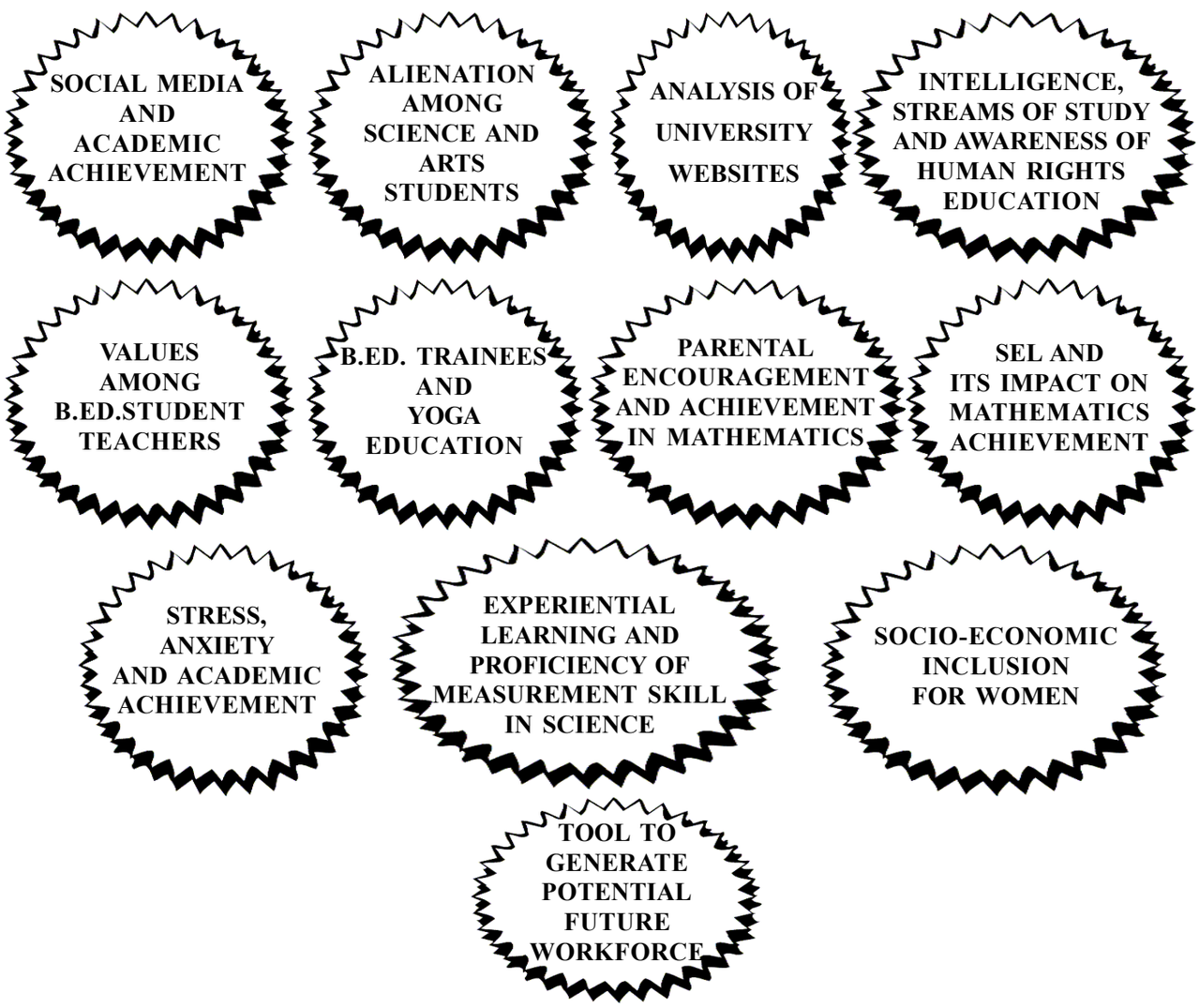
SOCIAL MEDIA AND ACADEMIC ACHIEVEMENT
ALIENATION AMONG SCIENCE AND ARTS STUDENTS
ANALYSIS OF UNIVERSITY WEBSITES
INTELLIGENCE, STREAMS OF STUDY AND AWARENESS OF HUMAN RIGHTS EDUCATION
VALUES AMONG B.ED.STUDENT TEACHERS
B.ED. TRAINEES AND YOGA EDUCATION
PARENTAL ENCOURAGEMENT AND ACHIEVEMENT IN MATHEMATICS
SEL AND ITS IMPACT ON MATHEMATICS ACHIEVEMENT
STRESS, ANXIETY AND ACADEMIC ACHIEVEMENT
EXPERIENTIAL LEARNING AND PROFICIENCY OF MEASUREMENT SKILL IN SCIENCE
SOCIO-ECONOMIC INCLUSION FOR WOMEN
TOOL TO GENERATE POTENTIAL FUTURE WORKFORCE

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TEACHER

'Teacher' - a word that takes me back to the start,
The start of my very first day at school.
I tightly clenched my mother's hand,
I was afraid to let her go.
But suddenly somebody held my other hand
and all my fear flew 'cause there was someone to understand.
She wiped my tears and took me to class.
It's when my grooming starts.
I understood that a teacher is the second mother or father I had,
For which I'm still glad.
I am glad that I lived under their guidance.
They taught me all, all they had.
All the manners and values I have are just because of them.
In my growing life, they are the stem.
Like a tree, I have reached heights,
For my strength re-unites.
Teachers are my preachers,
They'll live in my heart forever.
For they have given me strength to endeavor.
They are my most precious treasure.

- Shambhavi Singh

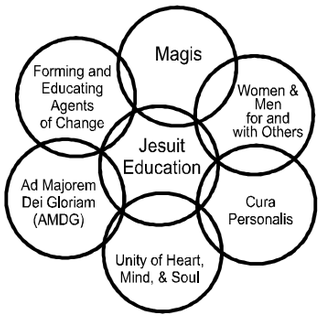
Editorial

Dear Readers!!

Greetings from the family of SXCE.

In view of honouring St. Ignatius of Loyola, the founder of the Society of Jesus(SJ), whose members are commonly called as Jesuits that runs our institution and a religious congregation of Roman Catholic Church, we decided to bring out a special issue of the journal of Research and Reflections on Education on the occasion of his feast day that falls on 31 July. Why do we want to honour him? What does it to do with RRE? Is there any association between St. Ignatius and education? Yes, he was a great educationist and there is a lot to describe about his life, vision and mission but could be grasped quickly provided one is aware of various educational institutions, serving the citizens of global society.

At the beginning of the founding of SJ,Ignatius had the original plan of preparing his members to be preachers and administers of sacraments but quickly realized how critical changes in a whole society could come through education, so he revised his original plan and became an enthusiastic champion of systematic education. Today the Society of Jesus with its more than sixteen thousand members in 116 countries in 3800 higher educational institutions including Loyola College, Chennai and St. Xavier's Colleges of Kolkata and Mumbai is at the peak in quality and innovative education.



The Jesuit education dates back to 1534 and is known for academic excellence and innovation.

Seeking to develop the whole student intellectually, morally and spiritually, it inculcates the values of social and environmental justice, inter-religious understanding, and service to others, especially the poor and socially marginalized. It prepares students for life-long learning(www.xavier.edu/jesuitresource). Education is not just intellectual formation nor instruction; it is the formation of the whole man. This is accomplished in and through a skilful teacher who follows an effective pedagogy and strategy; this is defined as Ignatian Pedagogy process which has the elements of context, experience, reflection, action and evaluation (www.jeasa.org/jesuit-education).

We are so proud to say as a Jesuit teacher education institution, we focus on integral growth of rural and Dalit prospective teachers so that they in turn may become agents of social transformation. We draw our inspiration from our founder St. Ignatius, a noble and human pilgrim of God who has made an indelible mark in this world. We hope and pray, we continue to be his friends and instruments in creating a critical and reflective younger generation for the greater glory of God.

Thanking you for your goodwill and support

With Regards

Editorial Board

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CONTENT

INFLUENCE OF SOCIAL MEDIA ON ACADEMIC ACHIEVEMENT OF STUDENTS OF THE CENTRAL UNIVERSITY OF PUNJAB

UCG CARE APPROVED

ABSTRACT

The purpose of this research study is to examine the influence of Social Media on Academic Achievement of the students of the Central University of Punjab. To achieve this, the descriptive survey research design was adopted. The Stratified random sampling technique was used to select a sample of 100 students. Research findings showed that a great number of students in Central University of Punjab, are addicted to social media. The findings revealed that social media has a positive effect on the academic achievement of post-graduate students because the educational sites and study material on the internet helped the student to perform better in academics. The study also revealed that there is no significant difference in usage of social media between the science and humanities students. It was found that both science and humanity students use social media equally and there is a significant difference in the usage of social media among boys and girls students and it was observed that the usage of social media in boys is higher than the girls.

Introduction

The twenty-first century is the world of technology where most of the people do not even imagine their life without technology. Modern Technology in communication has no doubt turned the complete world into a "Global Community." It helps individuals to be better learned, open-minded and keeping informed with global growths. Technology discloses humanity to a better way of doing things. Even our today's day starts with alarm in mobile phone and ends with what's app messages on the smart phone, this situation is prevailing even in most of the rural areas. It can be interpreted that half of all youngsters who have Internet access are also the members of social networking sites, and use the web to make procedures and socialize with friends (Kist, 2008).

Using technology in the classroom has two sides same as coins, both positive as well as negative.

The excessive usage of the social media websites could have an addiction especially amongst thestudents, and it can cause problems in the academics Akhtar (2013). Most of the schools give more importance to computer education and in using of mobile learning app because of using this technology in today's classroom helps in student engagement, active learning, working at the pace of the student's need, getting feedback from an expert teacher. IncorporatingFacebook into university courses provided students with opportunities tointeract with people within and beyond peripheries of a classroom, but abuse of Facebook as a form of instruction is time-intensive for both faculty and students (Barczyk and Duncan, 2013). But most of the educational institutions do not allow their students to use mobile because they think that by using such type of technology student's may become addicted to technology and do less participate in face to face interaction with parents, teachers and their colleagues which play the crucial part in improvement in social skills. Spending time on Social Networking Sites has many aspects, one aspect is that University students spend more than one hour on Facebook for nonacademic purposes and the academic use of Facebook is very limited Alhazmi and Rahman (2013). In today's era, we find that young students always engage with their technology toys, even most of the road accidents due to the using of the mobile phone during their travelling. Students can learn about different cultures and societies by connecting with people in other countries. The social media

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have made it possible for like-minded individuals to discuss important topics, widen their personal knowledge and discover things they never knew before. The young people are actively involved in public affairs since social media have provided new opportunities for active participation of people (Barker, 2009). Social networking users face severe health risk because they reduce face-to face contact and become addicted in a virtual world of relationships. People spent hours chatting with their friends and browsing profiles on social networking sites. It becomes a compulsive habit to visit own profile several times in a day for checking friends? updates, changing status, and commenting on others photos and videos. With regard to access the time spent on Social Media platforms that can affect the grades of the students, there is no link of how much times a student spends on social media platforms that can affect the grades directly or indirectly (Martin, 2009). The same result was supported by one another study that was carried out by University of New Hampshire in the year 2010.

Social networking site that once was thought to be helping people across the world to unite and making new relationship can also damage the relationship and make life miserable (Das and Sahoo, 2011). With regard to linking Social Media with the academic achievement, It has been found that there is no relationship among social media and students? academic performance (Ahmed and Qazi, 2011, Hanqittai and Hsich, 2010, Pasekand Hanqittai, 2009).

Social media and networking sites have become the main way to communicate, share ideas, play games and find information directly. These sites have become so popular that even the most intelligent students spend their free time without thinking about its negative impact. Social media has become gradually popular among students but it is negatively affecting students educationally because they are placing less importance on grades and are missing out on critical knowledge and skills needed for higher education or future jobs and carriers. According to Roberts andFoehr (2008), time spent by students on social networking sites is the same time that they usually uses for extracurricular activities and consequently they are not able to devote time for extra-curricular activities. Although Social networking sites are very helpful tool in students? hands, it was found by several studies that a negative impact of social network sites usage on academic performance could arise the results pointed to negative impact of online social media usage on academic performance; hence, as time spent on social networking sites increases, the academic performance of the students is seen to decline.

Significance of the study

Social media play a crucial and important role in every student's life. It is easier and convenient to access information and to provide information and communicate via social media.Online tools such as social media provides new opportunities for citizens and stakeholder groups to be informed, identify common interests, express and share opinions and demands, organize, and coordinate interventions. Teaching learning practices are evolving day by day in higher education with emphasis being shifted to student centric learning. Various efforts are being put into practice to use social media to harness effective learning. As younger generations are using such technology in the classrooms, they remark the educational landscape.For learning and teaching, social media is used in a variety of different contexts - language learning, writing development, after-class discussion, synchronous and asynchronous communi¬cation, community building and curricular tool.In the recent years academics have been expanding their social media usage to offer after-hours support for students, deliver and host lectures, dis¬seminate information and engage in discussion. The use of social media has also demonstrated increased teacher-student and stu¬dent-student interaction. With social media, students also become adept at the use of online technologies in learning environments. Use of social media in higher educa¬tion has enhanced learning, increased participation and engage¬ment, improved content dissemina¬tion and improved pedagogy and information sharing.In a related study, Ricoy&Feliz (2016) concluded that twitter promoted a pleasant and motivating climate to students and helped students to improve their reflective, critical judgment and information selection skills. Balakrishnan (2014) assessed the use of Facebook, Twitter, and YouTube in which it is reflected that these sites led to establishment of improved communication among students and lecturers leading to a better teaching and learning environment. While many researchers support the usefulness

of social media handles and many among them are those who brings forward the negative aspects of these platforms. So it becomes an important aspect to study the effect of these websites on the academic achievement of the students.

Objectives of the study

1. To determine the influence of student addictiveness to social media.
2. To explore the differences in the usage of social media among science and humanities students of Central University of Punjab.
3. To determine the differences between the boys and girls students usage of social media network in relation to academic achievement

Hypotheses

1. There is no significant relationship between student's addictiveness to social media and academic achievement.
2. There is no significant difference between science and humanities stream students of Central university of Punjabin the usage of social media.
3. There is no significant difference between male and female students of Central university of Punjab in the usage of social media.

Methodology

Research Method

Descriptive Survey method has been used for the present study entitled "Influence of social media on Academic Achievement of the students of the Central University of Punjab"

Population and sample

For the Present study the investigator used the stratifiedrandom sampling technique for collection of data. The data was collected from the Central University of Punjab, Bathinda. A total sample size of 100 students were randomly selected, as the sample is subdivided into different strata's i.e. of Science and Humanities and further it can be divided into boys and girls.

Tools

Self-made Questionnaire on Influence of Social media on academic achievement of students of Central University of Punjab was developed by the investigator.

Table 1
Item wise criteria of the questionnaire on social media

Criteria	Total number of Questions
Students addictiveness to social network and academic performance	10
Usage of social media and student's academic performance	10
Gender usage of social media	4

Table 2
Scoring Procedure

S. No.	Response	Scores of Positive Items	Scores of Negative Items
1	Strongly Agree	5	1
2	Agree	4	2
3	Undecided	3	3
4	Disagree	2	4
5	Strongly Disagree	1	5

Analysis of Data

Table 3

Coefficient of Correlation between social media and academic achievement of PG students of Central University of Punjab

Group	N	'γ' value	Ramark at 5% level
Social media	50	0.82	Positively correlated
Academic achievement	50		

Table 3 shows the coefficient of correlation between social media andacademic achievement of post-graduate students of Central University of Punjab. From the table 3 it is clear that coefficient of correlation between addictiveness of social media network and academic achievement has been found to be 0.82 which is strongly and positively correlated. So, it can be interpreted that there is significant

positive relationship between social media addictiveness and academic achievement of post-graduate students. Therefore, the null hypothesis1 is rejected at 0.05 level.

Table 4

Mean, S.D and 't' value of science and humanities students' score of social media scale

Category	N	Mean	S.D	Calculated 't' value	Remark at 5% level
Science	50	86.3	8.853	0.298	Non significant
Humanities	50	85.74	9.899		

Table 4 shows that the mean score of science stream respondents was 86.30 and the humanities stream respondents was 85.74. The standard deviation of science students was 8.853 and the humanities students was 9.899. The difference between mean was 0.560 and it was in favour of science students. The calculated 't' value was 0.298 is less than the table 1.96 at 0.05level of significance. Hence the null hypothesis is accepted which means there is no significant difference in usage of social media between the science and humanities stream students of central university of Punjab, Bathinda.

Table 5

Mean, S.D and 't'-value of male and female students score of social media scale

Category	N	Mean	*S.D*	*Calculated 't' value*	*Remark at 5% level*
Boys	50	88.38	10	2.597	Significant
Girls	50	83.66	8.05		

Table 5 shows that the mean score of male and female respondents. It is clear from the table that the mean value of male respondents is 88.38 and for female respondents is 83.66. The standard deviation of male students was 10.019 and the female students were 8.050. The difference between mean was 4.720 and it is in favor of male students. The calculated 't' value was 2.597 is greater than the table value 1.96 at 0.05 level of significance. Therefore the null hypothesis is rejected.Hence it is concluded that there is a significant difference between male and female students of central university of Punjab, Bathindain the usage of social media.

Findings of the study

The major findings of the study are:

1. There was significant positive relationship between addictiveness to social media and academic achievement of post-graduate studentsof CUPB. The findings reveal that social media have positive effect on the academic achievement of post-graduate students because the educational sites and study material on the internet help thestudent to perform better in academics
2. There was no significant difference in usage of social media between the science and humanities students of central university of Punjab, Bathinda. It was found that both science and humanity Students use social media equally.
3. There was a significant difference in the usage of social media among male and female students of central university of Punjab, Bathinda. From the mean difference it is evident that the usage of social media among male are higher than the female students.

Conclusion

Social media has now become a very crucial part of our personal and professional life. The growth of social media over the years has transformed how most users experience the internet. There have been diverse reactions from academics and researchers on the impact of social networks and how they affect academic performance. Hence, their academic performance must be managed well keeping in view all the factors that can positively or negatively affect their academic achievement. The students who are using the social media need to be monitored about their usage of these websites. Despite the fact that the Universities are banning the surfing of these websites in their campuses still there is a need to ban the third party software's which help students to access these websites.

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ALIENATION AMONG SCIENCE AND ARTS STUDENTS STUDYING AT UNDERGRADUATE LEVEL IN GOVERNMENT AND PRIVATE UNIVERSITIES

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ABSTRACT

Alienation among science and arts students studying at undergraduate level in Government and Private Universities was studied. 100 undergraduates of science stream and 100 of arts stream were given the Students Alienation Scale (SAS) constructed and standardized by R. R. Sharma in 1988. Results depict that science and arts stream of Government and Private Universities did not significantly differ on overall alienation also on the areas named powerlessness and meaninglessness. Undergraduate students of science and arts stream studying in Government Universities significantly differed on overall alienation and on the dimensions of alienation named self–estrangement and normlessness. Students of science stream of Government Universities were more alienated than arts stream. But, students of science and arts streams of Private Universities did not significantly differ on overall alienation and all dimensions.

Key Words : *Alienation, Science Stream, Arts Stream, Government and Private Universities.*

Introduction

University is a social platform that brings the students and other stakeholders together. These students may have different backgrounds like their languages, locality, religions, gender, socio-economic status, and cultures. In university, opportunities are provided to the students who have varied personal characteristics to become more familiar with new scholastic environment, private and collective existence. By connecting these students in the university life, the opportunities are provided to enter in the new sphere in which they have to be more and more interactive with other students having different point of views, different way of living, different interests, abilities, aspirations, and behavioral patterns. One of these varied characteristics is their stream of study. In Indian university system, we have science, arts, agriculture, management, technology, and commerce streams in which students are enrolled with individual interests and life styles. In the present scenario, the students studying in different streams are having different behavioral problems due to conflicts on various issues among them. Alienation may be one of the results of the conflicts among them. Horney (1950) considerd alienation as "a negative process involving abandonment of emotions, thoughts, desires and energy". While, Finifter (1972) regarded alienation as "a sociologically-based process which results in one's withdrawal from the group, society, values or organization in which one is". Seeman (1959) defined alienation "as the discrepancy between personal expectation and reward in the context of modern society". Dean (1961), defined alienation with three dimensions named social isolation, powerlessness, and normlessness. Mann (2001) "Alienation is caused by a teaching-learning process characterized by compliance and bereft of creativity." There are so many research studies that are concerned with the reasons of student's alienation. According to Sidorkin (2004), "alienation in education involves individuals' withdrawal from learning and teaching processes, their growing disinterest in these processes and education being reduced to a boring, monotonous and unappealing activity". Ascher (1982) said that "alienation is a phenomenon commonly found in large institutions, such as big city schools. It tends to be difficult for one to reach an agreement compared to when one is in a smaller institution." Raju

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(2009) explored that "consequence of boarding life is homesickness, which results in loss of concentration and lack of attention in daily activities". Newmann (1981) stated that "There are four fundamental aspects of student alienation; powerlessness, normlessness, meaninglessness, and social isolation." Parish & Parish (2000) found that students feel incongruent with the course structures and transaction and devoid of opportunities to maintain healthy and important associations. The outcome of these disentanglement may be the lack of interest in teaching-learning." Brown et al. (2003) identified various factors related with curriculum, factors related with the institutions and some other social and cultural factors as the significant causes of alienation in the students. Yadaw and Nagle (2012) have concluded the results of the various studies on alienation in various organizational settings that depicts the impression that alienation is the product of irritation and disappointment situations. Kaur and Singh (2015) studied the alienation of urban students and concluded that alienation of urban students was found to be significantly and negatively related emotional intelligence. Various research studies have been done on alienation of students with various demographic variables. In this series, it was a need to study the alienation of students studying in science stream and arts stream at under graduate level in Government and Private Universities. The objectives of the study were

1) To study the alienation among science and arts students studying in undergraduate level in Government and private universities.
2) To study the alienation among science and arts students studying in undergraduate level in (i) Government universities and (ii) private universities.

Research Methodology

Method

To study the alienation among undergraduates of science stream and arts stream studying in Government and Private Universities, the researchers decided to apply the Survey Method of research.

Participants

Undergraduate Students of science stream and arts stream studying in Government and Private Universities of Rajasthan have been considered as population for the present research study. 100 undergraduates of science stream and 100 of arts streams were taken as sample. Detailed description of the selected sample is shown in Table -1.

Table-1

Detailed Description of Selected Sample

Type of University	Undergraduates of Science Stream	Undergraduates of Arts Stream	Total Sample
Government	50	50	100
Private	50	50	100
Over all	N(1)=100	N(2)=100	N = 200

Tools Used

Alienation among undergraduates of science stream and arts stream was studied by administering Students Alienation Scale (SAS) having 54 items standardized by Sharma R. R. (1988).

Results

Difference between the alienation of the undergraduate students of science stream and arts stream studying in both Government and Private Universities was analyzed statistically by the use of 't'-test. The statistical results of the significance of difference between students of science and arts streams on alienation are given in tables 2, 3, and 4.

Table - 2

Difference between alienation of science and arts stream students of both Government and Private Universities

Areas of Alienation	Undergraduates of Science Stream (N = 100)		Undergraduates of Arts Stream (N = 100)		Calculated 't'- value	Remark at 5 % level
	Mean	S.D.	Mean	S.D.		
Powerlessness	3.48	1.956	3.02	1.933	1.664	NS
Isolation	3.8	2.074	3.7	1.941	0.35	NS
Self-estrangement	5.48	2.963	4.79	2.972	1.636	NS
Meaning lessness	2.9	2.149	2.54	2.012	1.217	NS
Normlessness	9.88	2.917	9.27	3.114	1.423	NS
Total Alienation	25.54	8.571	23.32	8.71	1.808	NS

The table-2 shows that the values of 't' for alienation and the areas of alienation such as powerlessness, isolation, self–estrangement, meaninglessness and normlessness of the undergraduate students of science and arts stream of Government and Private Universities were 1.808, 1.664, 0.350, 1.636, 1.217, and 1.423 respectively, and they were less than the table value 1.96 for degree of freedom 198 at 0.05 level. It means that undergraduate students of science and arts stream of Government and Private Universities do not significantly differ on overall alienation and on the areas of alienation.

Table- 3

Difference between alienation of science and arts stream students of Government University

Areas of Alienation	Undergraduates of Science Stream (N = 50)		Undergraduates of Arts Stream		Calculated 't'- value	Remark at 5% level
	Mean	S.D.	Mean	S.D.		
Powerlessness	3.14	2.06	2.66	1.768	1.237	NS
Isolation	3.4	1.959	3.34	1.986	0.151	NS
Self-estrangement	5.5	3.131	3.86	2.821	2.724	S
Meaninglessness	2.56	2.357	1.8	1.702	1.83	NS
Normlessness	10	3.239	8.72	3.064	2.01	S
Total Alienation	24.6	9.553	20.38	8.02	2.368	S

Table-3 depicts that the values of 't' for overall alienation and the dimension of alienation such as normlessness and self-estrangement were 2.368, 2.010 and 2.724 respectively which were greater than the table value 1.96 for the degree of freedom (df=98) at 0.05 level. On the basis of these obtained values, it may be interpreted that undergraduate students of science and arts stream of Government Universities significantly differ on overall alienation and on the areas named self–estrangement and normlessness. It was also found that the mean values of overall alienation and the dimensions such as self–estrangement and normlessness for undergraduate students of science streams of Government Universities were greater than the undergraduate students of arts streams. It may be interpreted that undergraduate students of science stream of Government Universities are more alienated than arts stream students. Further, the values of 't' for the difference of science and arts stream students on the areas named powerlessness, isolation, and meaninglessness were 1.237, 0.151, and 1.830 respectively, which were less than the table value 1.96 for degree of freedom (df=98) at 0.05 level. It means that undergraduate students of science and arts stream of Govt. Universities do not significantly differ on the dimensions of alienation named powerlessness, isolation, and meaninglessness.

Table-4

Difference between alienation of science and arts stream students of Private Universities

Areas of Alienation	Undergraduates of Science Stream (N = 50)		Undergraduates of Arts Stream (N=50)		Calculated 't'- value	Remark at 5% level
	Mean	S.D.	Mean	S.D.		
Powerlessness	3.82	1.804	3.38	2.039	1.131	NS
Isolation	4.2	2.129	4.06	1.845	0.348	NS
Self-estrangement	5.46	2.815	5.72	2.85	0.454	NS
Meaninglessness	3.24	1.88	3.28	2.041	0.101	NS
Normlessness	9.76	2.584	9.82	3.095	0.104	NS
Total Alienation	26.48	7.44	26.26	8.444	0.137	NS

As shown in Table-4, the values of 't' for overall alienation and the dimensions of alienation such as powerlessness, isolation, self–estrangement, meaninglessness and normlessness were 0.137, 1.131, 0.348, 0.454, 0.101, and 0.104, respectively, which were less than the table value 1.96 for degree of freedom (df=98) at 0.05 level. This means that undergraduate students of science and arts stream of Private Universities do not differ significantly on overall alienation and all its areas. It may also be interpreted that the observed differences between the mean values of undergraduate students of science and arts stream of Private Universities on overall alienation and on all its areas are not considered to be true.

Conclusion

Findings of this research study are generalized as science and arts stream the undergraduates students of Government and Private Universities are not significantly differed on overall alienation and on the areas named

powerlessness and meaninglessness. When alienation was studied on science and arts stream students of Government Universities and Private Universities separately, it was depicted that undergraduate students of science and arts stream studying in Government Universities significantly differed on overall alienation and on the dimensions of alienation named self–estrangement and normlessness. It is also concluded that undergraduate students of science stream of Government Universities were more alienated than arts stream. Besides this, it was found that undergraduate students of science and arts streams of Private Universities did not significantly differ on overall alienation and all areas of alienation. Regarding the findings of the present study, it may be recommended that these are very much significant for the administrators, policy makers and the persons or researchers engaged in the improvement of the quality as well as curriculum development, curriculum transaction and on the various threatening factors for the students of universities. These findings will also be of the importance for escalating the level of student's satisfaction studying at higher education level in universities.

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ANALYSIS OF UNIVERSITY WEBSITES - A STUDY

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ABSTRACT

Web based resources are playing an important place in the academic life of the students in our country. The students use the website for getting the primary information with regard to any educational institution. University websites are the gateways for the students. The students are empowered to get the information virtually without visiting the campus physically. The students get information with regard to admissions, examinations, results etc. Therefore, it become the need of the hour to conduct a website analysis of the university's websites. The aim and objective of the present study was to analyse the content of the websites of the Universities situated in Gujarat State. A Checklist in this regard was used by the investigator to conduct the website analysis. Sixty five universities are there in Gujarat, but the present study was delimited to the four Agricultural Universities of Gujarat State.

Keywords : *Website analysis, University Website, World Wide Web, Higher Education.*

Introduction

The use of websites in educational contexts is increasing day by day. There is a great impact of technology on the educational system. The technology has increased the usage of websites in educational contexts in India. The delivery of content through websites is possible due to the World Wide Web. It serves as a base for making the content available to the beneficiaries in no time. In today's era there is a great demand for education in various countries. There are various efforts done by the between many countries to collaborate with other universities virtually. The coordination between universities is possible due to the World Wide Web. The Web has made our life easy and we can freely collaborate. Various universities are there who are using the Web as a communication tool. The Website that works on the principles of the World Wide Web caters to the needs of the students virtually. The students get access to various things online with a single click. The website becomes the primary gateway for the students. It caters to the various needs of the students. The students get admission, results related information from the websites. The World Wide Web (WWW) can be considered as the main source for getting academic or research based information and thus enables us to test new methods online like conducting an analysis of the content of the website(Madhuri, Babu and Ramesh, 2010).

Website

The internet has become a common place for us to surf the web pages of any particular websites. It gives us a lot of information within seconds. The information available on the internet is generated from a multiple sources and is organised in such a way that users are given step by step procedures to access the information. The files are organised, and web pages are created which ultimately form a website.

Hence, we can say that a website is a collection of web pages that contain text, images and all other multimedia information that is presented to the users in an easy method. All Internet-enabled websites form the World Wide Web (WWW).A website is a group of related web pages, images, videos or other digital resources accessed through a unique Uniform Resource Locator.

Higher Education Websites

Higher education websites need great attention in terms of their development. The website must appeal to

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the university's commercial interests, which are primarily the sources of presenting their objectives to the visitors and especially to those visitors who are interested in seeking information. Baka and Leyni (2015) in a related study revealed that top rank universities websites are more visible and accessible as compared to the other website.

The Higher Education website aims to facilitate their prospective students and scholars by providing the proper guidelines on the website to help them accordingly. Nevertheless, of equal importance, a university website should at least contain that type of information that the students and its faculty members are in need of. Information like the complexities of curriculum choices and the information about the daily events and procedures that happen within a busy university campus. Therefore, usability is considered the key credential of effective higher education website design. Maintaining institutional repositories, open access, and collaboration with other universities, online communication etc. help to increase the visibility of the particular website (Sujithai and Jeyshankar, 2013).

Rationale of the Study

The World Wide Web connects people via the internet and makes millions of web resources accessible for them. The website is the collection of related documents. The website is considered as the first gate way of students towards a particular educational institution. Today's the access of the internet is common. So the popularity of the websites has been increased. The millions of new web pages are designed daily. Many of these are designed and developed by the people who give little attention to the fact that how this information will be used and who will use. It would be very beneficial to provide guidelines and frameworks for making the pleasing user experiences in such systems. The web content available on the University website should as such that fullfills the need of its users. Hence there is an immense need to conduct the webometric study of the university website.

Objective of the Study

To study the web content of University Websites

Method and Procedure

Population

As per the data available on the online portal of Gujarat Education Department, Gujarat has a total number of 65 Universities that includes 18 State Universities, 04 Agricultural Universities, 03 Central Universities, 02 private aided Universities, 32 private Universities and 06 institute of National Importance. Hence all the 65 Universities constitute the population of the study.

Sample

Based on the population, the investigator selected four agricultural Universities as the sample of the study. These four Universities are mentioned below along with their website address :

Table 1

Name of Universities along with their website address

S. No.	Name of the University	Website Address
1	Anand Agricultural University	www.aau.in
2	Navsari Agricultural University	www.nau.in
3	Sardarkrushinagar Dantiwada Agricultural University	www.sdau.edu.in
4	Junagarh Agricultural University	www.jau.in

Tool

The investigator developed a self-made checklist consisting of 17 items. The items were framed according to the following category:

Table 2

Dimensions of Checklist

Category	Item No.	Total No of Items
Web Design	1,2, 3, 4,6, 13,14	7
Website Language	5, 7,	2
Contact Details	8, 9, 17	3
Introduction about University	15,16	2
Website Updation & Visitor count	11,12	2
Students section	10	1

Technique of Analysis and Interpretation

For the analysis and interpretation of the data, the investigator used the technique of content analysis.

Delimitations

- The study is delimited to Universities of Gujarat State.
- The study is delimited to four agricultural universities of Gujarat.

Result and Discussion

Table 3
Checklist for Analysis of University Websites

S. No.	Question	AAU	NAU	SDAU	JAU
1	The interface of the website is attractive.	Yes	No	Yes	Yes
2	The website is easily accessible through search engines.	Yes	Yes	Yes	Yes
3	The website URL is easy to remember.	Yes	Yes	Yes	Yes
4	The website has a smooth navigation.	Yes	Yes	Yes	Yes
5	The text on the website is easily readable.	Yes	Yes	Yes	Yes
6	The website has an events webpage for latest happenings in the University.	Yes	Yes	Yes	Yes
7	The website has Multilanguage support.	No	No	No	No
8	The website contains a telephone directory of all the University employees.	No	No	No	No
9	The website contains the dedicated profile details of all the faculty members.	Yes	No	No	Yes
10	The website contains a feedback form for students.	Yes	No	No	No
11	The website mentions the visitor counter.	Yes	No	No	Yes
12	The website Updation is being made on regular basis.	Yes	Yes	Yes	Yes
13	The website has a dedicated examination result webpage.	No	Yes	No	No
14	The result web page contains the latest examination result.	No	Yes	No	No
15	The website has a dedicated webpage regarding the introduction of the university.	Yes	No	No	Yes
16	The website contains an introductory video about the Universities.	No	No	No	No
17	The website mentions its full address and contact details on the contact us webpage.	Yes	Yes	Yes	Yes

Website Interface and Access through Search Engines

The website interface of all the four Agricultural Universities is attractive. The Website of Anand Agricultural University has a static background image with a photo slide of the University on the Homepage. The website is designed with multiple colors that gives a decent look to its interface. Similarly the Website of Navsari Agricultural University also carries a photo slide show of University but the interface is to some extent not attractive. The website has a static plain background image. The website interface of Sardar

krushinagar Dantiwada Agricultural University is quite attractive. With a photo slideshow and a static coloured background image, the interface of the website is giving a new look to its website. Similarly, the website interface of Junagarh Agricultural University is also good but lacks in the background image setting.

While search the all the four website through popular search engines like Google & Yahoo, all the four universities were easily accessible and were able to be find through the search engines.

Website URL and Smooth Navigation

The website URL of all the four Universities is very easy to remember. The website URL consists of at least 3-5 words which is very much easy to remember.Regarding the smooth navigation of the websites, all the four websites are having a smooth navigation. It is very much easy to switch to page on the website.

Website text and Events Webpage

The websites of all the four Universities contains the text which is readable and all the website contain an events webpage on their website where the latest happening and the upcoming events in the University can be found.

Website Multilingual Support and availability of University Telephone Directory

The website of all the four agricultural Universities do not have multilingual support nor do they have any kind of telephone directory available on their website. The Website interface of Anand Agricultural University, Navsari Agricultural University and Junagarh Agricultural University contain text in English in one side and on the other side, Gujarati language text can be found. The website even does not have support to Google translator for translating the Gujarati language into English or some other language. Similarly, the Website of S. D. Agricultural University is mainly having English language as their default website language and the website doesn't have support to Google Translator as well.Regarding the availability of telephone directory on the website, all the four agricultural universities are lacking behind.

Availability of Profile details of faculty members and feedback from for students

The website of Anand and Junagarh Agricultural University have maintained dedicated profile details of all the faculty members on their website. However, the website of Navsari and S. D. Agricultural University have not updated the profile details of their faculty members on their website.

With reference to the availability of feedback form, the Anand Agricultural University has maintained feedback form link under 'Contact Us' web page. However Junagarh, Navsari and S. D. Agricultural University haven't kept any feedback form for students on their website.

Website Visitor Counter and Updation

The website of Anand and Junagarh Agricultural University have maintained website visitor counter on their website. The Anand Agricultural University has put the visitor counter badge at the bottom of their website. Similarly, Junagarh Agricultural University has put the visitor counter badge on the left down side of their website. However, the website of Navsari and S. D. Agricultural University have not kept any visitor counter on their website.

Regarding the website Updation, all the websites are being updated timely as look like from the homepages of the websites.

Website result Webpage with latest exam results

The Website of Navsari Agricultural University contains a dedicated webpage for examination results on its homepage that is updated with latest results. However the researcher fails to find any such thing on the official websites of Junagarh, Anand and S. D. Agricultural University.

Website Introductory Webpage and Video

The websites of Navsari and Junagarh Agricultural University have maintained an introductory webpage about the University on their website. However, the author fails to find any such webpage on the websites of Anand and S. D. Agricultural University.

While analysing the website of all the four universities, the researcher fails to find an introductory video about the University.

University Contact Details on Website

While analysing the website of the Agricultural Universities, the researcher found that all the four universities have updated their contact details in the 'Contact us' webpage including official address, email, Telephone number and Fax.

Findings of the Study

1. The website interface of all the four Agricultural Universities are attractive and all the websites are accessible through various search engines like Google and Yahoo.
2. The website URL of all the four Universities is very easy to remember and all the website has a smooth navigation across different web pages.
3. The websites of all the four Agricultural Universities contain the text which is readable and all the website contain an events webpage on their website where the latest happening and the upcoming events in the University can be found.
4. The website of all the four agricultural Universities do not have multilingual support nor do they have any kind of telephone directory available on their website.
5. The website of Anand and Junagarh Agricultural University have maintained dedicated profile details of all the faculty members on their website. However, the website of Navsari and S. D. Agricultural University has not updated the profile details of their faculty members on their website.
6. With reference to the availability of feedback form, the Anand Agricultural University has maintained feedback form link under 'Contact Us' web page. However Junagarh, Navsari and S. D. Agricultural University haven't kept any feedback form for students on their website.
7. The website of Anand and Junagarh Agricultural University have maintained website visitor counter on their website. However, the website of Navsari and S. D. Agricultural University have not kept any visitor counter on their website. Regarding the website Updation, all the four Agricultural websites are being updated on regular basis.
8. The Website of Navsari Agricultural University contains a dedicated webpage for examination results on its homepage that is updated with latest results. However the researcher fails to find any such web page on the websites of Junagarh, Anand and S. D. Agricultural University.

9. The websites of Navsari and Junagarh Agricultural University have maintained an introductory webpage about the University on their website. However, the researcher fails to find any such webpage on the websites of Anand and S. D. Agricultural University. While analysing the website of all the four universities, the researcher fails to find an introductory video about the University.
10. While analysing the website of the Agricultural Universities, the researcher found that all the four universities has updated their contact details in the 'Contact us' webpage including official address, email, Telephone number and Fax.

Recommendations

Based on the results of the study, the following recommendations are given:

1. The website needs to be updated on regular basis.
2. There is a need to maintain a telephone directory on the website containing the telephone numbers of all the employees of the University.
3. Each educational institution must have a feedback form for students so that students can share their valuable views with university authorities.
4. The website must have multi lingual support or the IT team should enable the Google Translator badge on the website.

Conclusion

Based on the study, the researcher is aware of the fact that no broad conclusion can be made. The websites of universities in Gujarat is an uncharted area of webometric research. This study presents a fair thought about the information provided by the websites of the 04 Agricultural Universities of Gujarat. These findings open the door to further studies of other new areas of the web. This study could be extended further by doing a webometric study of State, Private Aided and Central University of Gujarat State.

Continued on Page 20

INFLUENCE OF INTELLIGENCE AND STREAMS OF STUDY ON AWARENESS OF HUMAN RIGHTS EDUCATION AMONG THE PUPIL TEACHERS OF SECONDARY TEACHER EDUCATION: AN ANALYSIS

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ABSTRACT

The present study is an attempt to investigate the human rights education awareness among the pupil-teachers of secondary teacher education programme in Nagaland. Descriptive cum normative survey method was employed and a sample of 348 pupil-teachers were selected as sample by adoptingrandom sampling technique. The study revealed that majority of the pupil teachers fall in betweenthe category of average to low level of human rights education awareness. No significant difference was found between the mean scores of pupil-teachers with high and low-level intelligence and male and female in science stream. On the other hand,significant difference wasfound between male and female pupil-teachers in arts stream in their awareness of human rights education.

Key Words : *Human Rights Education Awareness, Intelligence, Streams of Study, Pupil-teachers.*

Introduction

Human rights are usually understood as the basic and inalienable rights which are inherently entitled to all individuals just because he/she is a human being. The Universal Declaration of Human Rights in its Preamble defined human rights as the "inherent dignity" of all human family (United Nations General Assembly, 1948). Human rights are necessary for all the individuals as they are "consonant with their freedom and dignity and are conducive to physical, moral, social and spiritual welfare" (Agarwal, 2018). Human rights create an environment in which all individuals can develop his/her potentialities to the fullest and lead an industrious life depending on his/her needs and conditions for the material and moral wellbeing. Therefore, human rights should be accessible to all human beings and at the same time, it should be preserved and protected in order to attain peace and development in every society.

In this regard, it is necessary to educate all human being about their human rights and for this human rights education is required for developing human rights awareness for the realization of human rights culture in the world. The United Nations Declaration on Human Rights Education and Training also stated that "Human rights education and training is essential for the promotion of universal respect for and observance of all human rights and fundamental freedoms" and that "everyone has the rights to know, seek and receive information about all human rights and fundamental freedoms" (Article 1 United Nations General Assembly, 2012). Human rights education is thus essential for all sections of people in society.

Human rights education in simple term means all learning that fosters knowledge, attitude and skills of human rights which empowers an individual and contributes tothe building and promotion of the universal culture of human rights. Human rights concern all parts of society and at all levels of education which also includes teacher education. Human rights education should be interdisciplinary in nature and adopt a holistic perspective which will examine the social, civil, economic, cultural, ecological and other aspects that aim at building up a sense of values. Teachers being the pivot of the educational system in any formal setting have a vital role to play in changing the society for the welfare of all human family and thus, teachers as an agent of change

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should be educated and trained in the area of human rights to ensure that his/her practical experiences in the field help in drawing out the best from everyindividual learner.

Literature Review

As per the review of literature number of studies werecarried out related to human rights education. In a study on human rights awareness among secondary teacher trainees carried out by Katoch (2012)it was found out that with respect to gender, locale and streams of study, the secondary teacher trainees differed significantly where Male teacher trainees were found to be more aware of human rights than their counterpart.Likewise, teacher trainees residing in an urbanarea and those from the science stream of the study were found to be more aware of human rights than the rural and arts teacher trainees. However, these findings contradict with the findings of Humtsoe& Kapoor (2019) and Oommen (2018).Singh &Singh (2015) in their study on human rights awareness among teacher trainees revealed that the teacher trainees possessed an average level of human rights awareness. It also found out that female and urban teacher trainees possessed a higher level of human rights awareness than male and rural students. This study has similar findings with the results of Sasikala& Francisca (2016). Fatema (2019) explored that the B.Ed. student-teachers of Arts, Science and Commerce at Tertiary level possessed a below-average level of human rights awareness. No significant difference was found between male and female student-teachers in theirlevel of human rights awareness.

Significance of the Study

Theneed to prevent human rights abuses in society led to the introduction of human rights education so as to build a human rights culture for peaceful coexistence. For the purpose of promoting human rights education especially in the formal settings of education, it has become imperative to educate the teacher traineesas they are to be teachers in different educational institutions and may create human rights education awareness further among the students. Teachersmould and shape the future of the students and society at large.As a practitioner,teachers are to exhibit respect for social justice, freedoms, diversity, democracy, moral values and have the responsibility tofoster both cognitive and affective development about human values among his/her students. They are to draw the best out of the child. But there are some of the pertinent questionslike: Are theteachers trainedin how to build human rights-based culture and effectivelyconvey human rights knowledge and skills in the classroom? Do teacher education curricula include elements of human rights that would enhance their knowledge and practices?Secondly, it is important to note that the literature did not indicate even a single such study which has been carried out on the pupil-teachers of secondary school stage in Nagaland. Therefore, investigators got motivated to take the present study in hand.

Objectives of the Study

1. To study the level of human rights education awareness among the pupil teachers of Secondary Teacher Education.
2. To find out the difference in the level of human rights education awareness betweenthe high and low intelligent pupil teachers of secondary teacher education.
3. To find out the differencein the level of human rights education awareness between Arts and Science stream pupil teachers of secondary teacher education.
4. To study the level of awareness on human rights education between the Arts male and female pupil-teachers.
5. To study the level of awareness of human rights education between the Science male and female pupil teachers.

Hypotheses

1. There is no significant difference between the mean scores of pupil teachers of secondary teacher education with high and low levels of intelligence.
2. There is no significant difference between the mean scores of Arts and Science stream pupil teachers of secondary teacher education.
3. There is no significant difference between the mean scores of arts stream male and female pupil teachers of secondary teacher education.

4. There is no significant difference between the mean scores of science stream male and female pupil teachers of secondary teacher education.

Methodology

The investigators adopted Descriptive cum normative survey method as the study needs to reveal the present status of human rights education awareness among the pupil-teachers.The universeof the present study includes all the pupil teachers of Secondary Teacher Education programme in Nagaland. It has been recorded that nine Secondary Teacher Education institutions are functionalin three districts, viz., Kohima, Dimapur and Mokokchung with the total enrollment of 1599 pupil-teachers. A random sampling technique was adopted and a sample of 348 pupil teachers was selected from three districts out of which 142 are male and 206 are female pupil-teachers.

Tools Used

Human Rights Education Awareness Test (HREAT) developed and validated by the investigators was used. The test consists of 60 items. The score of the test range from 0 to 70, where the minimum score is 0 and the maximum score is 70. The reliability of the Human Rights Education Awareness Test was found to be 0.872 and this test was also found to possess adequate content validity. Besides HREAT the investigators also used an intelligence test by Jalota to measure the intelligence of the pupil-teachers.

Statistical Techniques Used

For analyzing the data both descriptive and inferential statistical techniques were used such as mean, standard deviation, standard error of differences and z-test.

Analysis and Interpretation of Data

Objective 1 : To study the level of human rights education awareness among the pupil teachers of Secondary Teacher Education.

Table-1

The level of Awareness on Human Rights Education of Pupil Teachers of Secondary Teacher Education

Level of Human Rights Awareness	Scores	No. of Students	% of Students
High	Above 27	99	28%
Average	Between 19-27	181	52%
Low	Below 19	68	20%

Table-1reveals the level of pupil-teachers'awareness of human rights education.For interpreting the level of awareness, P25 and P75 werecomputed and the following categories were made: Scores below19 falls under low level, scores between 19 –27 falls under average level and scoresabove 27 falls under high level. As per the computed result it is revealed that majority (52%) ofthe pupil-teachers'were found to have an average level of awareness on human rights education, 20% of the pupil-teachers were found to have low level of awarenessand only 28% of pupil-teachers were found to have high level of awareness on human rights education. This result indicates that about 72% of pupil-teachers fall between the category of average to low level of awareness on human rights education.

Hypothesis1 : There is no significant difference between the mean scores of pupil teachers of secondary teacher education with high and low intelligence.

Table 2

Mean Scores, SD, SED and z-value of pupil teachers of secondary teacher education in terms of their intelligence, stream of study and gender

Variables	Sub-Groups	N	Mean	SD	SE_D	z-Value	Level of Significance
Intelligence	High Intelligence	143	23.77	6.47	0.839	1.799	Non Significant at 0.05level
	Low Intelligence	97	22.26	6.33			
Streams of Study	Arts	204	24.12	6.8	0.66	3.09	Significant at 0.05 level
	Science	144	22.08	5.53			
Gender (Arts)	Male	58	22.64	6.23	0.999	2.072	Significant at 0.05 level
	Female	146	24.71	6.95			
Gender (Science)	Male	84	22.35	6.8	0.942	0.69	Non Significant at 0.05 level
	Female	144	21.7	5.53			

The computed z- value of pupil-teachers with respect to intelligence came out to be 1.799 which is lesser than the table value 1.960 at 0.05 level. Thus the computed z-value has not been considered significant as the stated hypothesis "There is no significant difference between the mean scores of high and low intelligence pupil teachers of secondary

teacher education" got retained. Therefore, it is interpreted that the awareness on human rights education mean scores of pupil-teachers belonging to high and low intelligence do not differ significantly and intelligence do not influence the level of human rights education awareness of pupil-teachers.

Hypothesis 2 : There is no significant difference between the mean scores of Arts and Science stream pupil teachers of secondary teacher education.

The computed z- value of pupil-teachers with respect to streams of the study came out to be 3.090 which is greater than the table value 1.960 at 0.05 level. Thus the computed t-value has been considered significant as the stated hypothesis "There is no significant difference between the mean scores Arts and Science pupil teachers of secondary teacher education" got rejected. Therefore, it is interpreted that the awareness on human rights education mean scores of pupil-teachers belonging to arts and science differ significantly and streams of study do have an influence on the level of human rights education awareness of pupil-teachers.

Hypothesis 3 : There is no significant difference between the mean scores of arts stream male and female pupil teachers of secondary teacher education.

Table 2 reveals that the computed z- value of arts male and female pupil-teachers with came out to be 2.072 which is greater than the table value 1.960 at 0.05 level. Thus the computed z-value has been considered significant as the stated hypothesis "There is no significant difference between the mean scores of Arts male and female pupil teachers of secondary teacher education "got rejected. Therefore, it is interpreted that the mean scores of arts male and female pupil-teachers differ significantly on their awareness level on human rights education.`

Hypothesis 4 : There is no significant difference between the mean scores of science stream male and female pupil teachers of secondary teacher education.

Table 2 shows that the computed z- value of science male and female pupil-teachers with came out to be 0.690 which is lesser than the table value 1.960 at 0.05 levels. Therefore, the computed z-value has not been considered significant as the stated hypothesis got accepted. Hence, it is interpreted that the mean scores of science male and female pupil-teachers do not differ significantly on their awareness level on human rights education.

Main Findings

The main findings of the study can be summarized as :

1. The result of the study revealed that the majority (52%) of the pupil- teachers of secondary teacher education have an average level of awareness on human rights education and about 20% of pupil-teachers have low level of awareness and only 28% of pupil-teachers were found to have high level of awareness on human rights education.
2. No significant difference was found on the level of human rights education awareness among the pupil-teachers belonging to high and low intelligence and found that intelligence does not influence the awareness level of pupil-teachers on human rights education.
3. A significant difference was found among the arts and science pupil-teachers on their awareness level on human rights education. It indicates that streams of study do have an influence on the level of awareness on human rights education among the pupil-teachers of secondary teacher education.
4. A significant difference was found among the arts male and female pupil-teachers on their level of awareness on human rights education whereas, no significant difference was foundconcerning science male and female.

Educational Implications and Conclusion

The findings of the present study revealed that the majority of the pupil- teachers possessan average to a low level of awareness on human rights education. A significant difference was also found based on streams of study, where the mean scores of arts pupil-teachers were found higher than the mean scores of science pupil-teachers. Similarly, a significant difference was found among the arts male and female pupil-teachers whereas; science male and female were found equal regarding their level of awareness on human rights education. This result indicates that the existing form of human rights education provided to the pupil-teachers of secondary teacher education programme in the

state is not adequate. Therefore, there is need to make some reformation in imparting human rights education to the teacher trainees so as to equip them with knowledge, attitude and pedagogical skills to promote human rights among the students in their actual classrooms. Human rights education should be rightly placed in all the course papers especially in the pedagogical subject of science. A project on human rights education is a requisite to enhance the cognitive and affective skills of human rights among the pupil-teachers so that they can be a catalyst in the promotion of human rights culture.

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UCG CARE APPROVED

Continuation of Page 15

A STUDY OF ANALYSIS OF...

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VALUES AMONG B.ED. STUDENT TEACHERS

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ABSTRACT

The foremost intention of this investigation was to study the values of B.Ed. student teachers as they are the future teachers who are going to shape the personality of their students and provide a novel path to life. Value-oriented education in academic institutions could only be accomplished by the values of their teachers. The teacher in any institution is just like a backbone who can effectively inculcate values among students, regardless of any hindrance on the way. The word value enshrines in itself as social, religious, political, aesthetic economical and theoretical one. It is imperative to study the values of prospective teachers in their training period to enhance their personality for the creation of better society through their students. The sample was taken from three Self- financed Colleges of Education in Coimbatore District. The stratified random sampling method was adopted. The 'Teacher values inventory' constructed and validated by Harbhajan Singh and Ahluwalia was used as a tool for the study. The analysis and interpretation of the data was done with statistical measures viz., Mean, Standard deviation and t-test. The major findings of the study were:

Key words : *Values and Student Teachers.*

Introduction

The National Curriculum Frame works of India repeats the vision of integrating values among children to create a value embedded society. No doubt that the inculcation of values among children would be possible through teachers only but it is found that there is no significant syllabus or training module in the present teacher education programmes available to foster the values among the children. Here is an example from the Content cum methodology of Chemistry subject. The covalent bond in chemical bonding is nothing but mutual sharing of electrons; here the teacher should capture the latent value trait namely 'Cooperation'. Like this the teachers of all the subjects should acquire the values of each and every part of the content and these values should be inculcated among the students. The present prospective teachers should be trained in Content cum Methodology of Values Education which is most essential to attain the goals of framed National Curriculum Frame works so far. The values like, Religious value, Social Value, Democratic Value, Aesthetic Value, Economic value, Knowledge Value, Hedonistic Value, Family Prestige Value, Health Value are some of the most significant branches of human values.

The need of methodology subject in value education in B.Ed. course fabricates the imperativeness to study the values of today's student teachers. This study will be an eye opener to the curriculum designers, policy makers, and academicians in some extend.

The other important reason took up for this investigation is concerned with today's children of digital era. There is no doubt that today's children are addicted to digital gadgets with some sort of magical charm. The digital gadgets spread their tentacles in all the boundaries of different knowledge which are essentials for their development. These gadgets can be utilized to see the world in a palm but it will not bring the desirable changes in grasping the knowledge. To inculcate the potent knowledge to an individual, the key to be realized is the intrinsic behavior change. It is the innate predisposition to gain better knowledge. This can be perceived only through values.

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Many children are starting to turn juvenile delinquents due to their exposure to digital media. Due to the absence of values, they adhere to anything shown in movies and on the internet that ruins their lives. In this critical condition the future teachers have to be more careful in their preparations in every aspect of B.Ed. course. Teaching is not a job, it is an attitude. Teacher is a source of information, a guide, a mentor, a surrogate parent, a motivator, all at the same time. Teaching is the only one profession which always deals with the future. The role of a teacher in the changing social scenario is becoming very challenging. Here the need arises for the present investigation.

Objectives of the Study

To study the values of B.Ed. student teachers in relation to their Gender.

Hypotheses of the Study

1) There is no significant difference between male and female student teachers in their aesthetic values.
2) There is no significant difference between male and female student teachers in their social values.
3) There is no significant difference between male and female student teachers in their religious values.
4) There is no significant difference between male and female student teachers in their political values.
5) There is no significant difference between male and female student teachers in their theoretical values.
6) There is no significant difference between male and female student teachers in their economic values.

Method, Sample and Tool

The study was conducted through survey method of research. The survey method has certainly, been one of the most accepted extensively used research methods in Education. Stratified random sampling method was adopted to take 100 B.Ed. student teachers from 03 Colleges of Education under Tamil Nadu Teachers Education University. The 'Teacher Values Inventory' constructed and validated by Harbhajan. L. Singh and Ahluwalia (year) was used for the study.

Statistical Techniques Used : Mean, Standard Deviation and t-test were used.

Analysis and Interpretation

Hypothesis 1 : There is no significant difference between male and female student teachers in their aesthetic values.

Table 1

Difference between male and female student teachers in their aesthetic values.

Value	Gender	N	Mean	SD	Calculated 't'-Value	Remarks
Aesthetic value	Male	50	46.64	13.44	2.47	Significant
	Female	50	53.04	12.36		

From the Table 1, it is clear that the calculated 't' value 2.47ishigher than the table value at 0.05 level. Therefore, it is inferred that there is a significant difference between male and female student teachers in their Aesthetic values. So the formulated null hypothesis, 'There is no significant difference between male and female student teachers in their aesthetic values' is rejected. The mean score of female student teachers is higher than the male student teachers. This shows that female student teachers have better aesthetic values than their counterpart.

Hypothesis 2 : There is no significant difference between male and female student teachers in their social values.

Table 2

Difference between male and female student teachers in their social values

Value	Gender	N	Mean	SD	Calculated 't'-Value	Remarks
Social value	Male	50	65.28	10.1	1.58	Non Significant
	Female	50	62.48	7.34		

From the Table 2, it is clear that the calculated 't' value 1.58 is lesser than the table value at 0.05 level. Therefore, it is inferred that there is no significant difference between male and female student teachers in their Social values. So the formulated null hypothesis, 'There is no significant difference between male and female student teachers in their social values' is retained. The mean score of male student teachers is slightly higher than the male student teachers. This shows that male student teachers have acquired social values slightly higher than their counterpart.

Hypothesis 3 : There is no significant difference between male and female student teachers in their religious values.

Table 3
Difference between male and female student teachers in their religious values

Value	Gender	N	Mean	SD	Calculated 't' Value	Remarks
Religious value	Male	50	62.01	7.35	0.71	Non Significant
	Female	50	61.9	8.25		

From the Table 3, it is clear that the calculated 't' value 0.71 is lesser than the table value at 0.05 level. Therefore, it is inferred that there is no significant difference between male and female student teachers in their Religious values. So the formulated null hypothesis, 'There is no significant difference between male and female student teachers in their religious values' is retained. The mean score of male and female student teachers are almost equal. This shows that male and female student teachers are possessing religious values equally.

Hypothesis 4 : There is no significant difference between male and female student teachers in their political values.

Table 4
Difference between male and female student teachers in their political values

Value	Gender	N	Mean	SD	Calculated 't' Value	Remarks
Political value	Male	50	68.1	15.6	3.57	Significant
	Female	50	59.3	7.74		

From the Table 4, it is clear that the calculated 't' value 3.57 is higher than the table value at 0.05 level. Therefore, it is inferred that there is a significant difference between male and female student teachers in their Political values. So the formulated null hypothesis, 'There is no significant difference between male and female student teachers in their political values' is rejected. The mean score of male student teachers is higher than the female student teachers. This shows that male student teachers have better political values than their counterpart.

Hypothesis 5 : There is no significant difference between male and female student teachers in their Theoretical values.

Table 5
Difference between male and female student teachers in their Theoretical values

Values	Gender	N	Mean	SD	Calculate 't' Value	Remarks
Theoretical values	Male	50	44.2	13.41	3.49	Significant
	Female	50	34.7	13.73		

From the Table 5, it is clear that the calculated 't' value 3.49 is higher than the table value at 0.05 level. Therefore, it is inferred that there is a significant difference between male and female student teachers in their Theoretical values. So the formulated null hypothesis, 'There is no significant difference between male and female student teachers in their theoretical values' is rejected. The mean score of male student teachers is higher than the female student teachers. This shows that male student teachers have better theoretical values than their counterpart.

Hypothesis 6 : There is no significant difference between male and female student teachers in their Economic values.

Table 6
Difference between male and female student teachers in their Economic values

Values	Gender	N	Mean	SD	Calculated 't' Value	Remarks
Economic values	Male	50	52.68	13.75	4.87	Significant
	Female	50	63.7	8.05		

From the Table 6, it is clear that the calculated 't' value 4.87 is higher than the table value at 0.05 level. Therefore, it is inferred that there is a significant difference between male and female student teachers in their Economic values. So the formulated null hypothesis, 'There is no significant difference between male and female student teachers in their economic values' is rejected. The mean score of female student teachers is higher than the male student teachers. This shows that female student teachers have better economic values than their counterpart.

Table 7
Ranking values by male and female student teachers

Values	Male	Rank	Female	Rank
Aesthetic values	46.64	V	53.04	V
Social values	65.28	II	62.48	II
Religious values	62.01	III	60.9	III
Political values	68.14	I	59.34	IV
Theoretical values	44.2	VI	34.7	VI
Economic values	52.68	IV	63.7	I

From the Table 7, it is observed that the male student teachers have greater preferences for political values while female student teachers have the economical values uppermost. In other cases the rank order of the values was not distinct.

Conclusion

The analysis and interpretation in the present investigation exhibit that the aesthetic, political, theoretical and economical values are different in male and female student teachers. Male student teachers are better in social, political, and theoretical values. These findings invite the attention of the curriculum makers and the administrators for taking the necessary strategies to inculcate these values among their counterparts. Further it is observed that the female student teachers are better in aesthetic values and economical values than the male student teachers. For this the policy makers should give proper training in economical life skills and artistic skills to the student teachers for the desirable change is most important to nurture these values. In a B.Ed. curriculum, values should be made compulsory in theory and practice. Workshops and seminars should be specially organized on values.

The teacher has a great responsibility to create a society. We need to integrate humanity with other forms of skills training in addition to subject teaching. Teaching humanity to children, especially in the age group of 5 to 15 years, can transform them into human beings with the necessary virtues of society. Humanity is a necessity for today's society. Teachers who are specially trained in value education can bring about the desired behavioral changes among students by expressing their values in a formal setting.

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ATTITUDE OF B.ED TRAINEES TOWARDS YOGA EDUCATION

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ABSTRACT

The purpose of the study was to investigate the attitude of B.Ed trainees towards yoga education. Total 198 samples were taken as the sample of the study. Yoga attitude scale (YAS) constructed by Mahash Kumar Muchhal was used for collecting the data. After analysing the data, it was found that the students of B. Ed colleges had positive attitude towards yoga. But, in some cases, there had significant differences among Rural and Urban, Arts and Science and Government andPrivate B. Ed college trainees.

Key Words : *Attitude, Yoga, B. Ed Trainees.*

Introduction

Yoga is mainly a spiritual science that can make assimilation between body and mind. It is a science of arts or skill and healthy life style. The term "yoga" comes from the Sanskrit word "yuj" that means "to join" or "to unite". Yoga is one of the six astika ("orthodox") schools of Hindu philosophy. It is based on the Yoga Sutras of Patanjali. Various traditions of yoga are found in Hinduism, Buddhism, Jainism and Sikihism. In the late 19th century Swami Vivekananda who himself practised yoga, brought yoga to the west. Since 1980s, yoga became popular as a physical system of health exercises across the Western world. It is very helpful to remove critical diseases like cancer, schizophrenia, asthma and heart patients. In a national survey, long- term yoga practitioners in the United States reported muscular–skeletal and mental health improvements.

In present B. Ed curriculum, 'yoga education' has been introduced as a separate subject. So it is the high time to know the attitude of B. Ed trainees towards yoga for any researcher. So the researcher selected this topic. After reviewing literature of the study it is shown thatRai, (2014) focused on to assess and compare the attitude of urban and rural population towards yoga.Singh & Solanki, (2015) showed to compare attitude towards yoga between male and female secondary school students. Khatun, (2016) studied on teacher - students' attitude towards Yoga Education at present day context. The present paper aims to study teacher-students' attitude towards Yoga Education. Kerketta, Yadav & Yadav, (2016) worked on to compare attitude of male and female students of Guru Ghasidas Vishwavidyalaya towards yoga. Singh & Dubey, (2016) showed tocompare attitude towards yoga between the male students of government and private schools of Bilaspur. Sarkar, (2017)in his study showed to provide a clear cut concept of the students' attitude towards yoga and their present status of peace of mind. Makawana, (2017) focused on the study of attitude of 10 principles and 50 teachers towards yoga education.

Undoubtedly yoga education is the need of the hour. For all round development of human being yoga education in very helpful for all stages of human being.

The teacher-students of B. Ed colleges are the teachers of tomorrow. If they are not aware of the utility and usefulness of yoga education, they will fail to implement it at school level. At the same time the future generation will become ignorant about the benefits of yoga education. As a result it is very much urgent to know the attitude of B. Ed learners at present day context.

Objectives

The objectives of the study are to find out the attitude of B.Ed trainees towards yoga and to compare the attitude towards yoga between (i) male-female, (ii) rural-urban (iii) arts and science trainees, (iv) trainees of government

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and private B. Ed colleges and (v) traineesbelonging to joint family and nuclear family.

Hypothesis

$H_0$1 There is no significant difference between male and female B.Ed trainees in their attitude towards yoga.

$H_0$2 There is no significant difference between rural and urban B.Ed traineesin their attitude towards yoga.

$H_0$3 There is no significant difference between arts and science B.Ed trainees in their attitude towards yoga.

$H_0$4 There is no significant difference between government andprivate B.Ed college traineesin their attitude towards yoga.

$H_0$5 There is no significant difference betweenjoint family and nuclear family B.Ed trainees in their attitude towards yoga.

Method

Participant

The population of the study is the B. Edtraineesof teachers' training colleges in West Bengal.

Sample and sampling procedures

Among the population the researcher selected 198 B. Ed trainees from 6 teacher education colleges from Purba Medinipur, Paschim Medinipur and Jhargram district in West Bengal.

Table-1

Distribution of the Sample

Categorical Variables		No. of Individuals	Percentage of sample	Total Sample
Gender	Male	68	34.35	198
	Female	130	65.65	
Type of college	Govt.	77	38.89	198
	Private	121	61.11	
students home	Rural	119	60.1	198
	Urban	79	39.9	
Family	Joint	82	41.41	198
	Nuclear	116	58.59	
Subject	Arts	133	67.17	198
	Science	65	32.83	

Tools and Techniques

For this investigation yoga attitude scale developed by Mahes Kumar Muchhal was used. Thisscale consisted of 30 items. The scale was Liker type (3 point scale)having responses indicating - 'Agree' (A), 'Undecided' (UD), 'Disagree' (DA). Both positive and negative statements were included.

Table 2

Assignment of the scores on the opinion

Statement	agreed	undecided	disagreed
Positive attitude	2	1	0
Negative attitude	0	1	2

Table 3

Categorisation of yoga attitude on the basis of obtained scores of the subjects

Sl. No.	Scores	Yoga attitude group
1	0-12	Very low yoga attitude
2	13-24	Low yoga attitude
3	25-36	Average yoga attitude
4	37-48	High yoga attitude
5	49-60	Very high yoga attitude

For the analysis of data several statistical items t-test and graphical presentation were done.

Results

Descriptive survey method was employed to collect necessary data. The hypotheses formed earlier were tested through independent samples t-test (for H01, H02, H03, H04, & H05) by using Microsoft Office Excel 2007 and at the same time analysis was done by graphical representation.

Table 4

Descriptive Statistics

Attitude towards yoga	N	Range	Mean	Std. Error of mean	Std. Deviation
	198	31	50.5	0.33408	4.7009

From the analysis of descriptive statistics (Table 4), the mean score of total integrative knowledge is determined as 50.5 out of maximum possible total score of 60 in all

questionnaire items with a range of 31 and SD of 4.7009. Hence it is concluded that the B. Ed trainees had a favourable attitude towards yoga.

The attitude of yoga of the 198 traineesare classified based on their scores and they are classified as those who have very low yoga attitude, low yoga attitude, average yoga attitude, high yoga attitude, very high yoga attitude. It is mentioned in the table 5 below.

Table 5

Yoga Attitude Classification of Trainees

Sr. No.	Scores	Yoga attitude group	Total number of B.Ed trainees	Male B.Ed trainees	Female B.Ed trainees	Govt. B. Ed colleges' trainees	Private B.Ed colleges' trainees	Rural B. Ed students trainees	Urban B. Ed trainees	Joint family B.Ed trainees	Nuclear family B.Ed trainees	Arts B.Ed trainees	Science B. Ed trainees
1	0-12	Very low yoga attitude	0	0	0	0	0	0	0	0	0	0	0
2	13-24	Low yoga attitude	0	0	0	0	0	0	0	0	0	0	0
3	25-36	Average yoga attitude	2	1	1	2	0	0	2	0	2	0	2
4	37-48	High yoga attitude	54	22	32	9	25	28	26	21	33	30	23
5	49-60	Very high yoga attitude	142	45	97	67	96	91	51	61	81	103	40
Total			198	68	130	77	121	119	79	82	116	133	65

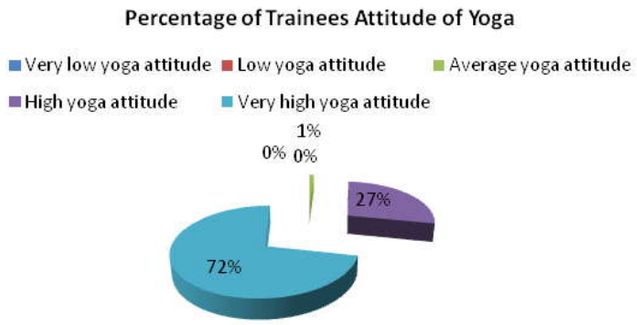

Fig. 1 : Percentage of Trainees Attitude of Yoga trainees

The above mentioned pie chart, reveals that among the 198 trainees none of them have very low yoga attitude and low yoga attitude. But 1% have average yoga attitude. 27% high yoga attitudeand 72% have very high yoga attitude.

Hypothesis-1 : There is no significant difference between male and female B.Ed trainees in their attitude towards yoga.

Table 6

Difference between male and female B.Ed. trainees in their attitude towards yoga

Category	N	Mean	S.D.	df	Calculated 't' value	p value	Remarks
Male	198	50.5	5.6634	196	0	1	NS
Female		50.5	4.1339				

In the above table 6, the result of independent samples t-test revealed that t-stat for the null hypothesis H01 at df 196 is not significant (p=1) at 0.05 level of significance. Therefore thenull hypothesis H01 is accepted. So it can be stated that there is no significant difference between male and female B. Ed trainees in their attitude towards yoga.

Hypothesis-2 : There is no significant difference between rural and urban B.Ed trainees in their attitude towards yoga.

Table 7

Difference between rural and urban B.Ed. trainees in their attitude towards yoga

Category	N	Mean	S.D.	df	Calculated 't' Value	p value	Remarks
rural	##	51.3277	4.1621	196	3.1069	0	S
urban		49.2531	5.1948				

In the above table 7, the result of independent samples 't'-test revealed that t-stat for the null hypothesis H02 at df 196 is significant (P=0.002171) at 0.05 level of significance. Therefore the null hypothesis H02 is rejected. So it can be stated that there is significant difference between rural and urban B.Ed trainees in their attitude towards yoga.

Hypothesis-3 : There is no significant difference between arts and science B.Ed trainees in their attitude towards yoga.

Table 8

Difference between arts and science B.Ed. trainees in their attitude towards yoga

Category	No. of Sample	Mean	S.D.	df	Calculated 't' value	p value	Remarks
Arts	198	51.2631	4.1155	196	3.3513	0	S
Science		48.9384	5.4223				

In the above table 8, the result of independent samples t-test revealed that t-stat for the null hypothesis H03 at df 196 is significant (P=0.000964) at 0.05 level of significance. Therefore the null hypothesis H03 is rejected. So it can be stated that there is significant difference between arts and science B. Ed trainees in their attitude yoga.

Hypothesis - 4 : There is no significant difference between government and private B.Ed trainees in their attitude towards yoga.

Table 9

Difference between government and private B.Ed. trainees in their attitude towards yoga

Category	No. of Sample	Mean	S.D.	df	Calculated 't' value	p value	Remarks
Government	198	49.3246	5.6088	196	2.857	0.004	S
Private		51.2479	3.8606				

In the above table 9, the result of independent samples t-test revealed that t-stat for the null hypothesis H04 at df 196 is significant (P=0.00473) at 0.05 level of significance. Therefore the null hypothesis H04 is rejected. So it can be stated that there is significant difference between Government and Private B. Ed colleges' trainees in their attitude towards yoga.

Hypothesis-5 : There is no significant difference between nuclear and joint family B.Ed trainees in their attitude towards yoga.

Table 10

Difference between nuclear and joint family B.Ed. trainees in their attitude towards yoga

Category	No. of Sample	Mean	S.D.	df	Calculated 't' value	p value	Remarks
Joint family	198	51.1585	4.5419	196	1.6647	p=0.09756	NS
Nuclear family		50.0344	4.7748				

In the above table 10, the result of independent samples t-test revealed that t-stat for the null hypothesis H05 at df 196 is not significant (p=0.09756) at 0.05 level of significance. Therefore thenull hypothesis H05 is accepted. So it can be stated that there is no significant difference between joint family and nuclear family B.Ed trainees in their attitude towards yoga.

Discussion

The literature reviewed by the researcher showed that students had a positive attitude towards yoga. But in some cases it was found that urban students had better attitudes than rural students towards yoga. But in some cases private institutes had better attitude than government. institutes towards yoga.

The findings of this study revealed that (1) The B.Ed trainees had a favourable attitude towards yoga. (2) There was no significant difference between male and female B. Ed trainees in their attitude towards yoga. (3) There was a significant difference between rural and urban B. Ed trainees in their attitude towards yoga. (4) There was a significant difference between arts and science B. Ed trainees in their attitude towards yoga. (5) There was a significant difference between Government and Private B. Ed colleges' trainees in their attitude towards yoga. (6) There was no significant difference between joint family and nuclear family B. Ed trainees in their attitude towards yoga.

Continued on Page 33

PARENTAL ENCOURAGEMENT AND ACHIEVEMENT IN MATHEMATICS AMONG HIGHER SECONDARY STUDENTS

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ABSTRACT

The purpose of this paper is to identify the level of Parental encouragement and achievement of mathematics among higher secondary students. The study was restricted upon 300 samples. Descriptive statistics, t-test and Pearson's Product Moment Correlation Coefficient are the techniques used to analyze the data. The results of the study were: (i) There is a significant difference in Parental encouragement of higher secondary students with respect to gender, locality, type of school, medium of instruction, Time spent with children, (ii) There is a significant difference between achievement of mathematics of higher secondary students with respect to locality, medium of instruction and (iii) There is no significant difference between achievement in mathematics of higher secondary students with respect to gender, type of school.

Keywords : *Parental encouragement, Higher secondary students, achievement of mathematics.*

Introduction

Recent years, have witnessed a significant shift in the focus of education. The emphasis has moved from the teachers, the transmission of information and how best this can be improved to a focus on the learner and how best to promote learning. The concept of individual difference in learning was a topic of discussion among the educationists and psychologists from the early years. Thus it is seen that every student has his/her own learning styles. As the learning style is related to individual characteristics and preferences, learning styles reflect the student's performances on how they perceive the environment, interact with his environment, reach and experience learning in this process. Each individual learning style is unique as a signature. When a student has something difficult to learn that student learns faster and enjoys when his/her unique learning style is affirmed by the way the teacher teaches.

Mathematics is one of the subjects that aims at developing creativity. It can be taken as a means for developing students' creativity as the deductive structure of mathematics is flexible enough to provide for different ways of organizing the content i.e. from the whole to the part or from the part to the whole. Mathematics as a subject is also rich in situations and problems which can direct students to find new different solutions for them. In addition, studying Mathematics trains student to criticize situations objectively.

Need and significance of the study

Parental support is the fundamental factor for future orientation of a child. Educated and illiterate parents give more encouragement to their children. The child develops according to their quality and quantity of their parental motivation. Some parents give more encouragement and some parents give less encouragement to their children. But most of the parents are fully involved with the child's all round development. The foundation of a child's future life is in the parental interest.

Each and every student must understand their home conditions and problems. They should realize the necessity to maintain the environment. The home is basically a unit in which parents and children live together. Family's first position depends on the multiple responsibilities and functions of each and every number of the home to develop protection and care of the members.

The parents should show real interest in the child's future. Some parents go to government or private job. They do not care their children. So their children have less future orientation. So the investigator selected this topic for the research study. The purpose of this research is to find out

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the parental encouragement and achievement in mathematics of higher secondary students.

Statement of the problem

The proposed study is entitled as "Parental Encouragement and Achievement in Mathematics among Higher Secondary Students".

Objectives

1. To find out the level of parental encouragement of higher secondary students.
2. To find out the significant difference in parental encouragement and achievement in mathematicsof higher secondary students with respect to gender, locality, type of school,and medium of instruction.
3. To find out the relationship between parental encouragement and achievement in mathematics of higher secondary students.

Hypotheses

1. There is no significant difference in parental encouragement of higher secondary students with respect to (i) gender (ii) locality (iii) type of school and (iv) medium of instruction.
2. There is no significant difference in achievement in mathematics of higher secondary students with respect to (i) gender (ii) locality (iii) type of school and (iv) medium of instruction.
3. There is no significant relationship between parental encouragement and achievement in mathematics of higher secondary students.

Methodology

In this study Normative survey method was used.

Population

The population for the present study consisted of higher secondary students in Thanjavur educational district.

Sample

In this study simple random sampling was used. The study was conducted on a representative sample of 300 XII standard students.

Tools used

1. Parental encouragement rating scale prepared and validated by Bharathi, Muthaiyan (2018) was used.
2. The investigator used the XI public examination marks in the subject mathematics as achievement in mathematics.

Statistical Techniques Used

For the study the following Statistical techniques were used. Arithmetic Mean, Standard Deviation, t- test and Pearson's Product Moment Correlation Coefficient.

Analysis of data Interpretation

Table 1

Mean, standared deviation and 't' value of parental encouragement of higher secondary students with respect to gender

Gender	N	Mean	SD	Calculated 't' value	Remarks at 5% level
Male	133	110.4	13.4	5	S
Female	167	120	19.8		

From the above table 1 it is evident that the calculated t-value 5.0 is greater than the table value 1.96 and it is significant at 0.05 level. Therefore the null hypothesis is rejected. The mean score of parental encouragement of female students is 120.0, which is significantly higher than that of the male students, whose mean score is 110.41. Hence it is concluded that female students have better parental encouragement than the male students.

Table 2

Mean, standared deviation and 't' value of parental encouragement of higher secondary students with respect to locality

Locality	Number	Mean	SD	Calculated 't' value	Remarks at 5%
Rural	139	120.2	17.31	4.16	S
Urban	161	111.9	17.45		

From the above table 2 it is evident that the calculated 't'-value 4.16 is greater than the table value 1.96and it is significant at 0.05 level. Therefore the null hypothesis is

rejected. The mean score of parental encouragement of rural students is 120.24 which is significantly higher than that of urban students, whose mean score is 111.87. Hence it is concluded that the rural students have better parental encouragement than the urban students.

Table 3

Mean, Standard Deviation and 't' value of parental encouragement of higher secondary students with respect to type of school

Type of school	Number	Mean	SD	Calculated 't' value	Remarks at 5% level
Government	138	123.14	16.36	7.16	S
Govt. Aided	162	109.46	16.65		

From the above table 3 it is evident that the calculated 't'-value 7.16 is greater than the table value 1.96 and it is significant at 0.05 level. Therefore the null hypothesis rejected. The mean score of parental encouragement of the government school students is 123.14 which is significantly higher than that of the aided school students, whose mean score is 109.46. Hence it is concluded that the government school students have better parental encouragement than aided school students.

Table 4

Mean, Standard Deviation and 't' value of parental encouragement of higher secondary students with respect to medium of instruction

Medium of Instruction	Number	Mean	SD	Calculated 't' value	Remarks at 5% Level
Tamil	191	121.3	16.08	7.74	S
English	109	106.01	16.64		

From the above table 4 it is evident that the calculated 't'-value 7.74 is greater than the table value 1.96 and it is significant at 0.05 level. Therefore the null hypothesis is rejected. The mean score of parental encouragement of Tamil medium students is 121.30, which is significantly higher than that of the English students, whose mean score is 106.01. Hence it is concluded that the Tamil medium students have better parental encouragement than the English medium students.

Table 5

Mean, standared deviation and 't' value of achievement in mathematics of higher secondary students with respect to gender

Gender	Number	Mean	SD	Calculated 't' value	Remarks at 5% level
Male	133	65.13	18.64	0.83	NS
Female	167	63.33	18.41		

From the above table 5 it is evident that the calculated 't'-value 0.83 is less than the table value 1.96 and it is not significant at 0.05 level. Therefore the null hypothesis is accepted. Hence it is concluded that there is no significant difference between male and female students in their achievement in mathematics.

Table 6

Mean, standared deviation and 't' value of achievement in mathematics of higher secondary students with respect to locality

Locality	Number	Mean	SD	Calculated 't' value	Remarks at 5% level
Rural	139	60.39	19.29	3.28	S
Urban	161	67.35	17.21		

From the above table 6 it is evident that the calculated 't'-value 3.28 is greater than the table value 1.96 and it is significant at 0.05 level. Therefore the null hypothesis is rejected. The mean score of achievement in mathematics of the urban students is 67.35, which is significantly higher than that of the rural students, whose mean score is 60.39. Hence it is concluded that the urban students have higher achievement in mathematics than the rural students.

Table 7

Mean, Standard Deviation and 't' value of achievement in mathematics of higher secondary students with respect to type of school

Type of school	Number	Mean	SD	Calculated 't' value	Remarks at 5% level
Government	138	64.03	18.05	0.08	NS
Govt. Aided	162	64.21	18.94		

From the above table 7 it is evident that the calculated 't'-value 0.08 is less than the table value 1.96 and it is not significant at 0.05 level. Therefore the null hypothesis is accepted. Hence it is concluded that there is no significant difference between government and government aided school higher secondary students in their achievement in mathematics.

Table 8

Mean, Standard Deviation and 't' value of achievement in mathematics of higher secondary students with respect to medium of instruction

Medium of Instruction	Number	Mean	SD	Calculated 't' value	Remarks at 5% level
Tamil	191	66.01	16.8	2.21	S
English	109	60.83	20.9		

From the above table 8 it is evident that the calculated t-value 2.21 is greater than the table value 1.96 and it is significant at 0.05 level. Therefore the null hypothesis is rejected. The mean score of achievement in mathematics of the Tamil medium students is 121.23, which is significantly higher than that of the English medium students, whose mean score is 108.76 Hence it is concluded that the Tamil medium students have higher achievement in mathematics than the English medium students.

Table 9

Relationship between parental encouragement and achievement in mathematics of higher secondary students

Variable Correlated	Sample	N	Calculated 'γ' value	Verbal Interpretation
Parental encouragement and achievement in mathematics	Total sample	300	0.3	Low correlation

From the above the table 9 shows that a coefficient of correlation between the variables parental encouragement and achievement in mathematics of higher secondary students for the total sample is found to be 0.30. From the verbal interpretation it is found that the correlation between the variables have positive and low correlation. Hence the hypothesis is rejected.

Findings

Following were the important findings of this present investigation.

1. The female higher secondary students have more parental encouragement. But there is no significant difference between male and female students in their achievement in mathematics.
2. The rural higher secondary students have more parental encouragement. But their achievement in mathematics is not better than urban students.
3. The government school higher secondary students have more parental encouragement, but their achievement in mathematics is not better than aided school students.
4. Tamil medium higher secondary student have more parental encouragement and their achievement in mathematics also is better than their counterpart.
5. There is no significant relationship between parental encouragement and achievement in mathematics of higher secondary students.

Conclusion

The results of the present study extend previous research literature in two important ways that hold implications for teacher educators and parents. First, the use of attribution and expectancy-value theories offered unique perspectives on reasons parental support offered in mathematics to children may differ that have not been previously discussed. Previous research identified how support is offered by different parents; notions of mother's need for achievement in parental roles.Additionally, although the sample size was small and means of data collection were modest, the study leaves open the door for important future research regarding the possible improvement of parental involvement in mathematics learning.

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Continuation of Page 28

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ATTITUDE OF B.ED...

The present investigation has been done on the attitude of B. Ed trainees towards yoga in education. The result found that the trainees of B. Ed colleges possess a positive attitude towards yoga education. But in some cases like Rural and Urban, Arts and Science and Government and Private college students, there are significant differences.

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SOCIAL AND EMOTIONAL LEARNING (SEL) IN MATHEMATICS CLASSROOM AND IT'S IMPACT ON MATHEMATICS ACHIEVEMENT

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ABSTRACT

Only the disciplinary knowledge of mathematicscan't serve the needs and challenges of 21st century. Different studies revealed that developing social and emotional skills are essential for the students to cater to those needs. Numerous programmes have been developed to increase the math achievement by providing different instructional strategies. But few programmes are developed by integrating social and emotional skills as an inseparable part of their mathematics instruction. "The Social and Emotional Learning (SEL) in Elementary Mathematics Instruction" is such an effectiveprogramme that comprises SEL competencies to drive student learning and engagement.This study was designed to evaluate whether the adapted version ofthe fore said SEL programmeenhances the students' Attitude and their achievement in Mathematics.For that, a quasi-experimental study of nine monthsin one academic year,was designed with a pre- & post-test. The students of Class V (Fifth Grade) of a Bengali medium Government sponsored co-educational school in West Bengal were selected as the participant of the study.The data were analyzed through Product Moment Correlation and t-test. The results reveal that the students who were provided SEL in their Mathematics Instruction were shown significant improvement in the achievement and their attitude towards Mathematics.

Keywords: *Social and Emotional Learning (SEL), Mathematics Instruction , Emotional Intelligence, SEL Competencies, CASEL.*

Introduction

We are living in the era of Information Communication Technology- the '21st century world'. The world is increasingly becoming a 'global village' (McLuhan, 2003). In this new world, the people have to know how to work with people; how to look ahead a plan withcollaboration. Along with this, the students are living in an era where, they are consistently being distracted by various factors. So they must have some skills of self-regulations; skill be more focused. Besides that, the intergroup wars and hatreds are increasing now a day so. Abuse of children and female are very frequent. In this diverse situation the students have to cope with their individual needs and the needs of the society. These two needs are also been changing rapidly (Quisumbing, 2002).To cater to these needs, the aims of education should be redefined. So, what are the knowledge/ skills that are needed by the students to deal with these challenges of 21st century?

In our formal education system more emphasis are on the development of the cognitive skills. A little emphasis is given on the development of social and emotional skills. So we have to bring the development of these skills as a goal to our formal education system.

Over the last two decades, various programs have been developed to foster the skills through social and emotional learning (SEL) among the students (Elias et al., 1997; Greenberg et al., 2003). Most of the programmes are found in abroad. These SEL programme are anchored in the theory and research on emotional intelligence (Mayer &Salovey, 1997; Goleman, 1998) and emotional competence (e.g., Denham, 1998, Saarni, 1999). These

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skills contribute to their social and emotional adjustment and higher academic achievement also(Wang, & Walberg, 2004). A meta-analysis of 207 studies reveal that the SEL programs significantly increase better standardized tests score by the students in comparison to the students who are not participating in that programme (Durlak et al., 2011). But Most of these programmes (e.g. The RULER Feeling Words Curriculum, etc.) are inculcating these social and emotional skills through the lessons of Language, liberal arts, and social science. And studies show that thoseprogrammes are effective in enhancing the achievement of language, and liberal Arts. But they have last effect on achievement in mathematics (Brackett et al., 2012). But it is true that, in this present situation with the advancement of technology, we need the disciplinary and cross-disciplinary knowledge and skills of mathematics, science and technology along with the social and emotional skills.

Achievement in mathematics of the students is a high priority for educators around the world. Numerous programmes have been developed to increase the math achievement and their attitude towards mathematics by providing different instructional strategies. But few programmesare developed by taking the care of developing their social and emotional skills as an inseparable part of their mathematics instruction. Students' achievement in mathematicsdepends upon multiple factors such as teachers' content knowledge, teaching practices that support children's social and emotional skills, effective classroom management, plus high quality instruction (Ottmar, Rimm-Kaufman, Larsen, & Berry, 2015). Combinations of these factors can make mathematics learning more easy, more clear and effective. Integrating social and emotional learning (SEL) strategies into the math instruction may help teachers to set the tone of the classroom by building an supportive and encouraging relationship with the students (Jennings & Greenberg, 2009). This supportive classrooms environment improve their instructions by interactive discussions with students , encouraging students to share ideas and take risks, and engaging in inquiry based learning (Ottmar, Rimm-Kaufman, Larsen, & Berry, 2015).

"The Social and Emotional Learning (SEL) in Elementary Mathematics Instruction" is such kind of SEL programme developed by the 'Collaborative for Academic, Social, and Emotional Learning (CASEL)' (http://www.casel.org). This program provides mathematics teachers the tools and strategies to promote five core competencies of SEL. According to CASEL, "Social and emotional learning (SEL) enhances students' capacity to integrate skills, attitudes, and behaviors to deal effectively and ethically with daily tasks and challenges".These competencies are self-awareness, self-management, social awareness, relationship skills and responsible decision-making.

Mathematics instruction through the "SEL in Elementary Mathematics Instruction" can be effective by building these competencies which drive student learning and engagement (CASEL, 2017).

Rationale of study

In India, the Government is providing and trying to ensure, the admission, attendance and completion of elementary education for all the children between the ages of 6-14 years through the Right to Education Act, from 1st April, 2010 (RTE Act, 2009). In spite of these efforts from the part of Government, there are a huge number of dropouts. Statistics reveled that, in the year of 2013-14, 48.1% of boys and 46.7% for girls had left the arena of the school at secondary level (Govt. of India, 2014). And many students who remain in the arena of education are still struggling with their educational achievement. Especially the low achievement in mathematics is the center of attention for all concern. The main cause of this low achievement is that, the students are not feeling connected in the teaching learning process of mathematics. Students feel unwelcomed, disconnected and lost in our schools (McNulty &Quaglia, 2007). So their lack of active participation in the teaching learning process is one of the main reasons of this massive dropout. The Social and Emotional Learning (SEL) in Elementary Mathematics Instruction can minimize this lack of active participation. But this strategy has prepared for mathematics classrooms of U.S.A. As these strategies are culture specific we can't implement those directly in the present Indian classroom context. A few studies are found in Indian context which are not adequate to cater to the present need. So in this study, a 'SEL in Mathematics Instruction' has been adapted from the 'SEL in Elementary Mathematics Instruction'

(CASEL, 2017) to cater to the needs of Indian classroom.

This study alsohas been designed to evaluate whether the adapted version of 'Social and Emotional Learning (SEL) in Elementary Mathematics Instruction" can contribute to enhance the students' Attitude towards Mathematics and subsequently enhance their achievement in Math.

Program overview

The "The Social and Emotional Learning (SEL) in Elementary Mathematics Instruction" is a multi-year instructional strategy, designed to promote social, emotional, and academic learning with units and lessons centered on Mathematics concepts (CASEL, 2017). Like other strategies that effectively foster SEL, this strategyuses SEL approaches that often incorporate four elements. The first element is 'connected and coordinated activities' (sequenced), second is 'active learning environment' (Active), third is 'focus on the component' that foster social emotional skills (Focus) and final one is 'targeting specific social and emotional skills' (Explict) (CASEL, 2010).

Table-1 outlines a glimpse of these SEL competencies and learning strategies, teachers' role and students' activities in a standard Mathematics classroom.The lesson plans of Mathematics are designed to foster these competencies with different types of learning activities to meet the needs of students. It is designed to implement across the academic year for all the Mathematics classes.

The present study

This study used a quasi-experimental design with a pre- and post-test to evaluate the effectiveness of these strategies stated above, over the course ofnine months in one academic year.

Hypotheses

Hypothesis 1 : It is predicted that students in Experimental classrooms would demonstrate a greater gains in achievementin Mathematics as compared to students in control group classroom.

Hypothesis 2 : It is predicted that, students in Experimental classrooms would demonstrate greater gains in attitude towards Mathematics throughout the implementation of this SEL Instructional strategy

Method

Materials and procedure

The adopted version of "SEL in Elementary Mathematics Instruction" (CASEL, 2017) along with the text book of Mathematics (Amar Ganit, Class V) provided by West Bengal Board of Primary Education are used as instructional materials and procedures.

This strategy evaluation extended across one academic year. A 'pre-test' was administeredin the month of January' 2018 (approximately two weeks after the start ofthe academic year). The 'post-test' was administered after 2nd Summative Evaluation in the month of September' 2018.The students are taught their Mathematics lessons through this 'SEL Instructional strategy" from January to September of the Session of 2018. The students' Attitude towards Mathematics was measured at both 'Pre and Post-test'. The achievement in Mathematics was measure along with the post-test.

Training procedure of Teachers: The present researchers oriented two teachers of mathematics in the same school. The concept of Emotional Intelligence and Social Emotional learning (SEL) through different Books and Learning material freely available at CASEL website were the part of the orientation process. Both of the teachers are assigned to teach mathematics in both of the section of class V. Multiple group discussion was arranged with the Headmaster and other mathematics teachers to resolve the different issues at the time of delivery of the Instruction.

Tools used

The following tools were used for collecting relevant data.

Attitude Questionnaire of Mathematics (AQM): An Attitude Scale named Attitude Questionnaire ofMathematics (AQM) was developed by the present researchers with the help of the Attitude scale, developed by Faculty of Education, University of Cambridge. This tool was used to assess the attitude of students towards Mathematics. AQM was 5 point Likert scale to cater to the needs of the present study. It consists of 25 statements related to mathematics attitude, with a minimum score 0 to maximum score 125. This scale was not standardized.

Achievement in Mathematics: The present researchers prepared and used a test of Achievement in Mathematics considering the learning content of the syllabus of the second summative evaluation of the students. This Scale has a minimum score 0 and maximum score 50.The data gatheredfrom these tools were analyzed through Product Moment Correlation and t-test.

Results

The means and standard deviations (SD)and t-value for each pre-& post-test for Attitude towards mathematics score are summarized in Table 2.

The table 2 shows that, there is no significant changes at 'pre- and post-test', observed in Attitude towards Mathematics in Control group. It reveals that the students who were not provided SEL in their Mathematics Instruction were not improving their Attitude towards Mathematics.

In the Experimental group thereis a significant change in Attitude towards Mathematics from pre-test to post-test. TheExperimental group, who obtain the SEL in their Mathematics Instruction, had a significant increase in attitude. So the SEL Instructional strategies can enhance the attitude towards mathematics of the students.

Table1

Mean, SD and 't' value of Attitude towards mathematics score for Experimental and Control Group at pre and post-test

	Pre-test			Post-test			Calculated 't' value	Remarks
	N	Mean	SD	N	Mean	SD		
Control Group	48	57.91	7.62	52	61.23	8.13	2.1	Non Significant
Experimental Group	53	59.73	8.432	59	69.21	9.852	5.44*	*Significant at 0.01 level

Table 2

Pearson Correlations for Achievement in Mathematics and Attitude towards Mathematics(Post-test).

	Achievement in Mathematics
Attitude towards mathematics	0.743*

Table 2 reveals that the students' Attitude towards mathematics is positively correlated with the achievement in mathematics.In order to know how far the SEL Instructional strategies are able to enhance the students' achievement in Math, a comparative analysis was done by using the post-test data. The detail of the analysis is given below

Table3

Mean, SD and 't' value of Mathematics achievement score in Experimental and Control Group at post-test.

	Experimental Group			Control Group			Calculated 't' value	Remarks
	N	Mean	SD	N	Mean	SD		
Achievement in Mathematics	59	27.35	5.33	52	23.26	6.1	3.75*	*Significant at 0.01 level

The above table 3 shows that, the mean difference in achievement in mathematicsscore is 4.09. This indicates that, the Experimental Group has scored more than the Control group. So it isan indicator of improvement in the performance in mathematicsby the Experimental over Control group. The calculated 't'-value also shows that this difference is statistically significant.

Conclusion

This study provides preliminary evidence that supports effectiveness of the "SEL in Elementary Mathematics Instruction" at a Bengali medium Government sponsored school in West Bengal. But this study uses a small sample and restricts the implementation of SEL strategies within one school, which may leads to the inconsistency of the findings. Other limitation of this research is that researcher himself was the implementer of thesestrategies. So the issue of biasness at the time of implementationmay come. This study uses the unstandardized test scores to find the effectiveness of the strategies. That may be another issue of this research. Future studies to find the effectiveness of SEL in Mathematics Instruction in other settings should be designed keeping theselimitations in mind.

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STRESS AND ANXIETY AND THEIR RELATIONSHIP WITH ACADEMIC ACHIEVEMENT AMONG SECONDARY STUDENTS OF IMPHAL WEST DISTRICT

ABSTRACT

The present era is well known as age of stress and anxiety. Stress affects almost each and every individual irrespective of age, class, sex, race, caste, religion etc. it is highly individualistic in nature. Some individuals experience more stress and more anxietythan others. The present study is an attempt to find out the level of stress and anxiety and their relationship with academic achievement among secondary students in Imphal West district, Manipur. The present study is based on descriptive research design. The sample consisted of 100 students studying in class XI. Out of which 50 are male and 50 are female. To assess stress and anxiety student stress scale developed by Zaki Akhtar and anxiety Taylor's Manifest Anxiety Scalewere used. The result reveals that stress and anxiety level of male and female students differ significantly at .01 level. It also reveals that a low negative relation between stress and anxiety of secondary students of Imphal West district, Manipur.

Keywords: *Stress, Anxiety, Academic Achievement, Secondary Students.*

Introduction

Stress has become an inevitable part of people's life. Most of the people report experiencing high stress in every walk of their life. Severe and consistent stress puts impairing effect on his psychological as well as physical well being. Nowadays in the present society parents give more emphasis in the cognitive growth of their children and there by create unhealthy competitions among them. This outlook not only hampers the social order but also creates tensions, confusions, stress, anxiety and many other psychological disorders among their children.Better socialization in an apt way is to be ensured by the family for bringing proper child growth. Since children are the promises of tomorrow their mental growth should be balanced.

Stressed children show signs of emotional disabilities. During the teen years, a lot of biological, physical, mental and emotional changes are happening, as well as the changes in responsibility and role. Stress may create several types of adjustment problems in the children if it is not managed on time and may lead to acute stress disorders. Hill and Lynch (1983) focusing on adolescence have proposed that this period of life is intense gender socialization first occurs and that girls are especially vulnerable to stress.

Significance of the study

The present era is well known as age of stress and anxiety. Stress is affecting almost each and every individual irrespective of age, class, sex, race, caste, religion etc. it is highly individualistic in nature. Some individuals experience more stress and others may not. In student life, children crave a certain amount of novelty, excitement, and stimulation in their lives. Students can thrive on certain amount of uncertainty, anxiety and pressure. It motivates them to get things done, to be successful and achieve something in life. Anxiety is necessary to some extent to influence a certain level of work involvement to complete and solve the task related with academics.

Among adolescent boys and girls stress and anxiety are very common. Negligence of parents, high expectations in academic, growing up tensions and demand for familial responsibility or any other issue, the youth undergo feeling of stress at some phase of their lives. Parents who are not emotionally available for their children or lack of positive coping mechanisms themselves often spur stress in their children.

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Youth today are living in an increasingly anxiety ridden atmosphere. They live in a world where nothing seems to be guaranteed with certainty. They often lack in academic motivation and performance, as their attention is diverted among many things especially at creating an identity for themselves and find themselves underachieving stress.

Anxiety is one of the major problems of secondary school students. They are of adolescence period and it is the period of stress and strain. Among the problems of adolescence anxiety has an important role in making them maladjusted. It also produces many psychological, behavioural and physiological problems and effects. Mental blocking, feeling of apprehension, uneasiness, upset and self-doubt are the major psychological problems of anxiety. Behavioural effects include inability to act, to make decisions, to express and inability to deal effectively. Physiological effects are rapid heartbeats, tension, dry mouth and perspiration. These problems may affect the academic achievement of adolescent students. So it has become a major concern on psychological investigations.

Objectives of the Study

1. To examine the level of stress among male and female secondary students in Imphal West district.
2. To examine the level of anxiety among male and female secondary students in Imphal West district.
3. To study the relationship between stress and academic achievement.
4. To study the relationship between anxiety and academic achievement.

Methods

The present study has adopted descriptive research.

Sample

The sample consisted of 100 students studying in class XI from Imphal West district, Manipur. Out of which 50 are male and 50 are female. The sample were selected randomly. The age range of the student was 16 to 19 years.

Tools

To assess level ofstress a standardized Student's Stress Scale developed by Zaki Akhtar and Taylor's Manifest Anxiety Scale were used. To measure the academic achievement of the students, marks were collected from students' High School Leaving Certificate.

Procedure

To collect the requisite data the investigator personally visited the schools selected for this study. The investigator sought permission from the Principals of the institutions for administering the tools i.e. student's stress scale and Taylor Manifest Anxiety Scale. After taking permission from the Principals of the institutions, the investigator visited the particular school on the appointed day and time and contacted the XI standard students. The researcher established a rapport with them and necessary instructions were given to the students.

Statistical techniques used

In the present study, analysis and interpretation of the data were done by using mean and SD's whereas regarding the relationships between the two variables, Coefficient of Correlation and't' test were used.

Results and Discussion

Hypothesis 1 : There is no significant difference between male and female secondary students in Imphal west district in their level of stress.

Table 1

Comparison of means and SDs of stress level of male and female students of Imphal west district

variable	Male		Female		Calculated 't' Value	df	Level of significance
	N= 50		N=50				
	Mean	SD	Mean	SD			
Stress	16.9	4.1	23.62	4.26	9.03	98	Sig.

Table 1 depicts that the level of stress of the male and female students is significant at 0.01. This table shows that female students show more stress than their male counterparts. Some of the female students may mature earlier than their friends of their own age. In the process of reaching puberty, they experience a visible change in self image, action towards other and have better perception. They also need to adjust themselves accordingly to the changes that are experiencing.

Hypothesis 2 : There is no significant difference between male and female secondary students in Imphal west district in their level of anxiety.

Table 2

Comparison of means and SDs of anxiety level of male and female students of Imphal west District

variable	Male		Female		Calculated 't' Value	df	Level of significance
	N= 50		N=50				
Anxiety	Mean	SD	Mean	SD			
	21.09	6.65	15.98	5.91	4.08	98	Sig.

Table 2 reveals the comparison between male and female students on anxiety level in Imphal West district. The obtained mean values of the two groups are 21.09 and 15.98 and SDs is 6.65 and 5.91 respectively. The obtained 't' value is 4.08 which is significant at 0.1 level. It means that the male and female students of Imphal West district differ significantly in their anxiety level.

An observation project revealed that male students manifest more future orientations than female students. They have to lead their career independently. So, there is a possibility of accumulation of pressure and it may increase the anxiety level.

Hypothesis 3 : There is no significant relationship between stress and academic achievement of secondary students in Imphal west district.

Table 3

Relationship between stress and academic achievement of secondary students in Imphal West district

Variables Correlated	N=100 ' γ' Value
Stress and Academic Achievement	-0.42

Table 3 shows that there is a negative relationship between stress and academic achievement of secondary students in Imphal West district. The coefficient of correlation of the respondents is 'γ' = -.42. It means that the level of stress is very high but the academic achievement of the students is low.

Hypothesis 4 : There is no significant relationship between anxiety and academic achievement of secondary students in Imphal west district.

Table 4

Relationship between anxiety and academic achievement of secondary students in Imphal West district

Variables Correlated	N=100 'γ' Value
Anxiety and Academic Achievement	-0.4

Table 4 depicts that there is a negative relationship between anxiety and academic achievement of secondary students in Imphal West district. The coefficient of correlation of the respondents is 'γ' = -.40. It means that the level of anxiety is very high but the academic achievement of the students is low.

Conclusion

Academics are the major source of tension amongst the students. All students differ in their needs. Due to the difference in his/her needs they differ in experiencing stress levels and reactions to anxiety provoking situations. Stress and anxiety impede the academic performance to a great extent. So great care to be taken to ensure the standards of excellence are expected and maintained. Teachers should also adopt certain strategies to enhance a definite level of academics and should make use of certain strategies to reduce stress and anxiety level of their students. At the same time adequate efforts should be taken to enable the students to handle the stressful situations and anxiety provoking situations effectively.

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EXPERIENTIAL LEARNING: A CONSTRUCTIVIST APPROACH FOR ATTAINING THE PROFICIENCY OF MEASUREMENT SKILL IN SCIENCE AMONG VIII GRADE STUDENTS

ABSTRACT

Measurement is a very important skill for students in everyday life. School students naturally compare things such as larger and smaller, taller and shorter and lighter and heavier. They also observe the measurement of dress in textiles shop, weight of vegetables and fruits, weight of their favourite foods items, volume of water bottle they carry to school, temperature of heat and cold etc. Measurement is the part of daily life activities but most of the students are not dexterous in measurement skill. They are not skilful to use measurement devices such as scale, thermometers, vernier calibre, screw guage, pippet and burette, measuring jaretc. Their knowledge and skill in measurement is very poor because of chalk and talk method of teaching. Keeping in view of developing measurement skill, this study was undertaken. The Sample consists of thirty students of standard eight in the state of Tamilnadu. A qualitative research design was adopted. The findings revealed that most of the students were lacking behind in measurement skill. Students committed various types of errors while measuring the length breadth height of the object, and made mistakes while measuring the volume of solution with the help of measuring jar. When the students exposed in experiential learning, over a period of time, students developed measurement skill. They were able to measure the things accurately and precisely. Also, students learned to write measurement with standard system of measurements, and simple calculation and conversion associated with measurement.

Keywords : *Experiential Learning, Constructivism, Measurement skill.*

Introduction

Science is a purposeful attempt of observation, curiosity, experience, analysis, and the expression of discovery. Science provides opportunity for an individual to develop the skill of inquiry, critical thinking, creativity, problem solving, decision making etc. It was stated by National Research Council (1996) and American Association and Advancement of Science (AAAS, 1989) that scientific literacy is one of the foremost goals of science education. Schools have prime responsibilities to prepare the children with scientifically literate citizen. The objectives of science teaching according to UNESCO (1992) and National Curriculum Framework (2005) was to acquire scientific skills and concepts and to develop scientific attitudes among students. Almost all the documents including Kothari Commission (1964-66), NPE (1986), NCF (2000, 2005) repeatedly recommended to adopt child centred teaching learning process. But in majority of the schools, the "Chalk and Talk method" of teaching is predominant and most of the students blindly memorise the scientific concepts and the same they reproduce in the examination. Students are very far from hands on experiments. Developing experimentation skill among the students is the least priority for the teachers. Particularly students were not exposed to operate microscope, simple pendulum, measuring jar, pipette, burette, measuring jar and vernier caliper. Therefore, students were not skilful in measuring length mass weight volume temperature even after completion of their school education. Research studies (Amin, 2011) findings also reveals that students committing several errors and mistakes while measuring the length breadth and height, length of simple pendulum, volume of liquids, area of irregular objects etc. Measurement skill is poorly developed among students.

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Concept of Measurement Skill

Measurement is one of the process skill in which the following attributes such as temperature, length, breadth, height, area, mass, volume, angle are accurately measured quantitatively with the help of standardised measuring instrument. Measurement is not only restricted to measuring the attributes, it also be represented with proper measurement units for example: Units like centimetre (cm), millimetre (mm) Kilogram (Kg), length (l) temperature (T) weight (wt) mass (m) area volume etc. Measurement also follows some minimum calculation. Measurement includes selection of appropriate measuring instruments such scale, ruler, meter stick, yardstick, balance, clock, thermometer, graduated cylinder or containers, protractor, screw gauge, vernier calliper, and measurement tape to measure the attributes. Also, it is very important to select valid and reliable measurement instrument while measuring the attributes. Measurement also includes the instrument to check the increment and decrement values, numbered or unnumbered. It may be possible to happen that human error and instrument error while measuring the attribute. It is therefore ultimate care and precautions needs to be taken to avoid such errors.

Experiential Learning: A Constructivist approach

Learning through experience has been valued in all educational settings. John Dewey (1938) naturalist initiated the movement of experiential learning and followed by Piaget (1950), Kurt Lewin (1957), Paulo Freire (1970), Vygotsky (1978) and David Kolb (1984). The simplest form of experiential learning means learning through own experience or "learning by doing". Children can best learn science and gain concrete experience when they exposed to hands on experiences. The philosophy of constructivism also suggest that students can learn concept and skills by their own experiences with the help of previous knowledge. Teachers' role is to facilitate the conducing learning environment. Dewey stressed the importance of students' engagement in gaining experience and cognitive development. Piaget's cognitive constructivism theory suggest that the intelligence and cognitive development shaped by experience. According to Edgar Dale (1969) cone of experience, learners retain more information and skills, and gain concrete learning experiences when they engaged in "doing" purposeful activities. Reading and listening are the least experience. David Kolb (1984) opined that knowledge is created through transformation of experience. He developed a theory called experiential learning theory (ELT) based on the work of John Dewey, Kurt Lewin, Jean Piaget, Carl Jung, Paulo Freire, Carl Rogers. His theory provides a four stages of cycle called experiential learning cycle. These four stages are: concrete experience, reflective observation, abstract concepts and active experimentation. Learning can occur any stage and follows other. These four stages provides rich learning experiences for the learners. Experiential learning facilitates the learner to experience and acquire the measurement skill.

Need and Significance of the Study

John Dewey and other educationist advocated the experiential learning. All Curriculum and policies also recommended to implement students centred teaching unfortunately, present science teaching in Indian schools is examination oriented, teachers centeredness, domination of rote memorisation. Experiment is the hallmark of science but it is largely ignored by teachers. Students are passive listeners, and practical in the laboratories are regularly neglected. Research findings and committees and reports on science teaching reveals that there is no creativity, inventiveness, hands on experiences in science teaching (Umasree, 2003; Vaidya, 2003; NCF, 2005; CABE committee, 2005; NKC, 2006-2009). Due to unsatisfactory method of science teaching, the measurement skill was poorly developed among school students. Measurement is a fundamental skill that the students use or observe in their everyday life such as home, school, and any other places. Students may observe the instrument while weighing of vegetable, grocery items; and approximately measure the volume of liquid such as water, milk or oil; also they observe the speedometer in the vehicle; observe the scale of thermometer when they fall in sick; daily they observe the weather report; use measurement scale or ruler to measure the length, breadth and height etc. but students possess limited knowledge and skill on measurement, quantification, unit system, measuring instrument, accuracy, precision, estimation, calculations etc. They commit error and mistakes while measuring the objects, liquids or any

measurable attributes. It is a dearth need to develop measurement skill among students. Measurement skill cannot be developed through "Chalk and Talk method. Constructivist based experiential learning method has larger scope to develop measurement skill. In this method students move from rote learning to experiential mode. The study has been conducted among eighth standard students because it is the threshold and transition phase between primary and secondary education. It is a crucial stage wherein students receive higher level scientific inputs. At this stage children are willing to do experiments enthusiastically, measure the measurable attributes, observe critically, calculate, manipulate the variable and logically analyse. If measurement skill is developed in this age, it will be helpful to measure the things very accurately and precisely. It may also help them to learn higher order thinking skills.

Methodology

Objectives

1. To investigate the prevailing status of measurement skill in the students of grade eight.
2. To develop measurement skill in science through constructivist based experiential learning
3. To study the effectiveness of constructivist based experiential learning in developing measurement skill.

Research Questions

1. Do the school students adequately develop the measurement skill in science?
2. How far constructivist based experiential learning can develop measurement skill among students?

Sample and Sampling Techniques

Sample for the present study was students of standard eight from Gudalur Government Higher Secondary School situated in Nilgiri District, Tamilnadu. The sample comprised of 30 students (8 Girls and 22 Boys). According to SSA mission of Tamilnadu, Nilgiri District was identified as one of the special focus districts which require special attention with respect to school education. Particularly, in Gudalur block there are 199 schools which include Government, private aided and private unaided. Out of 199 schools, Gudalur Government Higher Secondary School students of standard eight were selected purposively for this study.

Research Design

Qualitative research design was employed for the study. The design follows three stages. First stage: Existing status of measurement skill was studied among students. Second stage: Different hands on learning experiences were provided for developing measurement skill. All the learning experiences followed the Kolb's experiential learning cycle. Students performances were observed, recorded and noted in the field diary during the learning experiences. Third stage: Students' measurement skill was assessed after completion of experiential learning.

Data Collection: Tools and Techniques

The following tools were constructed by the researcher and validated by experts. Piloted study also was done and the piloted tool was administered on actual sample by the researcher before and after implementation of experiential learning method.

Situational Test: In this test, suddenly a measuring device such as scale was given to the students to measure the length, height and breadth of a table; thermometer was given to measure the temperature of water; also pipette and burette was given to measure volume of liquid.

Performance based test: In this test there are 16 open ended questions wherein one by one each students were called to measure the measurable attributes such as height, length and breadth, volume, temperature, angle etc. Students' performance of measuring skill was observed and video recorded.

Closed ended questions: In this test, questions were asked to test their knowledge level of measurement skill.

Rating scale: Five point rating scale was administered to know whether science teaching provided opportunity to develop measurement skill or not in their previous grade.

Focussed Group Discussion (FGD): FGD was conducted with students and teachers after implementation of experiential learning to know how far hands on experiences facilitated the students to acquire measurement skill.

Data Analysis

Four point (Beginning stage, developing stage, Proficient stage and Accomplished stage) rubric was developed to analyse the qualitatively data and frequency percentage was calculated. Students' performance of measurement skill was analysed and interpreted by watching video recorded. Documents such as students' note books and diaries were analysed and interpreted qualitatively. Data collected through observation, FGD and rating scale was analysed by data triangulation.

Findings: Status of Measurement skill before implementation of experiential learning

1. 54.16% students' measurement skill was in beginning stage wherein students incorrectly measured the length, breadth, height, and angle of the object. They could not find out the area of irregular object (leaf) accurately. They were unable to measure temperature of water accurately. The volume of liquids measured by pipette and burette but it was not precise i.e. it was much higher or lower than precise. They were unable to find out thickness of single page.
2. 13.69% students' measurement skill was in developing stage wherein students followed measurement procedure while measuring the length, breadth, height, angle, volume, area. The temperature of water measured somewhat correctly however it was not precise. Volume of water measured somewhat correct however the measurement was inaccurate and not precise.
3. 18.25% students' measurement skill was in accomplished stage wherein students correctly measured breadth and height of the table but length of the table was not measured accurately. The volume of water and KMnO4 solution was measured in the pipette and burette with lower meniscus. Volume of liquid measured correct but the measurement was inaccurate. The length of the pendulum measured correctly but unable to calculate the time period of oscillation.
4. 13.88% students' measurement skill was in proficient stage wherein students accurately measured the length, breadth, and height of the object. Exact volume of water was measured correctly with the help of measuring cylinder. Weight of the object was measured correctly by using pointer balance. Students measured exact 75ml KMnO4 solution in the measuring cylinder and 20ml of water using pipette. The temperature of water was measured accurately by using thermometer.

Findings: Status of Measurement skill after implementation of experiential learning

1. 73.80% students' measurement skill was in proficient stage wherein students accurately measured the length, breadth, height, angle, area, temperature, and weight. It was observed that (i) temperature of water was measured accurately, (ii) volume of irregular object (stone) measured correctly, (iii) volume of KMnO4 solution and (iv) water was measured precisely with the help of pipette and burette.
2. 14.68% students' measurement skill was in accomplished stage wherein students skilfully used the measurement devices such as scale, tape, thermometer, protractor, pointer balance, measuring cylinder, pipette burette while measuring the length, breadth, height, temperature, mass (weight), time, thickness, area, and volume of object or liquids however committed minor error during measurement. It was observed that, (i) students measured height and breadth of the table correctly but could not measure the length accurately and (ii) students could not notice the lower meniscus while measuring the volume of liquids and KMnO4 solution.
3. 7.93% students' measurement skill was in developing stage wherein students measured length, breadth, height, area, temperature, and volume of a given object or liquids correctly however committed minor measurement error while measuring the volume of the liquids. Students' were found to commit measurement error while measuring the KMnO4 solution and water.
4. 3.57% students' measurement skill was in beginning stage wherein students could not measure the length, breadth, and height of the object; volume of water accurately. They could not use the thermometer skilfully to measure temperature of water and did not know how to measure volume of irregular object. The students

were unable to operate measuring instruments skilfully while measuring the object or liquids, temperature.

5. The findings of the study also reveals that the students were not exposed to operate any of the measurement devices in their previous classes. Rarely, students were taken to the laboratory to visualise the equipment however students were not engaged in hands on experiences to measure the length, breadth, volume, temperature etc.

Discussion

Findings of the present study reveals that most of the students committed different types of errors and mistakes while measuring the measurable attributes. It was observed that students' measurement skill is mostly approximation not precision and accurate because students were measuring the objects and liquids with non-standard devices such as pencils, hands, feet, sticks, glass, beaker etc, which leads to poor development of measurement skill. Most of the time students did not know the measurement procedure to be followed prior to measuring something, and did not ensure that the instrument is reliable and free from error. They committed different types of errors while measuring the length, volume, mass and height because teachers did not train the students how to operate the measuring devices. Also, students did not know how to represent the measurement in proper standardised system of units such as length-Meters (m), Mass- Kilogram (Kg), Time-Seconds (s), temperature (Celsius, Kelvin, Fahrenheit), Volume-Liter (L) and Weight (Wt). Students were unable to do minimum conversion and calculation like conversion from centimetres to millimetres, Kilogram to grams, Celsius to Fahrenheit vice versa. Many students held several misconception on measurement procedure and conversions. From these findings it can be inferred that teachers largely employed conventional lecture method of teaching. Over period of time students started to reduce the measurement errors, and acquired the measurement skill through constructive based experiential learning. Students directly engaged in measurement process and measured the objects and liquids very precisely and accurately. Direct hands on experiences facilitated the students to acquire accuracy and precision in measurement skill. Hence there is a need of shift from lecture method of teaching to constructive based experiential learning approach for developing measurement skill in particular and process skills in general.

Conclusion

Science is an endless process of acquiring knowledge and skills. School students learn science best through experiments but most of the school student memorise the concepts without proper understanding of the concepts. Examinations also test only students' knowledge; not skills and attitudes. Teachers largely focusing on imparting concepts; less importance are given to scientific skills. Hence students are far behind in process skills, particularly measurement skill. Schools should possess all the standard measuring devices such as scale, pipette, burette, measuring jar, protractor, vernier calibre, screw gauge, stop watch and weighing balance and teachers should allow the students to have hands on experiences in measuring the things very accurately and precisely. Such learning experience will be more memorable for the students and may make them to attain proficiency in measurement skill.

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THE GROUND REALITIES OF SOCIO-ECONOMIC INCLUSION FOR WOMEN WITH VISUAL IMPAIRMENT

UCG CARE APPROVED

ABSTRACT

Disability and poverty go hand in hand. Women with disabilities become victim of multiple marginalizations despite all rights and schemes on an equal basis with others. The study aims to identify the ground realities of socio-economic inclusion for women with visual impairment. Descriptive research design has been adopted by using survey method. A total of 100 samples were selected through purposive sampling method. The data was collected using researcher made questionnaire and was analysed qualitatively. The results suggest initiating appropriate awareness and training to improve the present status of women with visual impairment to enhance socio-economic inclusion in the society.

Introduction

As people are in the inclusive era, they often think that they are progressing towards gender equality and women's empowerment. Though achieving gender equality is the prime focus under the Millennium Development Goals, women and girls continued to be victims of discrimination in all walks of life may it be education, sports or employment. Adding to this, the women and girls with disabilities witness double discrimination, social isolation and rejection both on account of their disability and gender. Mothers are often blamed and stigmatized for the birth of a child with disabilities. Nevertheless 44.1% women with disabilities are found in population have less access to health care and rehabilitation services, and fewer education and employment opportunities. Disabled girls and women are at high risk of being abused physically and mentally, sometimes by those within the household. A study by The Economic and Social Commission for Asia and the Pacific (ESCAP,1995) notes that the difficulties faced by girls with disabilities can start at birth, and that if they are allowed to survive, they can face discrimination within the family, receive less care and food, and be left out of family interactions and activities. Even in working places they face enormous harassment from the physical and emotional infrastructure of the working environment. The stereotypic attitude and low confidence make the situation more challenging for the women with visual impairment which force them either to leave job or become the victims of unemployment.

Review of literature

In the study by Hagemoser (1996), 35% of the persons with visual impairment who were employed full time felt underemployed. Research has found that persons who are visually impaired are not only employed at a lower rate, but more often feel underemployed, which means that they are less likely to be employed at levels that are commensurate with their education and skills (La Grow, 2003). The employment rate of people with visual impairment is also lower than the population with other types of physical disabilities, as noticed by Shaw et al. (2007).

Need for the Study

Studies show that the women with visual impairment face discrimination in every field of society and especially they cannot grow their socio-economic status due to lack of opportunities to get education, develop employment skills and retain in the same job. Therefore a need was felt by the researcher to take up the present study to find out 'The Ground Realities of Socio-economic Inclusion for Women with visual impairment'.

Objectives of the Study

1. To study the causes of poor inclusion in work place for the women with visual impairment.
2. To study the ground realities of socio-economic inclusion of women with visual impairment.

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Methodology

Research Design

In the present study the researcher had adopted survey research design under descriptive research method.

Selection of sample

The sample for the present study comprise of 50 women with visual impairment including low vision or total blindness with or without additional disabilities and 50 experts comprising of Special Educators, Master Trainers, Assistant Professors and Experts from employment sectors in the field of visual impairment from Coimbatore District, Tamil Nadu. .

Sampling Technique

Purposive sampling technique was used to select the sample.

Research Tool

An open ended questionnaire was developed by the researcher to study the ground realities of socio-economic inclusion for women with visual impairment

Research Questions

1) What are the possible causes of poor inclusion in work place for the women with visual impairment?
2) What are the ground realities of socio-economic inclusion of women with visual impairment?

Data Collection Procedure

The necessary data was collected through participant observation method and semi structured interviews. Informed consent was sought from the sample before collecting data from them. The purpose of the study was explained to the sample and the researcher made questionnaire was used to conduct interview with each sample. The collected data was tabulated and interpreted using qualitative analysis.

Results and Discussion

Based on the research questions set for the current study, the results were obtained and discussed as given below.

Research Question 1: What are the possible causes of poor inclusion in work place for the women with visual impairment?

The sample were observed on the ground of

S. No	Daily Living Skills	Soft Skills	Vocational Skills
1	Table Manners	Use of English language	Basic computer skills with the knowledge of handling screen reading software
2	Dressing and grooming	Basic communication skills	Art-craft skills
3	Orientation and mobility	Using proper emotions and gestures while communicating	Other employment skills

The causes of poor inclusion in job sector for women with visual impairment as reported by the sample are given below:

- Lack of appropriate facial expressions and body gestures as required by the work environment which affects the interpersonal relationship.
- Even after acquiring the basic computer skills, women with visual impairment face difficulties in performing well in their work places because of inadequate training in the use of assistive technologies such as screen reading software.
- Lack of mastery over communicative English and knowledge of other languages such as Hindi as they have not exposed to other languages except their mother tongue.
- Inadequate grooming etiquette by women with visual impairment such as table manners, dressing and personal hygiene with which they face immense troubles especially while having food with their sighted colleagues. It was also reported that as they are dependent on others especially family members and friends for such grooming skills, they tend to avoid certain jobs for which they have to stay away from them. Such situations lead to poor self-esteem, low confidence level and psychological stress.

Research Question 2: What are the ground realities of socio-economic inclusion of women with visual impairment?

The following aspects were considered as the ground realities of socio economic inclusion as reported by the sample.

- In spite of working for longer hours, they are rewarded lower rates of pay than other workers without disabilities.
- Inaccessible physical environment of work place and poor promotion prospects.
- Difficulties due to inadequate transport facilities to commute to their work places. Incidences of maltreatment in public transport were also reported.
- Inaccessible toilet facilities for women with visual impairment having additional disabilities results in embarrassing situation at the work place.
- Lack of appropriate vocational skills and sufficient training leads to poor self-confidence and reduces the work efficiency which has direct impact on productivity.
- Stereotypic and negative attitude of the colleagues without disabilities often creates barriers for social inclusion.
- It was also reported that they are forced to be the victims of physical assault or molestation by their colleagues and sometimes by family members too.

Women with visual impairment are more severe in rural areas; their higher illiteracy rates, and longer distances compound the difficulties of inadequate access to information, health care and rehabilitation services and other training programmes for their livelihood.

Recommendations

1. Organizing career counseling programmes and pre-employment skills training after the completion of school education would help the women with visual impairment to gain confidence over the skills.
2. Providing training of using assistive technologies from school level to empower them and to boost their self-esteem and confidence.
3. Measures to organize sensitization programmes to change the stereotypic and negative attitude prevailing among the society.
4. Creating awareness among the public and employers about the rights of persons with disabilities and schemes and policies provided by the government to empower the women with visual impairment in their career prospects.
5. By helping them to identify appropriate employment and retain in that will raise their economic standards and overcome poverty.

Conclusion

Across the world, women with visual impairment are experiencing social and economic deprivation. They are highly represented among the population of unemployed as well as those who are poor (Beresford, 1996).The families of girls with visual impairment accept them as the burden of society whilst the poverty and gender discrimination add more troubles for their survival. As most of the studies found that the rural areas witness much poverty and illiteracy rate which rarely welcomes persons with disabilities and due to gender discrimination women with visual impairment are far behind their male counterparts in accessing and retaining jobs. Poverty and disability are closely linked and have detrimental impact on the level of inclusion in society and its overall development. Therefore, it is believed that poverty alleviation is a crucial solution in preventing disability directly and indirectly, especially in developing countries with low resources like India. When initiatives are taken to make women with visual impairment economically independent, definitely the doors will be open for socio-economic inclusion.

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INSTRUCTIONAL STRATEGY AS A TOOL TO GENERATE POTENTIAL FUTURE WORKFORCE

UCG CARE APPROVED

ABSTRACT

The kind of skills imparted through suitable instructional strategy, measured in terms of academic achievement will ultimately lead to skill enhancement amongst the youth. The investigator intended to study the effect of Instructional Strategy (IS) of teaching chemistry, Gender and their interaction on Achievement in chemistry of undergraduate (UG) students of Jabalpur by taking their Pre-Achievement in chemistry as covariate. Data analysed by ANCOVA showed both the main effects and interactional effect between IS and gender were found to be significant, with females outperforming males. Thus appropriate IS of teaching chemistry can improve the achievement of learners; specially women, thereby furnishing better and smarter young Indian workforce; with more skilled women personnel at the forefront.

Keywords: *Instructional strategy, Skill enhancement, Chemistry achievement, Gender*

Introduction

Fostering innovation and enhancing skill development are the key aspects of the Make in India initiative. The role of teaching learning process is inevitable in order to make this initiative a success.Skill enhancement and fostering innovation was one of the aims of this program.The current education system in India primarily targets on making skill-based training available to a larger pool of people. Skill development services provided by the education sector are trivial for the growth of the economy by providing appropriate employment.

Role of teaching learning process in skill development is inevitable and needs no elaboration. Use of apt Instructional strategy is the key to the attainment of the learning objectives of any lesson. Instruction is an amalgamation of teaching as well as learning activities. "Strategies determine the approach a teacher may take to achieve learning objectives. Teaching is a natural part of instruction process" (Saskatchewan Education 1991, as cited in Akdeniz Celal, 2016, pp.61). For effective learning to happen, the teacher must move from the centre of the classroom to the side of the classroom and become a guide by using the learner centric methods. So the teacher has strand of success of the learners in her hands with the planning and teaching activities at her discretion. One such teaching activity may be planned by incorporating dynamic visualizations along with interactivity in the classroom setting.

Dynamic visualizations like animations, simulations, videos are more and more used as instructional material for effective learning. They are primarily used to help learners "to visualize complex natural processes" (Spanjers,Gog&Merriënboer, 2010). If dynamic visualizations are integrated with active learning strategies, then it allows three types of interactions: between student & the learning material, student-student as well as student-teacher. "Active learning is defined as learning that strengthens student involvement in the learning process and has had a positive impact on student attitudes and achievements "(Bonwell&Eison, 1991; Felder & Brent, 2003; Moore, 1989 as cited in Frailich Marcel, Kesner Miri and HofsteinAvi, 2009).

Need and importance of the study

A strong education system is the keystone for the economic growth of any country.Dale's Cone of Experiences brings forth the fact that the least effective method of learning is by just 'listening'. The more the teaching practices are learner centric the better they are.

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However the importance of a few teacher centric methods cannot be ignored where the teacher has to impart knowledge through lecturing or demonstrating. Such methods cannot be completely eliminated from the teaching process.Mayer in his book Multimedia Learning discusses about the twelve principles of multimedia learning. According to Kozma Robert & Russell Joel (2005), the principles most relevant to chemistry learning are the Multimedia principle, Spatial Contiguity Principle,Temporal Contiguity Principle, Modality Principle, Signaling Principle, Interactivity Principle. Thus the question surfaced in the mind of the researcher that what will happen to the chemistry learning if the instructional strategies are such that we use dynamic visualizations integrated with interactivity, keeping in mind these principles of multimedia learning?

Learners at both senior secondary level as well as undergraduate level recurrently find it complex to understand the abstract concepts of chemistry. This specifically occurs in concepts involving visualizing as well as mental manipulation of molecules. Thus to assist the learners in getting a deeper understanding of such concepts in chemistry, dynamic visualizations are often used as instructional tools. Animations which are dynamic in nature generally are superior to the static graphics in terms of build up of mental models by the learners.(Hoffler& Leutner,2007;Wouters, Paas, & van Merriënboer, 2008 as cited in Cheon, J, Chung, Crooks, Song & Kim, (2014)). It may be noted that animations are not always better than static graphics since they may cause cognitive overload of the learners.(Hegarty,Criz& Cate,2003; Mayer, Hegarty, Mayer, & Campbell, 2005; Phan, 2011; Spanjers, Wouters, van Gog, & van Merriënboer, 2011; Tversky, Morrison, &Betrancourt, 2002 as cited in Cheon, Chung, Crooks, Song, & Kim, J. (2014)).Similarly Ploetzner et.al(2009) found that opposite to their expectations the students were unable to improve their understanding of line graphs using visualizations.Venkatraman Bhawani (2009) suggested that different learning styles need to be taken care of in a diverse classroom since not every student is always benefitted from the complex visualizations used. Some students might find it confusing to build correct mental models.Thus there is a need to understand how instructional strategies effect achievement in chemistry of Undergraduate students in India.

However, advantages of visualizations remain unaccomplished if they are simply exhibited in the classroom. (Windschitl and Andre1998 as cited in Banerjee et al.,2015).However if active learning strategies like prediction activity (Byrne et al. 1999) and peer instruction (Keller et al. 2007) are integrated with visualization, then they have shown positive learning outcome(Banerjee et al.,2015).Naps et al. (2002) have found in their study that the learning from visualizations influences the different engagement levels as categorized by them. Undoubtedly there is an urgent need of intervention in the implementation of interactive instructional strategies for the students in India. One such intervention was offered by this study.

Objective and Hypothesis

The objective was

To study the effect of Instructional Strategy of teaching chemistry, Gender and their interaction on Achievement in chemistry of undergraduate (UG) students of Jabalpur by taking their Pre-Achievement in chemistry as covariate.

The hypothesis formulated was

H0: There is no significant effect of Instructional Strategy of teaching chemistry, Gender and their interaction on Achievement in chemistry of undergraduate (UG) students of Jabalpur by taking their Pre-Achievement in chemistry as covariate.

Methodology

Experimental method was used by the researcher for this study. The researcher used Non-Equivalent Pre-test Post-test Control Group Designbelonging toQuasi Experimental Design.

Population : The undergraduate students of Autonomous A-accredited colleges (having chemistry as one of the subjects) of Jabalpur district were considered as the population.

Sample size: Stratified random sampling was used. The total sample size was 342 Undergraduate students of Jabalpur; where Experimental group had 185 participants and Control Group had 157 participants. There were a total of 107 females in experimental and 75 females in control group. There were 78 males in experimental group and 82 males in control group. The participants randomly selected for this study were from St. Aloysius College, Jabalpur and Government Model Science College, Jabalpur.

Treatment: Both the groups were taught for duration of one month. The experimental group was taught with interactive instructional methods integrated with animations, simulations and, three-dimensional videos as aids.

Tools: To measure the achievement in chemistry of the UG students, a standardised achievement test prepared by the researcher was used. The split half reliability or the Spearman's Brown coefficient of the standardised achievement test was found to be 0.899 & the KR20 reliability or Cronbach;s alpha was found to be 0.856 when N=20 items. The face and content validity were also established. Thus the achievement test in chemistry was standardised with the final number of items in the test as 20.

Findings & Interpretation

The data wereanalyzed by Two way Analysis of Covariance (ANCOVA) in SPSS. The tables so obtained are shown below in Table 1 and Table 2.

From Table 1 it can be seen that the adjusted F-value is 19.064 which is significant at 0.01 level with df= (1,337). So there was a significant effect of Instructional strategy on achievement in chemistry of undergraduate students when Pre-achievement in chemistry was taken as covariate. Thus the sub null hypothesis II.a) "There is no significant effect of Instructional strategy on achievement in chemistry of undergraduate students by taking Pre-achievement in chemistry as covariate" is rejected. From Table 2, the adjusted mean score of achievement in chemistry of undergraduate students taught through instructional strategy integrated with D.V is 11.691 which is significantly higher than those taught through Direct instruction whose adjusted mean score of achievement in chemistry is 10.635, when pre-achievement in chemistry was taken as covariate.

Table 1
Summary of 2 X 2 F.D ANCOVA of Achievement in chemistry of UG students by taking Pre-Achievement in chemistry as covariate

Source	Type III Sum of Squares	df	Mean Square	F
PRE.ACHVMNT	1199.528	1	1199.53	244.456
INSTRUCTIONAL.STRATEGY	93.548	1	93.548	19.064**
GENDER	78.227	1	78.227	15.942**
INSTRUCTIONAL.STRATEGY *GENDER	29.875	1	29.875	6.088*
Error		337		
Total	46620	342		
** significant at 0.01 level*significant at 0.05 level				

Table 2
Adjusted mean scores of achievement test of Experimental & control group, Female & Male students

		Adjusted mean scores
Instructional strategy	I.S integrated with D.V (Experimental)	11.691
	Direct Instruction (Control)	10.635
Gender	Female	11.65
	Male	10.676

The adjusted 'F'-value for Gender is 15.942 which is significant at 0.01 level with df= (1,337) (vide Table 1). So there was a significant effect of Gender on achievement in chemistry of undergraduate students when pre-achievement in chemistry was taken as covariate. Thus the sub null hypothesis II.b) "There is no significant effect of Gender on achievement in chemistry of undergraduate students by taking pre-achievement in chemistry as covariate" is rejected. Further from Table 2, the adjusted mean score of achievement in chemistry of female undergraduate students is 11.650 which is significantly higher

than that of the male undergraduate students whose adjusted mean score of achievement in chemistry is 10.676; when pre-achievement in chemistry was taken as covariate.

The adjusted 'F'-value for interaction between Instructional strategy and gender is 6.088 which is significant at 0.05 level of significance with df= (1,337) (vide Table 1). It indicates that the adjusted mean scores of achievement in chemistry of male and female undergraduate students taught through instructional strategy integrated with D.V and Direct instruction differ significantly when pre-achievement in chemistry was taken as covariate. Thus sub null hypothesis II.c)"There is no significant effect of interaction between Instructional strategy and gender on achievement in chemistry of undergraduate students by considering pre-achievement in chemistry as covariate" isrejected.

Findings

It was found that instructional strategy integrated with D.V was found to be significantly superior to Direct Instruction in terms of achievement in chemistry when pre-achievement in chemistry was taken as covariate. It was also found that the achievement in chemistry of female undergraduate students was found to be significantly superior to the achievement in chemistry of male undergraduate students when pre-achievement in chemistry was taken as covariate. Regarding the interaction it may be said that achievement in chemistry was found to be dependent on effect of interaction between Instructional strategy and gender when pre-achievement in chemistry was taken as covariate.

Educational Implications

One step towards reducing the skill gap between demand and supply of skilled force is to generate proficient youth. Thus if principles of multimedia learning are kept in mind and appropriate interactive Instructional strategy of teaching chemistry are used at the UG level, then surely the achievement of the learners; specially women can show an improvement thereby furnishing better and smarter young Indian workforce; with more skilled women personnel at the forefront.Effective & efficient IS would also promote the scientific temperament amongst learners, thus enabling them to become future researchers and scientists in their field. Ultimately effective teaching strategies will contribute towards holistic development of learners thereby generating efficient and skilled workforce for the nation.

Conclusion

The design and implementation of such active learning instructional strategies integrated with visualizations that result in effective learner engagement and improved learning outcomes in terms of achievement is an uphill task for the teachers at both school and undergraduate level.The effectiveness of such methods in Jabalpur region is established and if it is implemented at a country level then it could prove to be a great boon.

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