid lecture method (Lee & Reeves, 2007). Teachers must be willing to adopt a brain-based teaching method as learning does not occur through lectures alone.

Brain-based teaching and learning is a way of stimulating all the important parts of the brain. Educational institutions that have implemented a Whole Brain Learning have shown improvements in the academic performance of the students. Numerous research studies have shown the brain based teaching approach to be an active tool to increase learning over some time. Given the foregoing shortcomings in the teaching method, one of the vital tasks that faces us today is to remodel the teaching methodology. The education sector calls for a radical change for it is on the reconstruction of the education system that the development of the country depends. Zull (2004) rightly pointed out that the art of teaching must be the art of changing the structure of the brain. Therefore, priority must be credited to achieving standard qualitative modification by introducing brain based teaching method as this area of study is still very much unexplored and unidentified.

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**Registered with the Registrar of Newspapers of India
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Name of the Journal	: Mizoram Educational Journal
Nature of Journal	: A National Refereed Journal
Periodicity	: March, June, September & December
ISSN	: 2395-731X
Publisher	: Prof. C.Lalremruata
Chief Editor	: Prof. Lalhmasai Chuaungo
Address for Communication	: B-4/8, Upper Republic, Aizawl 796-001, Mizoram

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